COMMONWEALTH OF KENTUCKY
BEFORE THE KENTUCKY STATE BOARD
ON ELECTRIC GENERATION AND TRANSMISSION SITING

In the Matter of the Application of AEUG Fleming Solar, LLC for a Construction Certificate to Construct a Merchant Electric Generating Facility	**)** **)** **)**	**Case No. 2020-00206**

NOTICE OF FILING AND
MOTION FOR APPROVAL

AEUG Fleming Solar, LLC (hereinafter, the "AEUG Fleming"), by counsel, provides notice of its filing of the attached glare study. AEUG Fleming submits that this glare study satisfies the requirements of conditions 12 and 13 of the Siting Board's Order dated May 24, 2021. Because condition 12 of the Order states that it is "conditioned upon the Siting Board's review and approval of the glare study once it is submitted," AEUG respectfully requests the Siting Board approve the submission of this study.

Respectfully submitted,

STURGILL, TURNER, BARKER & MOLONEY, PLLC
JAMES W. GARDNER
M. TODD OSTERLOH
333 W. Vine Street, Suite 1500
Lexington, Kentucky 40507
Telephone No.: (859) 255-8581
Fax No. (859) 231-0851
tosterloh@sturgillturner.com
jgardner@sturgillturner.com

ATTORNEYS FOR AEUG FLEMING SOLAR, LLC

TRC
708 Heartland Trl., Suite 3000
Madison, WI 53717

Main 608.826.3600

Technical Memorandum

Date	June 15, 2021
To:	AEUG Fleming Solar, LLC
From:	BreAnne Kahnk – Project Engineer
Reference No.:	440444.0002
Subject	Fleming County, Kentucky – Solar Glare Hazard Analysis

Introduction

AEUG Fleming Solar, LLC (Fleming Solar), is proposing to develop an approximately 188-megawatt (MW) alternating current (AC) solar photovoltaic (PV) project identified as the Fleming Solar Project (Project). The Project is located in Fleming County, Kentucky. Figure 1 demonstrates the proposed PV array locations for the Project.

Solar Glare Analysis Methodology

TRC conducted a solar glare analysis using methodology developed by Sandia National Laboratories and described in the Solar Glare Hazard Analysis Tool (SGHAT) User's Manual (Ho et al, 2013). The SGHAT-compliant software used in this analysis is under license to TRC by ForgeSolar.

Under certain conditions, solar panel surfaces reflect sunlight and produce glint (a momentary flash of bright light) or glare (a continuous source of bright light). Magnitude of glint and glare depends on several factors such as sun position, location of observer, and characteristics of the solar PV array including the tilt, orientation, location, and optical properties of the modules.

Glare visibility from the observer's location is analyzed once glare characteristics are determined. Ocular hazard potential is estimated based on retinal irradiance and subtended angle (size/distance) of the glare (Ho et al., 2010). Potential ocular hazards range from temporary after-image to retinal burn depending on the retinal irradiance and subtended angle as shown in Figure 2. The SGHAT classifies solar glare into three categories, denoted as either 'green', 'yellow', or 'red' glare.

- Green glare is the mildest of the three glare classifications and refers to a level of glare that has a low potential to cause after-image and no potential to cause retinal burn.
- Yellow glare is a moderate level of glare with some potential to cause temporary after-image and no potential to cause retinal burn.
- Red glare is a serious and significant form of glare with potential to cause retinal burn and/or permanent eye damage.

Limitations of the SGHAT applicable to this Project are as follows:

- The SGHAT does not rigorously represent the detailed geometry of a solar panel array; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, accuracy of the current approach is validated by several test cases.
- The model does not consider obstacles (either man-made or natural, existing or proposed) and mitigation measures between the observation points and prescribed solar installation that may obstruct predicted glare.
- The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain.

In general, default values given by the SGHAT in this analysis reflect the worst-case scenario. As such, the actual glare created by the proposed Project will likely be less than that predicted by this model.

Project Description

Preliminary layout and panel configuration have been developed by Fleming Solar. As the Project is further designed, it is likely that the actual Project footprint will be smaller than that used for this analysis.

The Project was modelled as 26 distinct array areas for this analysis. Due to limitations of ForgeSolar, the Project was split into two groupings of arrays.

Figure 1 depicts the proposed arrays, observation point (OP) locations, and route receptors evaluated. The same receptor parameters were used for both groupings of arrays analyzed.

Project Specifications

The PV panels for the Project are proposed to be mounted on a single-axis tracker racking system with axes that are oriented to the south (180° azimuth), and an east-west tilt angle ranging from 55° to -55°. The resting angle, which is defined as the angle of rotation of the panels when the sun is outside the panels' tracking range, is proposed to be 55°.

The panels are proposed to be mounted to the racking at approximately 5.5-feet above ground level (AGL). The glare analysis will be evaluated at the mounting height. No significant grading is currently proposed for the Project. The panel material is smooth glass without anti-reflective (AR) coating, as specified by Fleming Solar.

Observation Point Parameters

Solar glare hazard analyses were conducted for selected residences, churches, and schools located in vicinity of the Project using ForgeSolar's OP tool to estimate potential glare. Unoccupied structures, such as garages, sheds, barns, etc., were not analyzed.

The majority of OPs analyzed were provided by Fleming Solar. Several additional OPs were selected by TRC based on aerial imagery to provide a representative sampling of locations in the vicinity of the Project. A height of 6 feet was used to represent observers located at one-story residences. Heights of 6 and 16 feet were used for two-story residences to represent observers located on both the first and second floors. Table 1 summarizes the modelled characteristics of the selected OPs and their corresponding labels. Figure 1 shows the locations of the selected OPs in relation to the Project.

Table 1: Observation Points

Observation Point Label	Observation Point Location	Height (ft)
OP1	Assumed One Story Building	6
OP2	Assumed One Story Building	6
OP3	Assumed One Story Building	6
OP4	Hunter's Trace - Outside Observer	6
OP5	Church - Assumed One Story Building	6
OP6	High School - Assumed One Story Building	6
OP7	Assumed One Story Building	6
OP8	Assumed One Story Building	6
OP9	Assumed Two Story Building	6
OP10		16
OP11	Assumed Two Story Building	6
OP12		16
OP13	Assumed One Story Building	6
OP14	Assumed Two Story Building	6
OP15		16
OP16	Assumed Two Story Building	6
OP17		16

Route Receptors

TRC also analyzed the adjacent roadways, Nepton Road, Highway 170, Highway 32, and Highway 11, utilizing the Route Receptor in ForgeSolar. The Route Receptor provides a multi-line representation that simulates observers traveling along continuous paths such as roads, railways, helicopter paths, and multi-segment flight tracks. The viewing angle for observers traveling along all Roads and Highways was presumed to be a 180° field of view, which represents that the observer can view glare in all directions. The height for observers traveling along the roadway was assumed to be at 5 feet.

Additional Assumptions

The following assumptions have been utilized for the analyses:

- Time zone for the Project was set at UTC – 5 hours (Eastern Standard Time).

- Subtended angle of the sun of 9.3 milliradian (mrad) is assumed as recommended by SGHAT. This is the average angle of the sun as viewed from earth as it moves throughout the day.

- The time interval for the analysis was set to run at 1-minute increments.

Inputs, outputs, and other assumptions used in the analysis are documented in the solar glare hazard analysis report.

Results, Recommendations, and Conclusions

TRC conducted the solar glare hazard analysis using the FAA-approved SGHAT tool to evaluate potential impact of the Project on the evaluated OPs and Route Receptors. TRC evaluated the potential solar glare impact of the PV panels using the project specifications detailed above.

Table 2 the estimated total number of minutes per year that glare may be visible from the proposed Project at each OP and Route Receptor evaluated. These results are detailed in Attachment 1.

Table 2

Receptor	Green Glare (min/yr)	Yellow Glare (min/yr)	Red Glare (min/yr)
OP1	0	0	0
OP2	0	0	0
OP3	0	0	0
OP4	0	0	0
OP5	0	0	0
OP6	0	0	0
OP7	0	0	0
OP8	0	0	0
OP9	0	0	0
OP10	0	0	0
OP11	0	0	0
OP12	0	0	0
OP13	0	0	0
OP14	0	0	0
OP15	0	0	0
OP16	0	0	0
OP17	0	0	0
Highway 11	0	0	0
Highway 170	0	0	0
Highway 32	0	0	0
Highway 559	0	0	0
Nepton Road	0	0	0

Based on the glare hazard analysis performed for the Project with the project specifications provided above, no green, yellow, or red glare is expected to be visible at the OPs and along the Route Receptors evaluated. It should be noted that changes to the Project specifications listed above may affect the results of this analysis. In addition, vegetative screening may further mitigate visual impacts from the Project arrays.

References

Ho, C.K., C.M. Ghanbari, and R.B. Driver. 2010. Methodology to Assess Potential Glare Hazards from Concentrating Solar Power Plants: Analytical Models and Experimental Validation, SAND2010-2581C, in proceedings of the 4th International Conference on Energy Sustainability, Phoenix, AZ, May 17-22.

Ho, C.K., and C.A. Sims. 2013. Solar Glare Hazard Analysis Tool (SGHAT) User's Manual v 3.0.

Figures

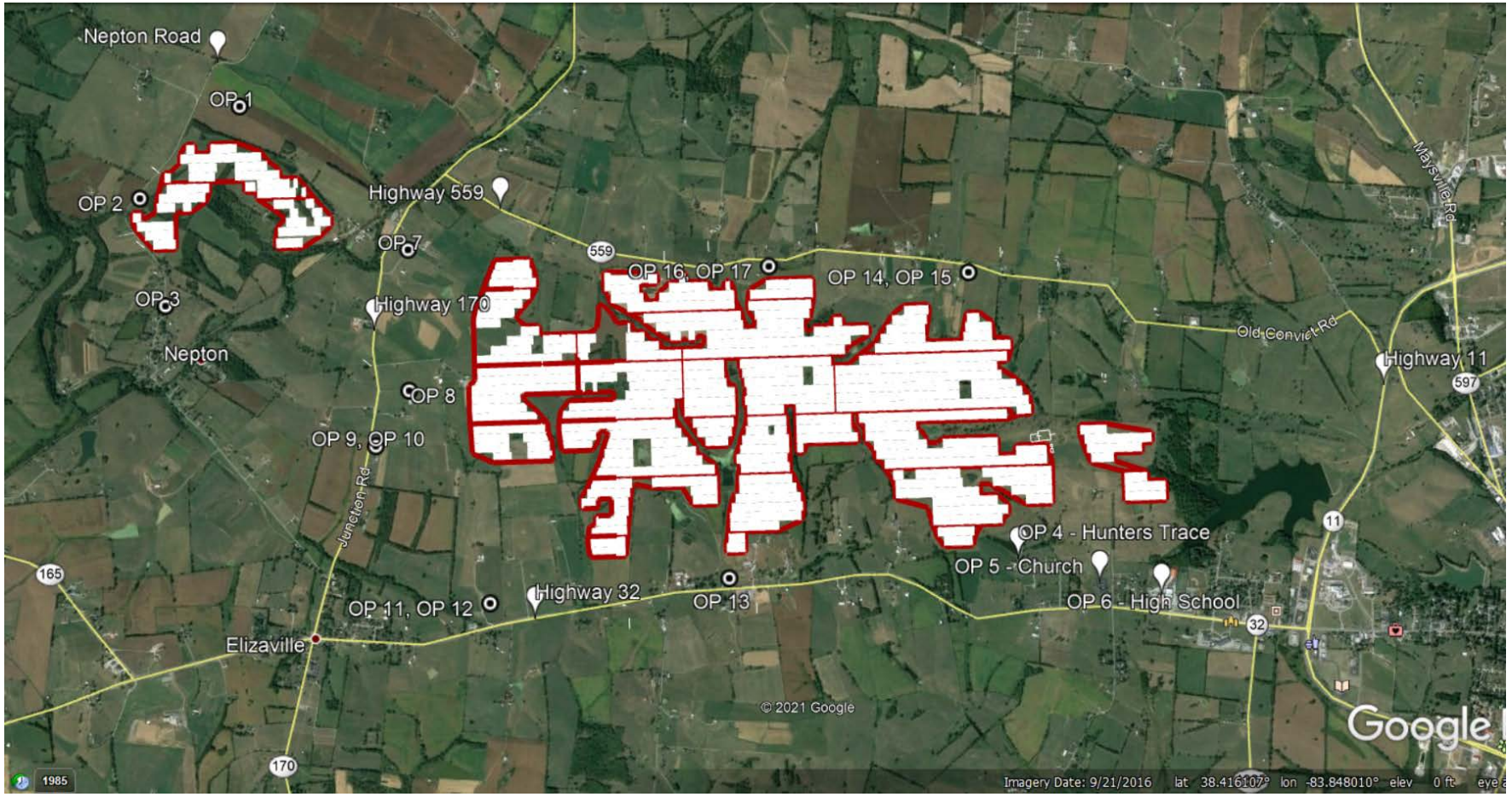
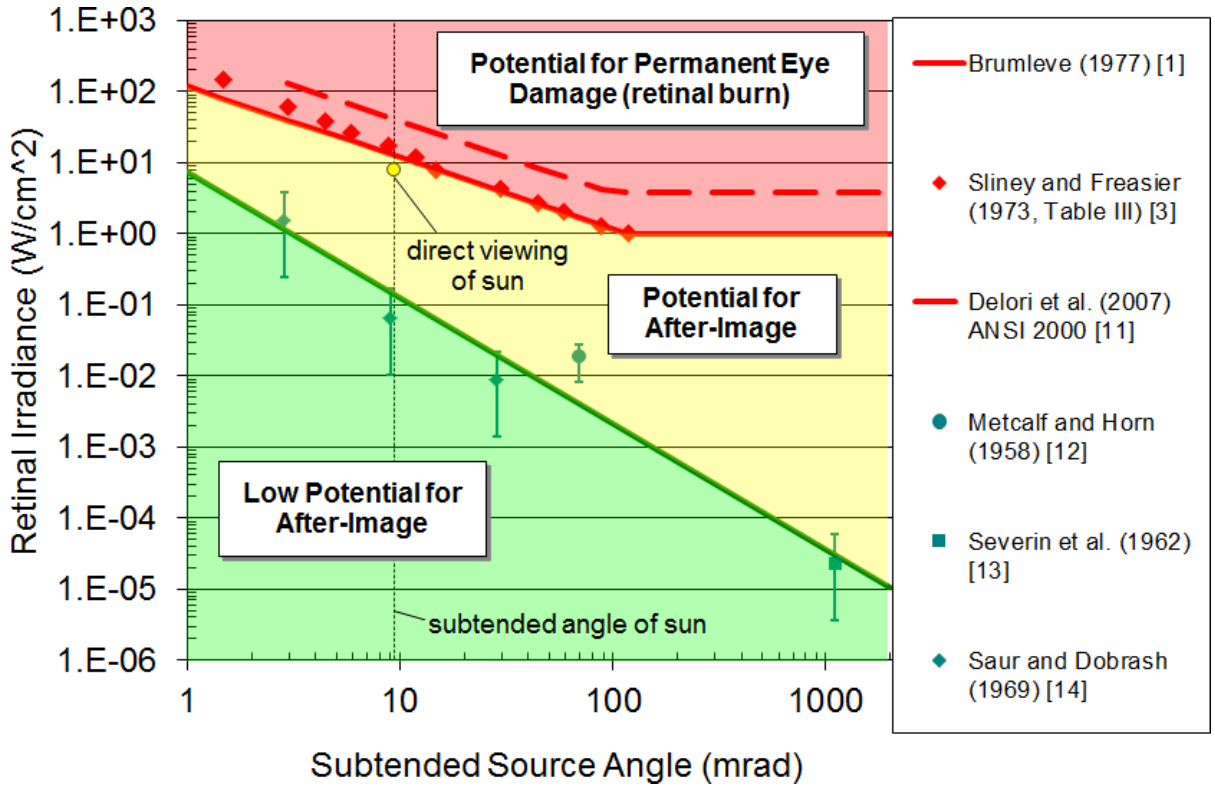


Figure 1. Fleming Solar Site with Observation Points and Route Receptor Locations



Airport Feature	FAA Acceptable Glare Limit	Color Code
Runways	No Glare	None
	Low potential for after image	Green
ATCT	No Glare	None

Note:

After image (flash blindness) is an internal picture that appears on the retina after looking at an object reflecting light or at a source of light itself.

Figure 2. Glare Hazard Analysis Plot and FAA Acceptable Glare Limits (Ho et al., 2011 and FAA, 2013)

Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions.

Several 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.)

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.

The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.

Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.

Attachment 1

Fleming County Solar Project
Solar Glare Hazard Analysis

FORGESOLAR GLARE ANALYSIS

Project: **Acciona Fleming**
Proposed solar facility in Fleming County, Kentucky.

Site configuration: **Fleming Kentucky - West**
Analysis conducted by BreAnne Kahnk (bkahnk@trccompanies.com) at 16:02 on 15 Jun, 2021.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

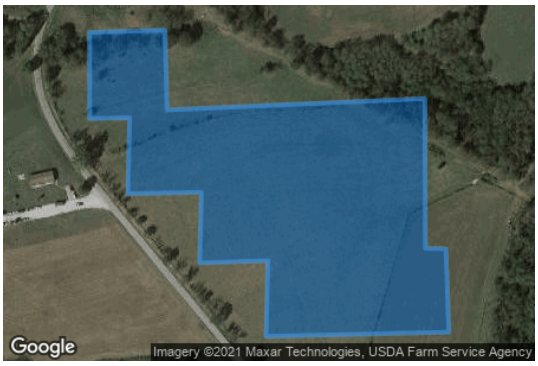
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 54657.9786

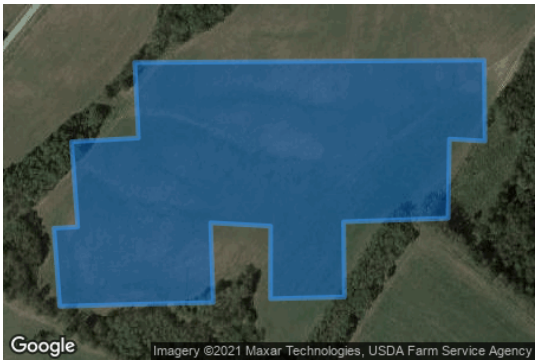
PV Array(s)

Name: PV Array 01
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.443829	-83.839345	854.99	5.50	860.49
2	38.443845	-83.838660	860.64	5.50	866.14
3	38.443279	-83.838640	879.00	5.50	884.50
4	38.443360	-83.836302	900.78	5.50	906.28
5	38.442300	-83.836296	919.03	5.50	924.53
6	38.442296	-83.836110	918.51	5.50	924.01
7	38.441705	-83.836083	923.83	5.50	929.33
8	38.441676	-83.837743	889.12	5.50	894.62
9	38.442212	-83.837726	899.28	5.50	904.78
10	38.442196	-83.838345	888.50	5.50	894.00
11	38.442696	-83.838329	898.44	5.50	903.94
12	38.442686	-83.838998	895.02	5.50	900.52
13	38.443224	-83.838980	879.37	5.50	884.87
14	38.443218	-83.839343	877.39	5.50	882.89

Name: PV Array 02
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

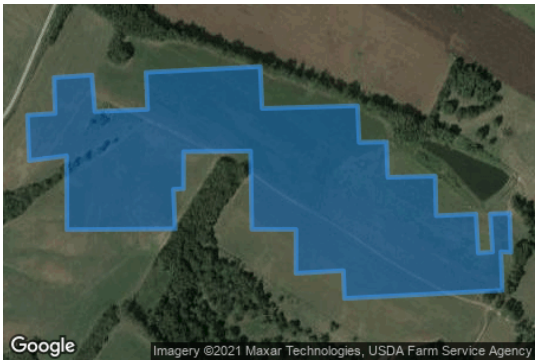


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.445515	-83.836875	881.25	5.50	886.75
2	38.445532	-83.833702	914.57	5.50	920.08
3	38.444960	-83.833696	913.95	5.50	919.45
4	38.444974	-83.834018	920.56	5.50	926.06
5	38.444413	-83.834030	931.52	5.50	937.02
6	38.444388	-83.834979	925.10	5.50	930.60
7	38.443856	-83.834971	936.31	5.50	941.81
8	38.443842	-83.835643	911.55	5.50	917.05
9	38.444357	-83.835641	915.39	5.50	920.89
10	38.444381	-83.836186	905.44	5.50	910.94
11	38.443816	-83.836162	904.54	5.50	910.04
12	38.443790	-83.837555	872.22	5.50	877.72
13	38.444342	-83.837607	876.94	5.50	882.44
14	38.444352	-83.837392	881.25	5.50	886.75
15	38.444955	-83.837448	876.53	5.50	882.03
16	38.444981	-83.836841	880.23	5.50	885.73

Name: PV Array 03
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.446100	-83.837049	902.07	5.50	907.57
2	38.446106	-83.836559	898.18	5.50	903.68
3	38.445540	-83.836530	883.87	5.50	889.37
4	38.445519	-83.837041	879.64	5.50	885.14

Name: PV Array 04
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

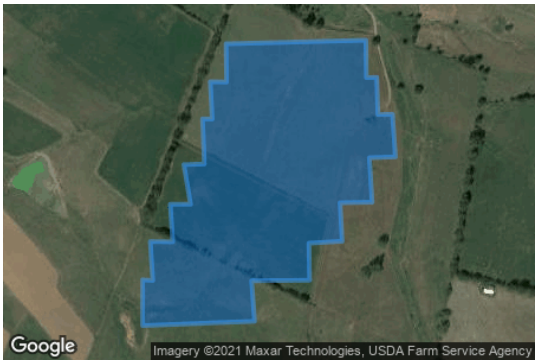


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.447750	-83.835496	940.53	5.50	946.03
2	38.447785	-83.834809	951.27	5.50	956.77
3	38.447267	-83.834755	941.13	5.50	946.63
4	38.447299	-83.833798	948.30	5.50	953.80
5	38.447823	-83.833827	955.19	5.50	960.69
6	38.447905	-83.831753	931.72	5.50	937.22
7	38.447312	-83.831719	943.86	5.50	949.36
8	38.447351	-83.829988	909.69	5.50	915.19
9	38.446831	-83.829959	913.86	5.50	919.36
10	38.446838	-83.829463	901.09	5.50	906.59
11	38.446337	-83.829439	913.06	5.50	918.56
12	38.446354	-83.828577	901.34	5.50	906.84
13	38.445792	-83.828561	916.36	5.50	921.86
14	38.445817	-83.827838	895.99	5.50	901.49
15	38.445265	-83.827798	898.49	5.50	903.99
16	38.445279	-83.827536	897.36	5.50	902.86
17	38.445819	-83.827579	889.34	5.50	894.85
18	38.445830	-83.827226	881.72	5.50	887.22
19	38.445271	-83.827204	894.82	5.50	900.32
20	38.445283	-83.827386	896.26	5.50	901.76
21	38.444735	-83.827358	918.24	5.50	923.74
22	38.444620	-83.830225	928.98	5.50	934.48
23	38.445015	-83.830245	938.28	5.50	943.78
24	38.444976	-83.831106	928.17	5.50	933.67
25	38.445598	-83.831105	942.83	5.50	948.33
26	38.445601	-83.831906	933.04	5.50	938.54
27	38.446708	-83.831930	948.74	5.50	954.24
28	38.446699	-83.833145	940.93	5.50	946.43
29	38.446176	-83.833146	923.63	5.50	929.13
30	38.446166	-83.833330	927.08	5.50	932.58
31	38.445607	-83.833298	919.03	5.50	924.53
32	38.445595	-83.835263	917.71	5.50	923.21
33	38.446642	-83.835270	914.53	5.50	920.03
34	38.446572	-83.835946	915.40	5.50	920.90
35	38.447216	-83.835980	932.28	5.50	937.78
36	38.447241	-83.835476	937.98	5.50	943.48

Name: PV Array 05
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

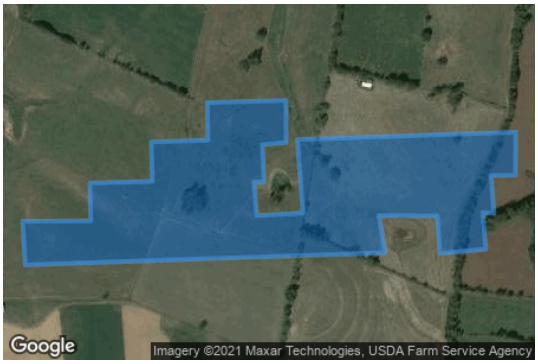
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.445309	-83.826959	888.62	5.50	894.12
2	38.445313	-83.826585	876.19	5.50	881.69
3	38.444743	-83.826553	887.84	5.50	893.34
4	38.444707	-83.825976	874.82	5.50	880.32
5	38.444150	-83.825965	886.46	5.50	891.96
6	38.444156	-83.825397	871.43	5.50	876.93
7	38.443628	-83.825383	885.47	5.50	890.97
8	38.443645	-83.824768	869.96	5.50	875.46
9	38.443031	-83.824765	874.87	5.50	880.37
10	38.443002	-83.825492	882.30	5.50	887.80
11	38.442494	-83.825470	869.05	5.50	874.55
12	38.442458	-83.826791	882.70	5.50	888.20
13	38.441801	-83.826947	863.41	5.50	868.91
14	38.441657	-83.828855	858.09	5.50	863.59
15	38.442335	-83.828862	874.83	5.50	880.33
16	38.442346	-83.828602	883.74	5.50	889.24
17	38.443014	-83.828645	892.19	5.50	897.69
18	38.443023	-83.828064	911.27	5.50	916.77
19	38.443553	-83.828087	919.78	5.50	925.29
20	38.443563	-83.827776	920.96	5.50	926.46
21	38.444025	-83.827786	925.89	5.50	931.39
22	38.443962	-83.829021	921.41	5.50	926.91
23	38.444623	-83.829012	933.24	5.50	938.74
24	38.444628	-83.827460	923.48	5.50	928.98
25	38.444108	-83.827451	926.18	5.50	931.68
26	38.444109	-83.827162	923.89	5.50	929.39
27	38.443571	-83.827136	922.88	5.50	928.38
28	38.443582	-83.826544	916.96	5.50	922.46
29	38.443068	-83.826529	896.00	5.50	901.50
30	38.443077	-83.825989	888.67	5.50	894.17
31	38.443560	-83.825988	900.69	5.50	906.19
32	38.443542	-83.826179	904.99	5.50	910.49
33	38.444094	-83.826164	895.04	5.50	900.54
34	38.444020	-83.826637	914.81	5.50	920.31
35	38.444644	-83.826676	895.18	5.50	900.68
36	38.444675	-83.826971	906.90	5.50	912.40

Name: PV Array 06
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



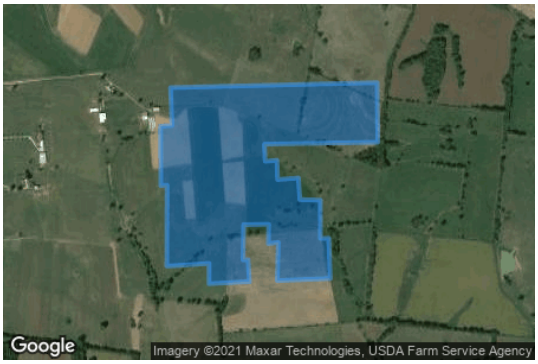
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.441101	-83.812740	921.95	5.50	927.45
2	38.441153	-83.810203	880.73	5.50	886.23
3	38.440623	-83.810194	899.10	5.50	904.60
4	38.440627	-83.810005	891.50	5.50	897.00
5	38.440100	-83.809985	898.99	5.50	904.49
6	38.440103	-83.809720	895.36	5.50	900.86
7	38.439501	-83.809667	902.52	5.50	908.02
8	38.439487	-83.810139	917.67	5.50	923.17
9	38.438858	-83.810090	913.54	5.50	919.04
10	38.438850	-83.810672	933.45	5.50	938.95
11	38.438305	-83.810633	934.18	5.50	939.68
12	38.438278	-83.811236	951.60	5.50	957.10
13	38.437753	-83.811224	950.36	5.50	955.86
14	38.437745	-83.812277	944.00	5.50	949.50
15	38.437172	-83.812223	930.54	5.50	936.04
16	38.437110	-83.814255	906.17	5.50	911.67
17	38.437760	-83.814254	914.71	5.50	920.21
18	38.437749	-83.814070	918.51	5.50	924.01
19	38.438302	-83.814116	926.12	5.50	931.62
20	38.438297	-83.813708	936.41	5.50	941.91
21	38.438830	-83.813753	935.38	5.50	940.88
22	38.438829	-83.813384	942.91	5.50	948.41
23	38.439390	-83.813507	937.93	5.50	943.43
24	38.439399	-83.813134	930.72	5.50	936.22
25	38.440039	-83.813168	935.11	5.50	940.61
26	38.440036	-83.812991	931.91	5.50	937.41
27	38.440565	-83.813027	933.47	5.50	938.97
28	38.440560	-83.812731	929.37	5.50	934.87

Name: PV Array 07
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.437345	-83.810871	954.82	5.50	960.32
2	38.437376	-83.809445	915.98	5.50	921.48
3	38.436777	-83.809441	928.76	5.50	934.26
4	38.436748	-83.809870	943.12	5.50	948.63
5	38.436218	-83.809842	942.45	5.50	947.95
6	38.436216	-83.810026	948.74	5.50	954.24
7	38.435743	-83.809973	959.99	5.50	965.49
8	38.435780	-83.809134	958.10	5.50	963.60
9	38.436823	-83.809237	922.93	5.50	928.43
10	38.436927	-83.805273	950.94	5.50	956.44
11	38.436316	-83.805279	949.55	5.50	955.05
12	38.436309	-83.805720	961.07	5.50	966.57
13	38.435775	-83.805668	957.70	5.50	963.20
14	38.435787	-83.805872	962.49	5.50	967.99
15	38.435268	-83.805817	969.61	5.50	975.11
16	38.435207	-83.806647	971.15	5.50	976.65
17	38.435740	-83.806697	970.56	5.50	976.06
18	38.435743	-83.807758	949.49	5.50	954.99
19	38.435218	-83.807645	958.10	5.50	963.60
20	38.435045	-83.814175	936.85	5.50	942.35
21	38.435664	-83.814224	926.13	5.50	931.63
22	38.435669	-83.812986	940.96	5.50	946.46
23	38.436206	-83.813001	945.92	5.50	951.42
24	38.436229	-83.811866	964.20	5.50	969.70
25	38.436787	-83.811889	939.58	5.50	945.08
26	38.436812	-83.810859	960.33	5.50	965.83

Name: PV Array 08
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.435034	-83.814174	937.22	5.50	942.73
2	38.435179	-83.806672	971.08	5.50	976.58
3	38.433489	-83.806652	950.27	5.50	955.77
4	38.433433	-83.810766	945.95	5.50	951.45
5	38.432951	-83.810734	949.03	5.50	954.53
6	38.432976	-83.810310	941.41	5.50	946.91
7	38.432432	-83.810286	952.19	5.50	957.69
8	38.432477	-83.809531	937.08	5.50	942.58
9	38.431866	-83.809477	942.38	5.50	947.88
10	38.431847	-83.808734	928.75	5.50	934.25
11	38.430765	-83.808732	935.20	5.50	940.70
12	38.430768	-83.808431	927.93	5.50	933.43
13	38.429629	-83.808372	931.58	5.50	937.08
14	38.429569	-83.810299	951.29	5.50	956.79
15	38.430652	-83.810261	963.39	5.50	968.89
16	38.430614	-83.810623	967.89	5.50	973.39
17	38.431164	-83.810609	957.57	5.50	963.07
18	38.431153	-83.811520	960.79	5.50	966.29
19	38.430158	-83.811540	965.25	5.50	970.75
20	38.430158	-83.811358	963.63	5.50	969.13
21	38.429539	-83.811310	960.59	5.50	966.09
22	38.429480	-83.812776	947.54	5.50	953.04
23	38.430056	-83.812772	940.40	5.50	945.90
24	38.429979	-83.814307	927.38	5.50	932.88
25	38.432273	-83.814299	948.78	5.50	954.28
26	38.432260	-83.814525	950.56	5.50	956.06
27	38.433940	-83.814535	963.28	5.50	968.78
28	38.433963	-83.814118	968.68	5.50	974.18

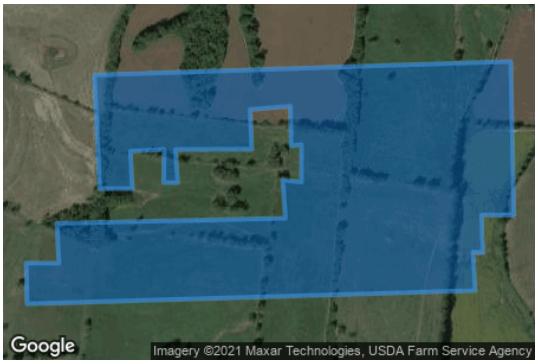
Name: PV Array 09
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.440397	-83.804767	907.30	5.50	912.80
2	38.440406	-83.804257	915.49	5.50	920.99
3	38.440229	-83.804259	921.69	5.50	927.19
4	38.440291	-83.802094	932.36	5.50	937.86
5	38.440366	-83.802082	928.26	5.50	933.76
6	38.440364	-83.801457	931.73	5.50	937.23
7	38.440297	-83.801443	934.59	5.50	940.09
8	38.440314	-83.800871	937.15	5.50	942.65
9	38.439727	-83.800843	956.13	5.50	961.63
10	38.439709	-83.801468	956.91	5.50	962.41
11	38.439802	-83.801480	954.62	5.50	960.12
12	38.439781	-83.802024	951.79	5.50	957.29
13	38.439709	-83.802011	953.63	5.50	959.13
14	38.439706	-83.802202	953.26	5.50	958.76
15	38.439231	-83.802130	958.05	5.50	963.55
16	38.439223	-83.801869	957.89	5.50	963.39
17	38.438710	-83.801818	943.87	5.50	949.37
18	38.438744	-83.800708	940.89	5.50	946.39
19	38.439290	-83.800755	947.85	5.50	953.35
20	38.439305	-83.800026	952.47	5.50	957.97
21	38.439886	-83.799993	950.13	5.50	955.63
22	38.439861	-83.799303	948.64	5.50	954.14
23	38.440381	-83.799319	943.67	5.50	949.17
24	38.440387	-83.798779	946.54	5.50	952.04
25	38.439856	-83.798756	956.27	5.50	961.77
26	38.439905	-83.797140	975.22	5.50	980.72
27	38.439368	-83.797128	969.93	5.50	975.43
28	38.439390	-83.795899	959.58	5.50	965.08
29	38.439941	-83.795914	958.75	5.50	964.25
30	38.439937	-83.795557	950.02	5.50	955.52
31	38.439411	-83.795514	957.32	5.50	962.82
32	38.439401	-83.795226	951.22	5.50	956.72
33	38.438311	-83.795150	970.69	5.50	976.20
34	38.438068	-83.803046	918.12	5.50	923.62
35	38.438636	-83.803053	935.75	5.50	941.25
36	38.438585	-83.804238	908.86	5.50	914.36
37	38.439271	-83.804286	919.92	5.50	925.42
38	38.439269	-83.804727	907.15	5.50	912.65

Name: PV Array 10
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

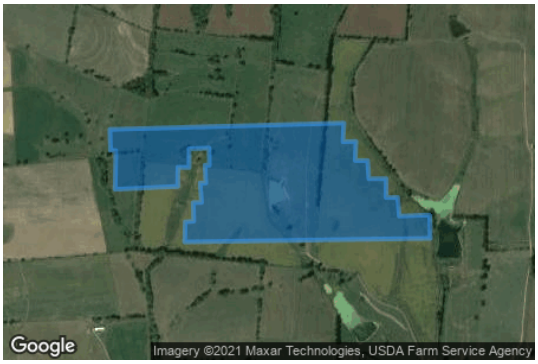
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.437501	-83.803004	929.77	5.50	935.27
2	38.437498	-83.802845	928.25	5.50	933.75
3	38.436965	-83.802807	943.46	5.50	948.96
4	38.436985	-83.801784	926.80	5.50	932.30
5	38.436465	-83.801751	939.26	5.50	944.76
6	38.436497	-83.800715	935.04	5.50	940.54
7	38.435954	-83.800698	950.76	5.50	956.26
8	38.436008	-83.799071	948.32	5.50	953.82
9	38.435423	-83.799038	964.33	5.50	969.83
10	38.435321	-83.803069	966.37	5.50	971.88
11	38.436957	-83.803126	942.38	5.50	947.88
12	38.436972	-83.802985	942.70	5.50	948.20

Name: PV Array 11
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



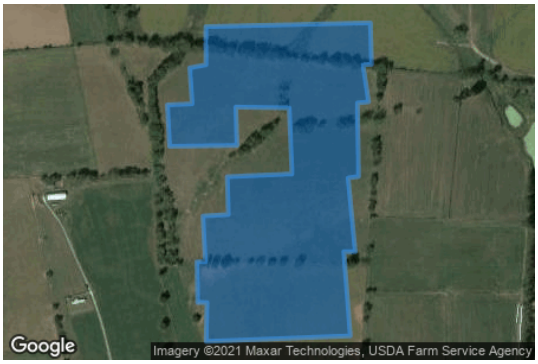
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.435164	-83.806591	974.19	5.50	979.70
2	38.435355	-83.799032	966.82	5.50	972.32
3	38.433178	-83.798976	958.25	5.50	963.75
4	38.433181	-83.799562	956.83	5.50	962.33
5	38.432649	-83.799541	949.87	5.50	955.37
6	38.432657	-83.799719	953.16	5.50	958.66
7	38.432109	-83.799678	958.52	5.50	964.02
8	38.431921	-83.807813	931.68	5.50	937.18
9	38.432500	-83.807828	933.69	5.50	939.19
10	38.432497	-83.807233	945.20	5.50	950.70
11	38.433063	-83.807271	945.30	5.50	950.80
12	38.433136	-83.803122	975.75	5.50	981.25
13	38.433675	-83.803173	973.92	5.50	979.42
14	38.433648	-83.802832	975.83	5.50	981.33
15	38.434178	-83.802831	980.35	5.50	985.85
16	38.434159	-83.803021	978.14	5.50	983.64
17	38.434720	-83.803032	974.70	5.50	980.20
18	38.434675	-83.803763	972.09	5.50	977.59
19	38.434113	-83.803731	975.66	5.50	981.16
20	38.434109	-83.805119	970.44	5.50	975.94
21	38.433638	-83.805076	955.69	5.50	961.19
22	38.433638	-83.805334	955.98	5.50	961.48
23	38.434109	-83.805323	970.39	5.50	975.89
24	38.434084	-83.805935	966.17	5.50	971.67
25	38.433554	-83.805902	949.78	5.50	955.28
26	38.433554	-83.806493	954.75	5.50	960.25

Name: PV Array 12
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



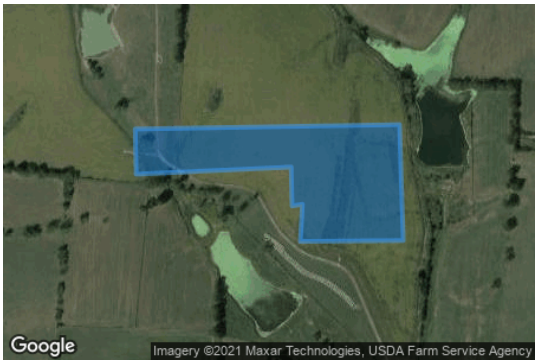
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.431869	-83.807963	937.86	5.50	943.36
2	38.432050	-83.799468	955.29	5.50	960.79
3	38.431520	-83.799504	960.62	5.50	966.12
4	38.431529	-83.799030	949.20	5.50	954.70
5	38.430986	-83.799057	955.64	5.50	961.14
6	38.430988	-83.798606	947.17	5.50	952.67
7	38.430469	-83.798560	952.41	5.50	957.91
8	38.430471	-83.797932	941.63	5.50	947.13
9	38.429936	-83.797937	947.36	5.50	952.86
10	38.429941	-83.797516	943.80	5.50	949.31
11	38.429414	-83.797457	958.11	5.50	963.61
12	38.429443	-83.796352	940.17	5.50	945.67
13	38.428782	-83.796330	939.92	5.50	945.42
14	38.428680	-83.805249	936.85	5.50	942.35
15	38.429250	-83.805226	935.14	5.50	940.64
16	38.429270	-83.804919	944.11	5.50	949.61
17	38.429793	-83.804939	941.88	5.50	947.38
18	38.429801	-83.804634	949.17	5.50	954.67
19	38.430349	-83.804691	946.01	5.50	951.51
20	38.430349	-83.804480	951.49	5.50	956.99
21	38.430855	-83.804512	952.90	5.50	958.40
22	38.430853	-83.804352	956.97	5.50	962.47
23	38.431340	-83.804361	951.48	5.50	956.98
24	38.431322	-83.805088	962.31	5.50	967.81
25	38.430788	-83.805084	945.04	5.50	950.54
26	38.430798	-83.805492	953.91	5.50	959.41
27	38.430255	-83.805499	942.62	5.50	948.12
28	38.430172	-83.807771	925.37	5.50	930.87
29	38.431267	-83.807746	943.78	5.50	949.28
30	38.431273	-83.807939	936.52	5.50	942.02

Name: PV Array 13
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



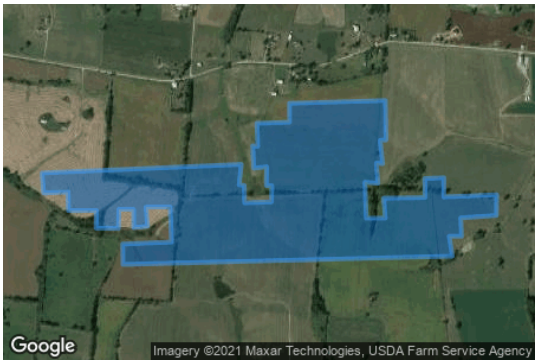
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.428621	-83.805619	926.21	5.50	931.71
2	38.428675	-83.802632	961.24	5.50	966.74
3	38.428087	-83.802611	959.90	5.50	965.40
4	38.428079	-83.802766	958.26	5.50	963.76
5	38.427555	-83.802664	945.86	5.50	951.36
6	38.427540	-83.802867	944.43	5.50	949.93
7	38.426498	-83.802846	954.23	5.50	959.73
8	38.426478	-83.803036	950.50	5.50	956.00
9	38.425435	-83.802908	945.47	5.50	950.97
10	38.425433	-83.803114	940.68	5.50	946.18
11	38.424241	-83.802997	949.13	5.50	954.63
12	38.424161	-83.805613	896.41	5.50	901.91
13	38.424712	-83.805598	902.69	5.50	908.19
14	38.424714	-83.805767	901.31	5.50	906.81
15	38.425289	-83.805780	906.53	5.50	912.03
16	38.425290	-83.805628	909.29	5.50	914.79
17	38.425939	-83.805672	910.22	5.50	915.72
18	38.425960	-83.805211	924.54	5.50	930.04
19	38.426495	-83.805230	916.34	5.50	921.84
20	38.426535	-83.804055	941.40	5.50	946.90
21	38.427469	-83.804105	928.07	5.50	933.57
22	38.427481	-83.805075	936.51	5.50	942.01
23	38.426939	-83.805053	920.43	5.50	925.93
24	38.426925	-83.806276	911.73	5.50	917.23
25	38.427513	-83.806317	917.89	5.50	923.39
26	38.427528	-83.805867	930.01	5.50	935.51
27	38.428037	-83.805911	925.04	5.50	930.54
28	38.428082	-83.805616	933.18	5.50	938.68

Name: PV Array 14
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



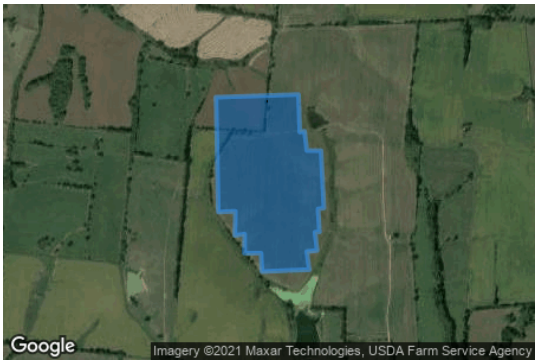
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.428717	-83.801215	944.34	5.50	949.84
2	38.428780	-83.796417	942.03	5.50	947.53
3	38.427138	-83.796350	935.81	5.50	941.31
4	38.427125	-83.798218	954.91	5.50	960.41
5	38.427652	-83.798180	961.37	5.50	966.87
6	38.427627	-83.798367	959.20	5.50	964.70
7	38.428178	-83.798386	962.34	5.50	967.84
8	38.428077	-83.801198	950.32	5.50	955.82

Name: PV Array 15
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



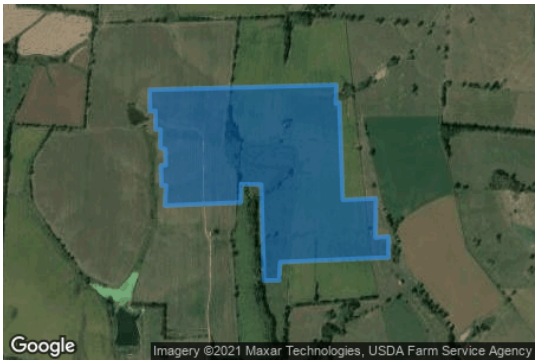
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.438031	-83.801884	932.62	5.50	938.12
2	38.438275	-83.794654	956.89	5.50	962.39
3	38.437694	-83.794729	963.80	5.50	969.30
4	38.437674	-83.794546	962.13	5.50	967.63
5	38.437182	-83.794534	973.35	5.50	978.85
6	38.437213	-83.793557	979.64	5.50	985.14
7	38.437669	-83.793547	969.47	5.50	974.97
8	38.437671	-83.793742	965.70	5.50	971.20
9	38.438207	-83.793731	975.66	5.50	981.16
10	38.438166	-83.794197	963.71	5.50	969.21
11	38.438799	-83.794242	963.05	5.50	968.55
12	38.438786	-83.794055	968.59	5.50	974.09
13	38.439437	-83.794088	958.81	5.50	964.31
14	38.439470	-83.792901	965.29	5.50	970.79
15	38.440003	-83.792905	981.48	5.50	986.98
16	38.440083	-83.789421	985.23	5.50	990.73
17	38.438966	-83.789401	972.13	5.50	977.63
18	38.438958	-83.789613	977.25	5.50	982.75
19	38.438293	-83.789521	975.60	5.50	981.10
20	38.438308	-83.789753	981.09	5.50	986.59
21	38.437737	-83.789691	966.55	5.50	972.05
22	38.437770	-83.790165	975.21	5.50	980.71
23	38.436749	-83.790117	980.37	5.50	985.87
24	38.436750	-83.789426	984.92	5.50	990.42
25	38.437316	-83.789481	976.13	5.50	981.63
26	38.437335	-83.787985	989.53	5.50	995.03
27	38.437875	-83.787988	973.12	5.50	978.62
28	38.437897	-83.787302	979.32	5.50	984.82
29	38.437351	-83.787297	993.55	5.50	999.05
30	38.437415	-83.785381	965.39	5.50	970.89
31	38.436828	-83.785392	952.99	5.50	958.49
32	38.436756	-83.786685	980.24	5.50	985.74
33	38.436237	-83.786658	969.88	5.50	975.38
34	38.436236	-83.787105	975.08	5.50	980.58
35	38.435674	-83.786992	970.10	5.50	975.60
36	38.435439	-83.798950	963.83	5.50	969.33
37	38.436017	-83.798959	947.56	5.50	953.06
38	38.436073	-83.797186	964.53	5.50	970.03
39	38.437070	-83.797234	965.83	5.50	971.33
40	38.437064	-83.798113	965.31	5.50	970.81
41	38.436527	-83.798059	950.61	5.50	956.11
42	38.436480	-83.798559	947.46	5.50	952.96
43	38.436998	-83.798559	960.20	5.50	965.70
44	38.437002	-83.799093	951.67	5.50	957.17
45	38.436459	-83.799114	944.72	5.50	950.22
46	38.436468	-83.799926	936.66	5.50	942.16
47	38.436970	-83.799914	941.82	5.50	947.32
48	38.436963	-83.800930	930.14	5.50	935.64
49	38.437490	-83.800940	945.63	5.50	951.13
50	38.437466	-83.801828	929.48	5.50	934.98

Name: PV Array 16
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



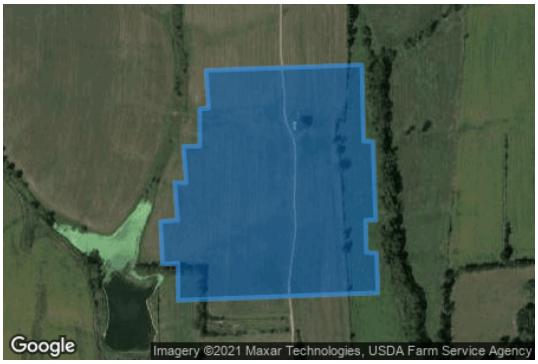
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.435370	-83.798962	966.13	5.50	971.63
2	38.435446	-83.795965	972.82	5.50	978.32
3	38.434383	-83.795919	976.89	5.50	982.39
4	38.434404	-83.795749	972.42	5.50	977.92
5	38.433860	-83.795661	970.90	5.50	976.40
6	38.433855	-83.795148	959.53	5.50	965.03
7	38.432231	-83.795044	949.22	5.50	954.72
8	38.432202	-83.795257	953.32	5.50	958.82
9	38.431556	-83.795202	945.15	5.50	950.65
10	38.431548	-83.795367	950.64	5.50	956.14
11	38.431030	-83.795290	940.99	5.50	946.49
12	38.430994	-83.795666	948.45	5.50	953.95
13	38.430482	-83.795576	938.84	5.50	944.34
14	38.430428	-83.797292	935.72	5.50	941.22
15	38.430951	-83.797327	951.50	5.50	957.00
16	38.430947	-83.797926	941.89	5.50	947.39
17	38.431490	-83.797923	954.42	5.50	959.92
18	38.431453	-83.798276	945.64	5.50	951.14
19	38.432138	-83.798256	961.05	5.50	966.55
20	38.432117	-83.798877	947.05	5.50	952.55

Name: PV Array 17
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



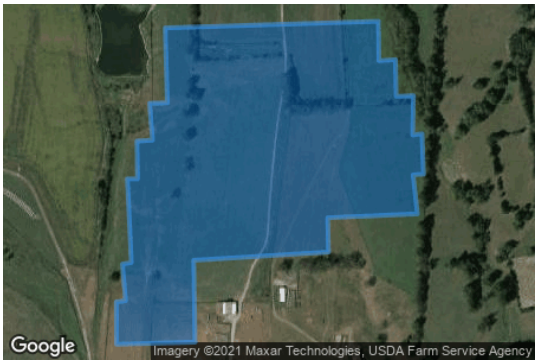
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.435478	-83.794847	978.65	5.50	984.15
2	38.435620	-83.788064	978.45	5.50	983.95
3	38.435092	-83.788089	974.24	5.50	979.74
4	38.435110	-83.787959	974.30	5.50	979.80
5	38.432363	-83.787834	991.88	5.50	997.38
6	38.432399	-83.786631	973.49	5.50	978.99
7	38.431292	-83.786648	968.19	5.50	973.69
8	38.431325	-83.786168	963.83	5.50	969.33
9	38.430728	-83.786173	964.11	5.50	969.61
10	38.430595	-83.790108	966.53	5.50	972.03
11	38.430081	-83.790142	958.60	5.50	964.10
12	38.430073	-83.790699	948.52	5.50	954.02
13	38.432791	-83.790799	969.48	5.50	974.98
14	38.432797	-83.791530	963.94	5.50	969.44
15	38.432286	-83.791528	962.64	5.50	968.14
16	38.432196	-83.794288	950.53	5.50	956.03
17	38.432766	-83.794256	950.41	5.50	955.91
18	38.432769	-83.794417	948.85	5.50	954.36
19	38.433334	-83.794442	953.01	5.50	958.51
20	38.433346	-83.794264	956.82	5.50	962.32
21	38.433791	-83.794279	961.62	5.50	967.12
22	38.433835	-83.794463	957.38	5.50	962.88
23	38.434355	-83.794450	963.21	5.50	968.71
24	38.434356	-83.794630	963.89	5.50	969.39
25	38.434879	-83.794637	976.95	5.50	982.46
26	38.434867	-83.794836	973.27	5.50	978.77

Name: PV Array 18
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.432171	-83.794243	952.33	5.50	957.83
2	38.432249	-83.791413	960.78	5.50	966.28
3	38.431170	-83.791382	962.99	5.50	968.49
4	38.431165	-83.791212	959.59	5.50	965.09
5	38.430052	-83.791162	951.29	5.50	956.79
6	38.430045	-83.791345	956.45	5.50	961.95
7	38.429593	-83.791333	956.58	5.50	962.08
8	38.429585	-83.791147	952.05	5.50	957.55
9	38.429019	-83.791123	948.63	5.50	954.13
10	38.428912	-83.794751	943.94	5.50	949.44
11	38.429435	-83.794752	937.54	5.50	943.04
12	38.429425	-83.795032	937.20	5.50	942.70
13	38.430027	-83.795068	938.95	5.50	944.45
14	38.430049	-83.794760	945.23	5.50	950.73
15	38.430582	-83.794813	940.25	5.50	945.75
16	38.430577	-83.794602	945.67	5.50	951.17
17	38.431094	-83.794655	937.15	5.50	942.65
18	38.431096	-83.794356	948.05	5.50	953.56
19	38.431628	-83.794359	943.24	5.50	948.74
20	38.431635	-83.794196	947.19	5.50	952.69

Name: PV Array 19
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.428872	-83.794856	942.58	5.50	948.08
2	38.428966	-83.790984	945.55	5.50	951.05
3	38.428407	-83.790977	945.98	5.50	951.48
4	38.428422	-83.790676	942.37	5.50	947.87
5	38.427902	-83.790662	943.90	5.50	949.40
6	38.427912	-83.790350	941.49	5.50	946.99
7	38.427355	-83.790363	942.41	5.50	947.91
8	38.427373	-83.790194	938.53	5.50	944.03
9	38.426800	-83.790167	946.29	5.50	951.79
10	38.426790	-83.790355	950.20	5.50	955.70
11	38.426237	-83.790278	954.67	5.50	960.17
12	38.426183	-83.791905	947.22	5.50	952.72
13	38.425696	-83.791891	945.95	5.50	951.45
14	38.425580	-83.794337	947.39	5.50	952.89
15	38.424420	-83.794314	946.86	5.50	952.36
16	38.424391	-83.795737	916.04	5.50	921.54
17	38.424991	-83.795742	915.52	5.50	921.02
18	38.425008	-83.795574	918.11	5.50	923.61
19	38.425526	-83.795632	913.78	5.50	919.28
20	38.425548	-83.795469	918.10	5.50	923.60
21	38.426732	-83.795542	918.26	5.50	923.76
22	38.426733	-83.795357	922.53	5.50	928.03
23	38.427269	-83.795367	921.80	5.50	927.30
24	38.427282	-83.795085	929.72	5.50	935.22
25	38.427804	-83.795137	926.84	5.50	932.34
26	38.427812	-83.794817	929.61	5.50	935.11

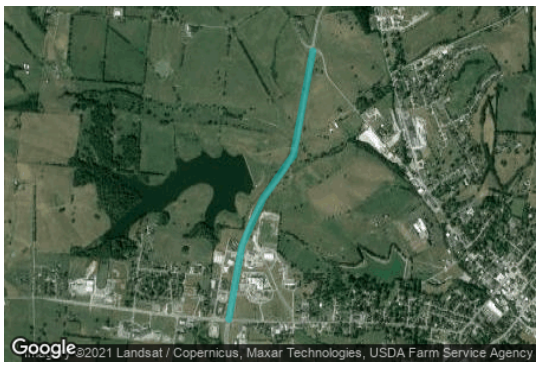
Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	38.449788	-83.831846	958.53	6.00
OP 2	2	38.444658	-83.838723	871.95	6.00
OP 3	3	38.438481	-83.836649	926.55	6.00
OP 4	4	38.424244	-83.774481	929.61	6.00
OP 5	5	38.422681	-83.768387	927.22	6.00
OP 6	6	38.421991	-83.763903	933.87	6.00
OP 7	7	38.441595	-83.819117	919.49	6.00
OP 8	8	38.433662	-83.818859	979.88	6.00
OP 9	9	38.430469	-83.821263	945.61	6.00
OP 10	10	38.430528	-83.821332	943.93	16.00
OP 11	11	38.421568	-83.812814	903.21	6.00
OP 12	12	38.421568	-83.812814	903.21	16.00
OP 13	13	38.422980	-83.795476	912.65	6.00
OP 14	14	38.440417	-83.777989	955.44	6.00
OP 15	15	38.440417	-83.777989	955.44	16.00
OP 16	16	38.440753	-83.792581	991.58	6.00
OP 17	17	38.440803	-83.792602	991.00	16.00

Route Receptor(s)

Name: Hwy 11
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.420214	-83.753607	915.57	5.00	920.57
2	38.424384	-83.752662	934.80	5.00	939.80
3	38.427073	-83.751117	889.33	5.00	894.33
4	38.429494	-83.748929	847.15	5.00	852.15
5	38.435410	-83.747513	901.34	5.00	906.34

Name: HWY 170
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.445965	-83.816520	856.13	5.00	861.13
2	38.445091	-83.817679	862.51	5.00	867.51
3	38.444486	-83.818881	861.58	5.00	866.58
4	38.443142	-83.819954	858.93	5.00	863.93
5	38.441327	-83.821112	853.31	5.00	858.31
6	38.439680	-83.820984	874.96	5.00	879.96
7	38.438469	-83.821542	918.67	5.00	923.67
8	38.436621	-83.821499	927.60	5.00	932.60
9	38.435545	-83.821627	902.59	5.00	907.59
10	38.433393	-83.821069	946.78	5.00	951.78
11	38.429561	-83.822014	925.71	5.00	930.71
12	38.426838	-83.822614	906.75	5.00	911.75
13	38.423173	-83.824589	875.58	5.00	880.58
14	38.419475	-83.825619	884.01	5.00	889.01

Name: Hwy 32
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.419777	-83.814847	887.58	5.00	892.58
2	38.420752	-83.810083	883.57	5.00	888.57
3	38.422198	-83.799268	900.02	5.00	905.02
4	38.422736	-83.789226	932.52	5.00	937.52
5	38.423274	-83.786136	963.66	5.00	968.66
6	38.423173	-83.783991	953.27	5.00	958.27
7	38.420618	-83.777596	899.94	5.00	904.94
8	38.421223	-83.772747	952.09	5.00	957.09
9	38.421425	-83.767726	916.76	5.00	921.76
10	38.420651	-83.760387	903.52	5.00	908.52
11	38.420147	-83.753649	914.98	5.00	919.98

Name: Hwy 559
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.437058	-83.759314	922.37	5.00	927.37
2	38.437562	-83.765623	929.27	5.00	934.27
3	38.439612	-83.767940	929.65	5.00	934.65
4	38.439747	-83.768455	931.41	5.00	936.41
5	38.440217	-83.774764	964.73	5.00	969.73
6	38.440318	-83.776223	964.23	5.00	969.23
7	38.440957	-83.777854	935.81	5.00	940.81
8	38.441797	-83.789355	992.30	5.00	997.30
9	38.440957	-83.791973	973.59	5.00	978.59
10	38.441192	-83.794891	948.51	5.00	953.51
11	38.440553	-83.797380	975.20	5.00	980.20
12	38.441696	-83.805320	911.29	5.00	916.29
13	38.443646	-83.811628	902.37	5.00	907.37
14	38.445931	-83.816392	857.91	5.00	862.91

Name: Nepton Road
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.450586	-83.834502	930.20	5.00	935.20
2	38.448889	-83.835382	917.69	5.00	922.69
3	38.447326	-83.836283	929.51	5.00	934.51
4	38.445713	-83.837935	889.46	5.00	894.46
5	38.444100	-83.839630	856.97	5.00	861.97
6	38.443158	-83.839738	876.97	5.00	881.97
7	38.441646	-83.838107	880.86	5.00	885.86
8	38.441041	-83.837485	903.95	5.00	908.95
9	38.440335	-83.837034	931.26	5.00	936.26
10	38.439595	-83.836755	929.61	5.00	934.61
11	38.438184	-83.837055	920.49	5.00	925.49
12	38.437730	-83.837227	923.82	5.00	928.82

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV Array 01	SA tracking	SA tracking	0	0	-
PV Array 02	SA tracking	SA tracking	0	0	-
PV Array 03	SA tracking	SA tracking	0	0	-
PV Array 04	SA tracking	SA tracking	0	0	-
PV Array 05	SA tracking	SA tracking	0	0	-
PV Array 06	SA tracking	SA tracking	0	0	-
PV Array 07	SA tracking	SA tracking	0	0	-
PV Array 08	SA tracking	SA tracking	0	0	-
PV Array 09	SA tracking	SA tracking	0	0	-
PV Array 10	SA tracking	SA tracking	0	0	-
PV Array 11	SA tracking	SA tracking	0	0	-
PV Array 12	SA tracking	SA tracking	0	0	-
PV Array 13	SA tracking	SA tracking	0	0	-
PV Array 14	SA tracking	SA tracking	0	0	-
PV Array 15	SA tracking	SA tracking	0	0	-
PV Array 16	SA tracking	SA tracking	0	0	-
PV Array 17	SA tracking	SA tracking	0	0	-
PV Array 18	SA tracking	SA tracking	0	0	-
PV Array 19	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Results for: PV Array 01

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 02

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 03

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 04

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 05

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 06

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 07

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 08

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 09

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 10

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 11

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 12

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 13

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 14

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 15

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 16

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 17

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 18

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 19

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0

Receptor	Green Glare (min)	Yellow Glare (min)
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
HWY 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare

0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: HWY 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
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.
Several 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.)
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.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

FORGESOLAR GLARE ANALYSIS

Project: **Acciona Fleming**
Proposed solar facility in Fleming County, Kentucky.

Site configuration: **Fleming Kentucky - East**
Analysis conducted by BreAnne Kahnk (bkahnk@trccompanies.com) at 16:10 on 15 Jun, 2021.

U.S. FAA 2013 Policy Adherence

The following table summarizes the policy adherence of the glare analysis based on the 2013 U.S. Federal Aviation Administration Interim Policy 78 FR 63276. This policy requires the following criteria be met for solar energy systems on airport property:

- No "yellow" glare (potential for after-image) for any flight path from threshold to 2 miles
- No glare of any kind for Air Traffic Control Tower(s) ("ATCT") at cab height.
- Default analysis and observer characteristics (see list below)

ForgeSolar does not represent or speak officially for the FAA and cannot approve or deny projects. Results are informational only.

COMPONENT	STATUS	DESCRIPTION
Analysis parameters	PASS	Analysis time interval and eye characteristics used are acceptable
2-mile flight path(s)	N/A	No flight paths analyzed
ATCT(s)	N/A	No ATCT receptors designated

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

FAA Policy 78 FR 63276 can be read at https://www.federalregister.gov/d/2013-24729

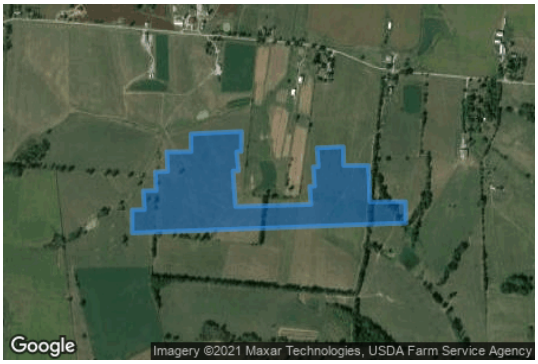
SITE CONFIGURATION

Analysis Parameters

DNI: peaks at 1,000.0 W/m^2
Time interval: 1 min
Ocular transmission coefficient: 0.5
Pupil diameter: 0.002 m
Eye focal length: 0.017 m
Sun subtended angle: 9.3 mrad
Site Config ID: 54659.9786

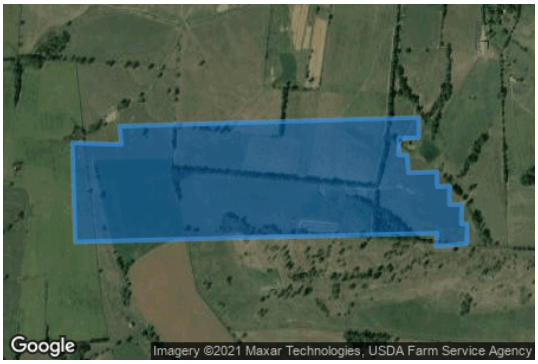
PV Array(s)

Name: PV Array 20 - E
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



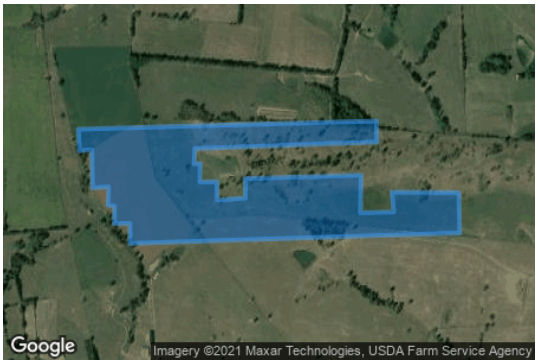
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.438499	-83.782833	937.97	5.50	943.47
2	38.438570	-83.781000	946.97	5.50	952.47
3	38.438002	-83.781004	959.29	5.50	964.79
4	38.437989	-83.781178	964.11	5.50	969.61
5	38.437455	-83.781105	962.05	5.50	967.55
6	38.437448	-83.781304	966.53	5.50	972.03
7	38.436442	-83.781213	945.83	5.50	951.33
8	38.436500	-83.778479	962.70	5.50	968.20
9	38.437015	-83.778524	958.27	5.50	963.77
10	38.437020	-83.778345	959.54	5.50	965.04
11	38.437566	-83.778392	972.96	5.50	978.46
12	38.437565	-83.778209	974.58	5.50	980.08
13	38.438101	-83.778259	970.57	5.50	976.07
14	38.438133	-83.777301	979.09	5.50	984.59
15	38.437602	-83.777288	980.22	5.50	985.72
16	38.437603	-83.776390	974.68	5.50	980.18
17	38.436573	-83.776331	962.76	5.50	968.26
18	38.436581	-83.775041	948.24	5.50	953.74
19	38.435971	-83.775029	930.98	5.50	936.48
20	38.435692	-83.784962	967.56	5.50	973.06
21	38.436346	-83.784970	958.76	5.50	964.26
22	38.436353	-83.784519	967.88	5.50	973.38
23	38.436884	-83.784568	953.28	5.50	958.78
24	38.436893	-83.784097	967.40	5.50	972.90
25	38.437418	-83.784126	952.16	5.50	957.66
26	38.437437	-83.783680	958.63	5.50	964.13
27	38.437992	-83.783710	945.62	5.50	951.12
28	38.437996	-83.782829	957.61	5.50	963.11

Name: PV Array 21 - E
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



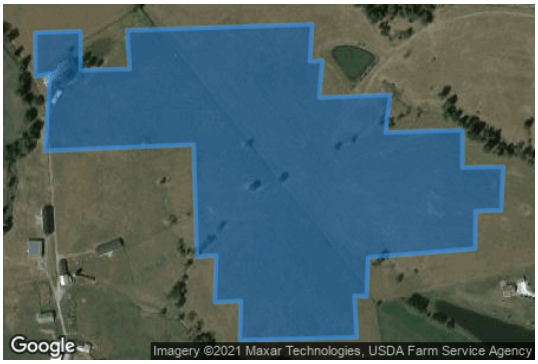
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.435655	-83.786159	968.57	5.50	974.07
2	38.435905	-83.775297	929.82	5.50	935.33
3	38.435333	-83.775296	930.10	5.50	935.60
4	38.435314	-83.776018	934.18	5.50	939.68
5	38.434841	-83.776006	940.20	5.50	945.70
6	38.434834	-83.775718	932.34	5.50	937.85
7	38.434333	-83.775666	945.42	5.50	950.92
8	38.434370	-83.774630	918.35	5.50	923.85
9	38.433945	-83.774628	928.86	5.50	934.36
10	38.433959	-83.774172	914.80	5.50	920.30
11	38.433434	-83.774182	925.38	5.50	930.88
12	38.433433	-83.773731	912.83	5.50	918.33
13	38.432887	-83.773748	920.39	5.50	925.89
14	38.432886	-83.773536	916.35	5.50	921.85
15	38.432332	-83.773547	904.57	5.50	910.07
16	38.432247	-83.774669	908.51	5.50	914.01
17	38.432629	-83.774632	923.32	5.50	928.82
18	38.432376	-83.787765	990.94	5.50	996.44
19	38.435187	-83.787870	971.75	5.50	977.25
20	38.435141	-83.786086	983.50	5.50	989.00

Name: PV Array 22 - E
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



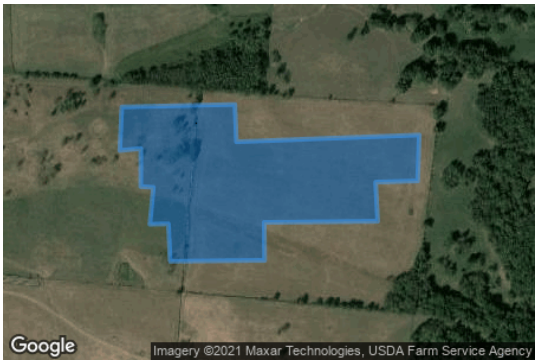
Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.432379	-83.786150	977.63	5.50	983.13
2	38.432611	-83.775329	923.55	5.50	929.06
3	38.432016	-83.775308	907.11	5.50	912.61
4	38.431828	-83.781917	952.42	5.50	957.92
5	38.431398	-83.781944	955.77	5.50	961.27
6	38.431403	-83.781721	951.65	5.50	957.15
7	38.430881	-83.781738	963.04	5.50	968.54
8	38.430890	-83.781115	948.18	5.50	953.68
9	38.430373	-83.781104	964.66	5.50	970.16
10	38.430429	-83.780083	972.90	5.50	978.40
11	38.430981	-83.780091	955.32	5.50	960.82
12	38.431077	-83.775879	930.89	5.50	936.39
13	38.430013	-83.775910	959.73	5.50	965.23
14	38.430035	-83.774698	949.72	5.50	955.22
15	38.430595	-83.774765	938.56	5.50	944.06
16	38.430584	-83.772335	928.76	5.50	934.26
17	38.429439	-83.772300	954.68	5.50	960.18
18	38.429141	-83.784274	951.21	5.50	956.71
19	38.429715	-83.784274	965.02	5.50	970.52
20	38.429700	-83.784844	954.99	5.50	960.49
21	38.430202	-83.784832	968.79	5.50	974.29
22	38.430228	-83.785070	964.56	5.50	970.06
23	38.430748	-83.785048	975.70	5.50	981.20
24	38.430716	-83.785631	962.65	5.50	968.15
25	38.431805	-83.785663	970.83	5.50	976.33
26	38.431765	-83.786111	967.85	5.50	973.35

Name: PV Array 23 - E
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.429124	-83.783698	961.15	5.50	966.65
2	38.429144	-83.782873	960.48	5.50	965.99
3	38.428595	-83.782873	951.89	5.50	957.39
4	38.428611	-83.781980	961.70	5.50	967.20
5	38.429156	-83.782030	953.93	5.50	959.43
6	38.429243	-83.778668	958.27	5.50	963.77
7	38.428715	-83.778709	951.17	5.50	956.67
8	38.428731	-83.778486	948.80	5.50	954.30
9	38.428202	-83.778542	959.36	5.50	964.86
10	38.428244	-83.777253	933.22	5.50	938.72
11	38.427710	-83.777338	938.52	5.50	944.02
12	38.427744	-83.775944	926.79	5.50	932.29
13	38.427213	-83.775945	943.91	5.50	949.41
14	38.427225	-83.775204	931.10	5.50	936.60
15	38.426609	-83.775238	951.05	5.50	956.55
16	38.426596	-83.775704	954.99	5.50	960.49
17	38.426063	-83.775711	952.36	5.50	957.86
18	38.425941	-83.777652	937.84	5.50	943.34
19	38.425386	-83.777682	952.79	5.50	958.29
20	38.425398	-83.777903	956.08	5.50	961.58
21	38.424806	-83.777859	957.63	5.50	963.13
22	38.424768	-83.779981	935.55	5.50	941.05
23	38.425323	-83.779963	957.42	5.50	962.92
24	38.425304	-83.780437	945.55	5.50	951.05
25	38.425971	-83.780409	952.46	5.50	957.96
26	38.425950	-83.780761	942.25	5.50	947.75
27	38.427539	-83.780820	988.08	5.50	993.58
28	38.427450	-83.783519	943.52	5.50	949.02
29	38.428546	-83.783433	949.73	5.50	955.23
30	38.428502	-83.783689	948.22	5.50	953.72

Name: PV Array 24 - E
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

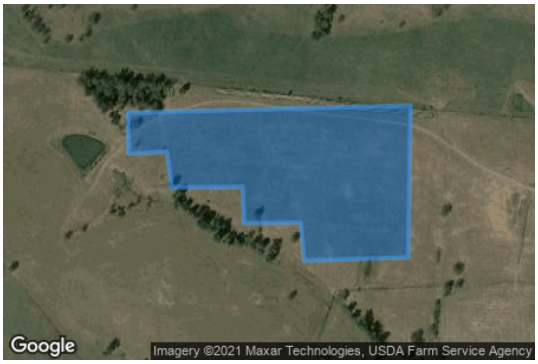


Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.431719	-83.770087	906.08	5.50	911.58
2	38.431756	-83.768034	929.22	5.50	934.72
3	38.431226	-83.768006	923.36	5.50	928.86
4	38.431323	-83.764688	922.24	5.50	927.74
5	38.430671	-83.764717	909.70	5.50	915.20
6	38.430654	-83.765480	910.73	5.50	916.23
7	38.430100	-83.765442	908.39	5.50	913.89
8	38.430085	-83.767501	905.23	5.50	910.73
9	38.429546	-83.767495	906.75	5.50	912.25
10	38.429532	-83.769208	920.49	5.50	925.99
11	38.430063	-83.769241	917.15	5.50	922.65
12	38.430059	-83.769578	921.56	5.50	927.06
13	38.430579	-83.769513	917.47	5.50	922.97
14	38.430593	-83.769743	916.87	5.50	922.37
15	38.431130	-83.769741	920.46	5.50	925.96
16	38.431103	-83.770123	922.59	5.50	928.09

Name: PV Array 25 - E
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.429014	-83.766918	919.52	5.50	925.02
2	38.429054	-83.765078	911.71	5.50	917.21
3	38.428545	-83.765108	929.73	5.50	935.23
4	38.428568	-83.763696	912.49	5.50	917.99
5	38.427358	-83.763675	925.65	5.50	931.15
6	38.427272	-83.766833	920.59	5.50	926.09

Name: PV Array 26 E
Axis tracking: Single-axis rotation
Tracking axis orientation: 180.0°
Tracking axis tilt: 0.0°
Tracking axis panel offset: 0.0°
Max tracking angle: 55.0°
Resting angle: 55.0°
Rated power: -
Panel material: Smooth glass without AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.429250	-83.777117	958.75	5.50	964.25
2	38.429354	-83.771990	956.39	5.50	961.89
3	38.427202	-83.772034	928.50	5.50	934.00
4	38.427156	-83.773925	919.14	5.50	924.64
5	38.427694	-83.773982	936.12	5.50	941.62
6	38.427684	-83.775013	922.63	5.50	928.13
7	38.428200	-83.775040	936.82	5.50	942.32
8	38.428192	-83.776332	932.32	5.50	937.82
9	38.428697	-83.776410	939.85	5.50	945.35
10	38.428671	-83.777110	942.78	5.50	948.28

Discrete Observation Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	38.449981	-83.831495	964.12	6.00
OP 2	2	38.444657	-83.838703	871.86	6.00
OP 3	3	38.438481	-83.836692	926.10	6.00
OP 4	4	38.424244	-83.774481	929.61	6.00
OP 5	5	38.422681	-83.768387	927.22	6.00
OP 6	6	38.421991	-83.763903	933.87	6.00
OP 7	7	38.441704	-83.818988	920.34	6.00
OP 8	8	38.433670	-83.818860	979.79	6.00
OP 9	9	38.430471	-83.821252	945.71	6.00
OP 10	10	38.430470	-83.821250	945.71	16.00
OP 11	11	38.421607	-83.812829	903.54	6.00
OP 12	12	38.421607	-83.812829	903.54	16.00
OP 13	13	38.423002	-83.795469	912.81	6.00
OP 14	14	38.440399	-83.777981	955.73	6.00
OP 15	15	38.440399	-83.777981	955.73	16.00
OP 16	16	38.440786	-83.792594	991.11	6.00
OP 17	17	38.440786	-83.792594	991.11	16.00

Route Receptor(s)

Name: Hwy 11
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.420324	-83.753527	917.90	5.00	922.90
2	38.424493	-83.752626	933.96	5.00	938.96
3	38.426611	-83.751510	897.42	5.00	902.42
4	38.429099	-83.749021	847.89	5.00	852.89
5	38.435553	-83.747433	901.21	5.00	906.21

Name: Hwy 170
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.446007	-83.816484	855.78	5.00	860.78
2	38.445100	-83.817514	866.90	5.00	871.90
3	38.444629	-83.818673	863.86	5.00	868.86
4	38.442948	-83.819960	861.88	5.00	866.88
5	38.441469	-83.821033	858.28	5.00	863.28
6	38.439654	-83.820990	875.98	5.00	880.98
7	38.438679	-83.821505	917.33	5.00	922.33
8	38.435957	-83.821548	914.15	5.00	919.15
9	38.435352	-83.821591	902.56	5.00	907.56
10	38.434175	-83.821162	930.25	5.00	935.25
11	38.433335	-83.820990	945.29	5.00	950.29
12	38.431116	-83.821677	926.26	5.00	931.26
13	38.426846	-83.822449	913.54	5.00	918.54
14	38.423249	-83.824466	879.13	5.00	884.14
15	38.419449	-83.825711	885.26	5.00	890.26

Name: Hwy 32
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.419819	-83.814467	882.88	5.00	887.88
2	38.420761	-83.809918	882.70	5.00	887.70
3	38.421904	-83.801078	900.37	5.00	905.37
4	38.422207	-83.798975	899.98	5.00	904.98
5	38.422677	-83.790091	923.65	5.00	928.65
6	38.422677	-83.789190	932.25	5.00	937.26
7	38.423249	-83.786186	962.42	5.00	967.42
8	38.423249	-83.783740	951.42	5.00	956.42
9	38.420593	-83.777474	902.49	5.00	907.49
10	38.421265	-83.772668	951.17	5.00	956.17
11	38.421400	-83.767346	919.60	5.00	924.60
12	38.420122	-83.753699	914.82	5.00	919.82

Name: Hwy 559
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.437100	-83.759235	923.15	5.00	928.15
2	38.437604	-83.765887	933.44	5.00	938.44
3	38.439688	-83.767947	932.15	5.00	937.15
4	38.440252	-83.775335	974.51	5.00	979.51
5	38.441025	-83.778382	933.46	5.00	938.46
6	38.441832	-83.789369	992.66	5.00	997.66
7	38.440958	-83.792115	978.89	5.00	983.89
8	38.441159	-83.794647	955.36	5.00	960.36
9	38.440689	-83.796922	980.62	5.00	985.62
10	38.441664	-83.805376	910.43	5.00	915.43
11	38.443680	-83.811341	907.37	5.00	912.37
12	38.446000	-83.816491	855.93	5.00	860.93

Name: Nepton Road
Path type: Two-way
Observer view angle: 180.0°

Note: Route receptors are excluded from this FAA policy review. Use the 2-mile flight path receptor to simulate flight paths according to FAA guidelines.

Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	38.450612	-83.834509	930.08	5.00	935.08
2	38.447318	-83.836225	930.18	5.00	935.18
3	38.444259	-83.839530	859.94	5.00	864.94
4	38.443621	-83.840002	853.22	5.00	858.22
5	38.442579	-83.839186	892.22	5.00	897.22
6	38.440932	-83.837212	920.01	5.00	925.01
7	38.439755	-83.836697	931.59	5.00	936.59
8	38.437604	-83.837169	923.51	5.00	928.51

GLARE ANALYSIS RESULTS

Summary of Glare

PV Array Name	Tilt (°)	Orient (°)	"Green" Glare min	"Yellow" Glare min	Energy kWh
PV Array 20 - E	SA tracking	SA tracking	0	0	-
PV Array 21 - E	SA tracking	SA tracking	0	0	-
PV Array 22 - E	SA tracking	SA tracking	0	0	-
PV Array 23 - E	SA tracking	SA tracking	0	0	-
PV Array 24 - E	SA tracking	SA tracking	0	0	-
PV Array 25 - E	SA tracking	SA tracking	0	0	-
PV Array 26 E	SA tracking	SA tracking	0	0	-

Total annual glare received by each receptor

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0

Receptor	Annual Green Glare (min)	Annual Yellow Glare (min)
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Results for: PV Array 20 - E

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 21 - E

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare

0 minutes of green glare

Results for: PV Array 22 - E

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 23 - E

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 24 - E

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 25 - E

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Results for: PV Array 26 E

Receptor	Green Glare (min)	Yellow Glare (min)
OP 1	0	0
OP 2	0	0
OP 3	0	0
OP 4	0	0
OP 5	0	0
OP 6	0	0
OP 7	0	0
OP 8	0	0
OP 9	0	0
OP 10	0	0
OP 11	0	0
OP 12	0	0
OP 13	0	0
OP 14	0	0
OP 15	0	0
OP 16	0	0
OP 17	0	0
Hwy 11	0	0
Hwy 170	0	0
Hwy 32	0	0
Hwy 559	0	0
Nepton Road	0	0

Point Receptor: OP 1

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 2

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 3

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 4

0 minutes of yellow glare

0 minutes of green glare

Point Receptor: OP 5

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 6

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 7

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 8

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 9

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 10

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 11

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 12

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 13

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 14

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 15

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 16

0 minutes of yellow glare
0 minutes of green glare

Point Receptor: OP 17

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 11

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 170

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 32

0 minutes of yellow glare
0 minutes of green glare

Route: Hwy 559

0 minutes of yellow glare
0 minutes of green glare

Route: Nepton Road

0 minutes of yellow glare
0 minutes of green glare

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
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.
Several 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.)
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.
The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual results and glare occurrence may differ.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.