



Wild Grains Solar Project

Exhibit N

Solar Glare Analysis Report

Case No. 21-0823-EL-BGN

Solar Glare Analysis Report

Wild Grains Solar Project

Hoaglin Township, Van Wert County, Ohio

Prepared for:



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July 2021

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1.0 PROJECT OVERVIEW

Wild Grains Solar, LLC (Wild Grains or Applicant), is proposing to construct an up to 150-megawatt (MW) solar energy generation facility in Van Wert County, Ohio (hereafter referred to as the Project) (see Figure 1). This report provides an assessment of the potential for solar related glare and glint that could be experienced at residences, airports, and roadways located near the proposed Project.

The Applicant is proposing the use of single axis tracking photovoltaic (PV) arrays. Each PV array will be comprised of linear rows of PV modules oriented in a north-south direction and equipped with electric motors that slowly rotate the PV panels to track the movement of the sun and minimize the angle of incidence between the sun and the panels. The PV arrays will have a 55-degree resting angle (i.e., will face east at sunrise). The height of the panels will vary as the structures tilt to follow the sun throughout the day. At their tallest position, the PV panels will be approximately 15 feet tall. For this analysis, panels were split or combined into 27 named solar arrays which covered a total of approximately 1,431 acres of land (Figure 2).

The Project is located within Hoaglin township, Van Wert County, Ohio, approximately 2.5 miles north of Van Wert and 20 miles northwest of Lima. Topography in the vicinity of the Project is nearly flat, with elevations ranging from approximately 740 feet above mean sea level (amsl) to 760 feet amsl. Land cover within the vicinity of the Project is dominated by active agriculture, with farms and single-family residences generally located along road frontages.

Figure 1. Regional Project Location

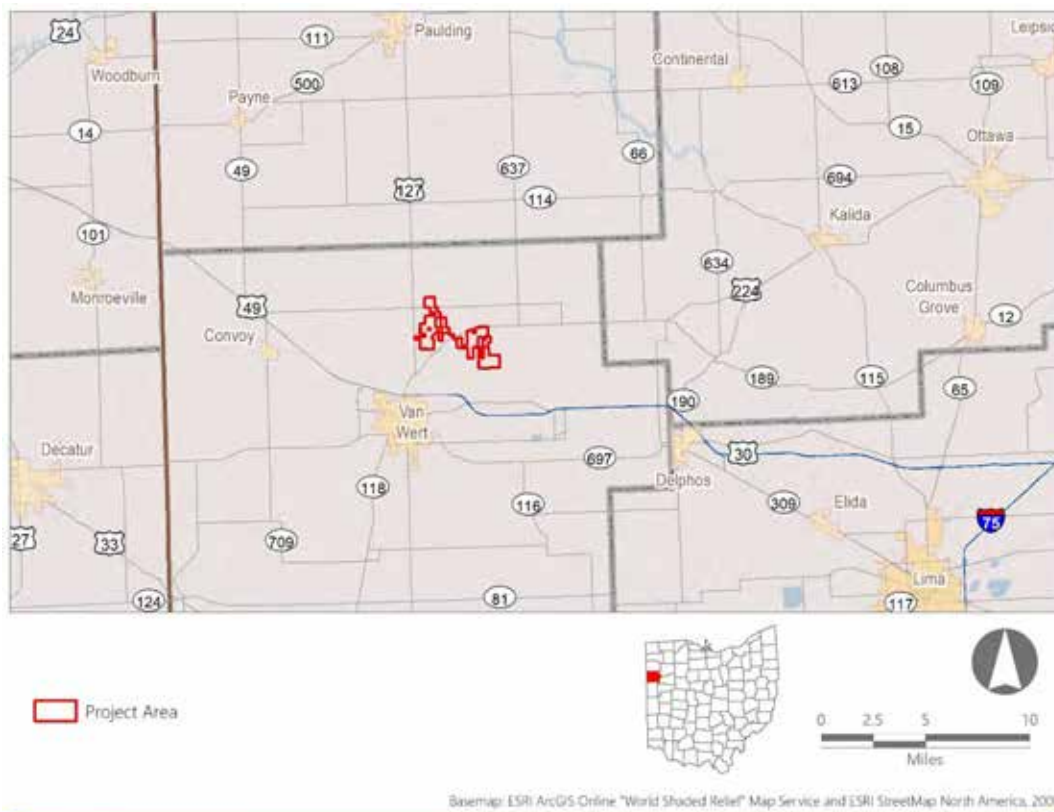


Figure 2. Proposed Project Layout



2.0 BACKGROUND

Glare and glint are closely related, but distinct, solar challenges. Glare is defined as a continuous source of bright light, whereas glint is defined as a momentary flash of bright light. Both glint and glare are common in the existing environment. The sun and artificial light sources can cause glare or glint either directly (such as from a sunset when driving westbound) or indirectly (such as from the sun's reflection off a lake or glass window). Glare can be received by observers that are either stationary or moving, whereas glint is generally possible only when the observer is moving rapidly, as is often the case with motorists and aviators. As an example, a motorist traveling along a lake with a forested shoreline, may have only brief glimpses of sunlight reflected off of the water at sunset (i.e., glint), whereas an adjacent home with visibility of the water through a break in the foliage may have a continuous source of bright light (i.e., glare) when sunlight strikes the water at a certain angle.

The potential effects of glare include annoyance impacts, such as distraction, after-image in the viewer's vision, or temporary avoidance of a view due to the presence of reflected light (Dwyer, 2017; Slana, 2018); safety impacts, such as the potential to disorient motorists or pilots (Auffray et al., 2007; Ho et al., 2011; Riley and Olson, 2011); and human health impacts, such as permanent retinal damage (Ho et al., 2009).¹ Although less pronounced when compared to glare, the effects of glint are similar and have been conservatively treated the same in all analyses presented in this report. Accordingly, reflected light from the PV panels is collectively referred to as glare in the remainder of this report.

As there is an inverse correlation between light absorption and reflection, PV panels are designed to absorb as much of the solar spectrum as possible to maximize efficiency. Virtually all PV panels installed in recent years have at least one anti-reflective (AR) coating to minimize reflection and maximize absorption. However, the front-facing surfaces of PV modules are smooth, specular surfaces that have the potential to reflect incoming solar radiation at high incidence angles, much like windows on a building or the surface of a pond or lake at sunrise or sunset (Parretta et al., 1999).

Under clear sky conditions, fixed-tilt PV arrays can produce glare in the early morning and evening when the sun is low on the horizon and the incidence angle between the PV panels and the sun is approximately 60 degrees or greater (Riley and Olsen, 2011). Unlike fixed-tilt systems, tracking PV arrays maintain relatively low incidence angles and thereby minimize the potential for glare to be produced.

Glare that may be produced by a flat-plate PV array can be separated into two general categories: glare with a potential to cause a temporary after-image (i.e., "yellow glare") and glare with a low potential to produce an after-image (i.e., "green glare").² After-image is when an image continues to appear in the eyes after the exposure has occurred. Green glare is relatively low in intensity and is unlikely to produce an after-image. Yellow glare is similar in intensity to glare received from other sources regularly encountered by

¹ Note: human health impacts are typically only associated with concentrating solar power plants or other concave reflective surfaces (e.g., concave curtain wall buildings) that concentrate the incoming solar radiation. Flat-plate photovoltaic systems, such as the proposed Facility, do not produce the retinal irradiance levels necessary to result in permanent retinal damage.

² "Red" glare, which is glare that has the potential to cause eye damage, is typically not possible for non-concentrating solar energy facilities such as the proposed Facility.

motorists (e.g., the rising or setting sun and the reflection of the sun off water features, windows, curtain wall buildings, and other smooth surfaces), and has the potential to temporarily affect nearby receptors.

In order to accurately determine the occurrence, duration, and intensity of glare produced by a photovoltaic system at a given observation point, the following information is needed:

- (1) Location, orientation, and reflectance of the PV panels;
- (2) Location of the observation point;
- (3) Position of the sun;
- (4) Direct Normal Irradiance (DNI – see definition below); and
- (5) Geospatial characteristics of any topography, vegetation, buildings, or other potential obstructions located between the observation point and the PV panels producing glare, and between the PV panels and the sun.

With these inputs, the location and duration of glare can be predicted using computer modeling programs together with follow-up visibility and climatological analyses, as needed.

The following terms are used throughout this assessment.

Direct Normal Irradiance (DNI)	The amount of solar radiation received per unit area by a surface that is always held perpendicular to the rays that come in a straight line from the sun at its current position in the sky.
Diffuse Solar Radiation:	Solar radiation scattered by molecules and particles in the atmosphere.
Direct Solar Radiation:	Solar radiation that has travelled from the sun to the earth's surface in a straight line without scattering. Direct radiation is the component of solar radiation that causes visible glare from flat-plate photovoltaic systems.
Glare:	A source of bright reflected light.
Incidence Angle:	The angle between the direct component of insolation (i.e., the sun) and a ray perpendicular to the PV panel.
PV Panels:	Photovoltaic panels that are fixed to a ground-mounted racking system. On this Facility, a single-axis tracking system is proposed.
Solar Array:	A contiguous group of PV panels which collectively will be enclosed by security fencing and landscape screening plantings, where applicable.
Specular Reflection:	The mirror-like reflection of waves, such as light, from a surface.

3.0 METHODS

ForgeSolar, an industry standard commercial software based on the Solar Glare Hazard Analysis Tool (SGHAT) that was developed by Sandia National Laboratories, was used to evaluate the potential for glare for this Project (Ho et al., 2015). ForgeSolar is an industry standard software available to evaluate the potential for glare from a PV system. This software was initially developed for use by the Federal Aviation Administration (FAA) in evaluating safety impacts to pilots while landing aircraft (Ho et al., 2015) and use of this tool to assess glare at airports remains an accepted method in keeping with the FAA's Interim Solar Policy. The scope of SGHAT's analytical tools has expanded to include the potential for a PV system to produce glare that may be received by terrestrial receptors, such as residences and motorists.

ForgeSolar provides a quantified assessment of when and where glare may occur throughout the year from solar installations, as well as identifying the potential effects on the human eye when glare does occur. However, the application of this tool in determining the occurrence, duration, and intensity of glare ensures a conservative analysis since it is based on a completely clear sky and bare earth model (i.e., it does not take into account atmospheric conditions that scatter incoming solar radiation and terrestrial obstructions that visually block the receipt of glare by an observer). Accordingly, SGHAT outputs represent the worst-case scenario.

No consistent national, state, county, or local standards exist that set parameters that could be used to guide the development of a study area for assessing solar glare. However, standards developed in other countries may provide some guidance. In Germany and Switzerland solar glare assessments must be conducted for all dwellings that are located within 100 meters of a solar energy generating facility (Zehndorfer Engineering, 2019). For this Facility, glare was analyzed for the following potentially sensitive receptors:³

1. The 40 nearest habited structures (e.g. residences, commercials buildings) from the Project (i.e., the maximum number of receptors the model will input).
2. The nearest Airport, approximately 4 miles south of the Project (Van Wert County Regional Airport).
3. Four representative road corridors located within or adjacent to the Project.

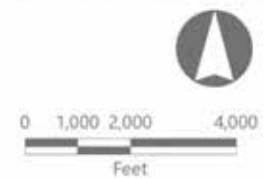
Residences and travel routes evaluated in this analysis are labeled and shown in Figure 3. Input variables and assumptions used for solar glare modeling calculations for the proposed Facility are described below in Table 1 and in detail in Appendix A.

³ Although a Study Area with a 2-mile radius is used in many glare reports in assessing impacts to airports, this is not based on FAA recommendations. A 2-mile radius was selected in this case as ForgeSolar's modeling software uses a 2-mile approach/departure distance (i.e., the selected Study Area is large enough to include not only adjacent airports, but potential approach/departure routes that intersect the Facility as well).

Figure 3. Receptors and Road Segments



- Receptor
- PV Panel Area
- Route
- - - Fenceline



Basemap: OSIP "best_avail_tif" orthoimagery map service.

Table 1. Summary of SGHAT Model Inputs

Parameter		Purpose	Value
DNI:		The maximum DNI at the given location at solar noon. This variable is given in units Watts (W)/m ² . The peak DNI at solar noon is approximately 1,000 W/m ² on a clear, sunny day.	Variable, based on sun position.
Receptor height:		Height above ground of the average human eye viewing level.	5.4 feet
Route height:		Height above ground of traveler in a motor vehicle.	4 feet
Array height:		Height above ground for the highest height and average height of the solar panels.	15 feet (Maximum)
Axis tracking:		Indicates the type of tracking used by the panels (if any).	Single-axis tracking
Fixed-Tilt panels	Orientation of array:	Orientation of the array in degrees, measured clockwise from true north.	N/A Tracking Panels Used
	Tilt of solar panels:	Tilt (elevation angle) of the modules in degrees, where 0° is facing up and 90° is facing horizontally.	N/A Tracking Panels Used
Single-Axis Tracking	Tilt of tracking axis:	The elevation angle of the tracking axis in degrees, where 0° is facing up and 90° is facing horizontally. The panels rotate about the tracking axis.	0°
	Orientation of tracking axis:	The orientation of the tracking axis in degrees, measured clockwise from true north. Panels facing south at solar noon would have an orientation of 180°. Panels facing east at solar noon would have an orientation of 90°.	180°
	Offset angle of module:	The vertical offset angle between the tracking axis and the panel (if any).	0°
	Maximum tracking angle:	The maximum angle the panel will rotate in both the clockwise and counterclockwise directions.	55°
	Resting angle:	The angle at which the panel will rest overnight.	55°
Module surface material:		The type of material comprising the PV modules.	Smooth Glass w/o Anti-Reflection Coating

4.0 RESULTS

Results from the glare analysis determined that no glare would be received at any of the identified residences, airports, or travel routes. As the Project is proposing single-axis tracking PV arrays, this result is not unexpected. As discussed above, single-axis tracking PV arrays maintain low incidence angles, relative to the sun significantly limiting the amount of incoming solar radiation that can be reflected by the arrays

in the morning and evening when the receipt of solar glare by nearby residences is most likely. Attachment A provides a detailed breakdown of the results for each receptor evaluated.

5.0 CONCLUSIONS

The Applicant conducted a baseline solar glare analysis using ForgeSolar's SGHAT software to identify potential glare impacts that may result from operation of the Project. This analysis was conducted using industry standard methods and model inputs, and was conducted to comply with the requirements of the Section 94-c regulations and the FAA's Interim Solar Policy. The results of this analysis indicate that none of the potentially sensitive receptors located within or adjacent to the Project will receive glare from the proposed PV arrays.

This result is consistent with the Project's proposed use of tracking PV arrays. As noted above, tracking PV arrays maintain low incidence angles by following the sun's position throughout the day. This increases the amount of incoming solar radiation absorbed by the panels and limits the amount reflected. For this reason, tracking PV arrays rarely reflect enough sunlight to produce retinal irradiance values (W/m^2) sufficient to result in either green or yellow glare.

Because the Project is not anticipated to result in any glare impacts to identified receptors, no impact avoidance or mitigation measures are necessary.

6.0 REFERENCES

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Parretta, A., Sarno, A., Tortora, P., et al., "Angle-dependent reflectance measurements on photovoltaic materials and solar cells," Optics Communications, vol. 172, no. 1, pp. 139–151, 1999.

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Appendix A

ForgeSolar Glare Analysis

FORGESOLAR GLARE ANALYSIS

Project: **Wild Grains Solar**

Site configuration: **Wild Grains Solar**

Analysis conducted by Jacob Runner (jrunner@edrdpc.com) at 01:33 on 22 Jul, 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)	PASS	Flight path receptor(s) do not receive yellow glare
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>



Wild Grains Solar

Wild Grains Solar Project

Created July 21, 2021
 Updated July 21, 2021
 Time-step 1 minute
 Timezone offset UTC-6
 Site ID 56545.9844

Project type Advanced
 Project status: active
 Category 100 MW to 1 GW



Misc. Analysis Settings

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

Analysis Methodologies:

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

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
1	SA tracking	SA tracking	0	0	-
10	SA tracking	SA tracking	0	0	-
11	SA tracking	SA tracking	0	0	-
12	SA tracking	SA tracking	0	0	-
13	SA tracking	SA tracking	0	0	-
14	SA tracking	SA tracking	0	0	-
15	SA tracking	SA tracking	0	0	-
16	SA tracking	SA tracking	0	0	-
17	SA tracking	SA tracking	0	0	-
18	SA tracking	SA tracking	0	0	-
19	SA tracking	SA tracking	0	0	-
20	SA tracking	SA tracking	0	0	-
21	SA tracking	SA tracking	0	0	-
22	SA tracking	SA tracking	0	0	-



Wild Grains Solar

Wild Grains Solar

Created July 21, 2021
 Updated July 21, 2021
 Time-step 1 minute
 Timezone offset UTC-6
 Site ID 56544.9844

Project type Advanced
 Project status: active
 Category 100 MW to 1 GW



Misc. Analysis Settings

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

Analysis Methodologies:

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

Summary of Results No glare predicted!

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
13	SA tracking	SA tracking	0	0	-
14	SA tracking	SA tracking	0	0	-
15	SA tracking	SA tracking	0	0	-
16	SA tracking	SA tracking	0	0	-
17	SA tracking	SA tracking	0	0	-
18	SA tracking	SA tracking	0	0	-
19	SA tracking	SA tracking	0	0	-
20	SA tracking	SA tracking	0	0	-
21	SA tracking	SA tracking	0	0	-
22	SA tracking	SA tracking	0	0	-
24	SA tracking	SA tracking	0	0	-
25	SA tracking	SA tracking	0	0	-
26	SA tracking	SA tracking	0	0	-
27	SA tracking	SA tracking	0	0	-

Component Data

PV Array(s)

Total PV footprint area: 797.3 acres

Name: 1
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 120.7 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.952375	-84.552900	746.00	15.00	761.00
2	40.946430	-84.552715	747.61	15.00	762.61
3	40.946271	-84.561712	748.94	15.00	763.94
4	40.950520	-84.561844	747.75	15.00	762.75
5	40.951396	-84.561770	746.63	15.00	761.63
6	40.951422	-84.560341	747.39	15.00	762.39
7	40.952244	-84.560367	744.37	15.00	759.38

Name: 10
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 5.3 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.924518	-84.549180	753.49	15.00	768.49
2	40.924522	-84.547002	752.19	15.00	767.19
3	40.923495	-84.546971	749.89	15.00	764.89
4	40.923456	-84.549148	751.32	15.00	766.32

Name: 11

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 27.8 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.931438	-84.541139	751.05	15.00	766.05
2	40.928890	-84.541060	751.93	15.00	766.93
3	40.928822	-84.544877	751.75	15.00	766.75
4	40.929644	-84.544902	751.97	15.00	766.97
5	40.929620	-84.546241	752.04	15.00	767.04
6	40.931347	-84.546294	751.76	15.00	766.76

Name: 12

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 21.8 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.936079	-84.543099	750.44	15.00	765.44
2	40.933752	-84.543028	751.14	15.00	766.14
3	40.932762	-84.542997	751.20	15.00	766.20
4	40.931886	-84.543072	751.42	15.00	766.42
5	40.931838	-84.545735	751.84	15.00	766.84
6	40.932690	-84.545762	751.26	15.00	766.26
7	40.933519	-84.545691	750.51	15.00	765.51
8	40.934348	-84.545525	750.72	15.00	765.72
9	40.935219	-84.545249	750.16	15.00	765.16
10	40.935241	-84.544009	749.95	15.00	764.95
11	40.936063	-84.544034	749.69	15.00	764.69

Name: 13

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 54.2 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.924452	-84.528848	750.51	15.00	765.51
2	40.921754	-84.528765	751.65	15.00	766.65
3	40.920880	-84.528840	749.68	15.00	764.68
4	40.920843	-84.529353	750.43	15.00	765.43
5	40.919225	-84.529303	749.52	15.00	764.52
6	40.919201	-84.530634	751.27	15.00	766.27
7	40.918240	-84.530604	750.85	15.00	765.85
8	40.917551	-84.530954	751.44	15.00	766.44
9	40.917533	-84.531976	752.89	15.00	767.90
10	40.918355	-84.532001	752.74	15.00	767.74
11	40.918336	-84.533053	753.29	15.00	768.29
12	40.922528	-84.533182	751.89	15.00	766.89
13	40.922542	-84.532417	751.94	15.00	766.94
14	40.924387	-84.532474	751.14	15.00	766.14

Name: 14**Axis tracking:** Single-axis rotation**Tracking axis orientation:** 0.0 deg**Tracking axis tilt:** 0.0 deg**Tracking axis panel offset:** 0.0 deg**Maximum tracking angle:** 55.0 deg**Resting angle:** 55.0 deg**Footprint area:** 27.5 acres**Rated power:** -**Panel material:** Smooth glass with AR coating**Vary reflectivity with sun position?** Yes**Correlate slope error with surface type?** Yes**Slope error:** 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.928385	-84.523609	748.17	15.00	763.17
2	40.928432	-84.519670	747.56	15.00	762.56
3	40.927527	-84.519642	745.59	15.00	760.59
4	40.927501	-84.520254	746.76	15.00	761.76
5	40.926702	-84.520259	744.81	15.00	759.81
6	40.926675	-84.520650	745.93	15.00	760.93
7	40.925888	-84.520640	746.31	15.00	761.31
8	40.925879	-84.521052	747.48	15.00	762.48
9	40.925053	-84.521022	747.27	15.00	762.27
10	40.925039	-84.522104	748.63	15.00	763.63
11	40.924165	-84.522105	747.20	15.00	762.21
12	40.924140	-84.523479	749.19	15.00	764.19

Name: 15**Axis tracking:** Single-axis rotation**Tracking axis orientation:** 0.0 deg**Tracking axis tilt:** 0.0 deg**Tracking axis panel offset:** 0.0 deg**Maximum tracking angle:** 55.0 deg**Resting angle:** 55.0 deg**Footprint area:** 49.2 acres**Rated power:** -**Panel material:** Smooth glass with AR coating**Vary reflectivity with sun position?** Yes**Correlate slope error with surface type?** Yes**Slope error:** 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.928091	-84.514526	748.05	15.00	763.05
2	40.922189	-84.514456	751.01	15.00	766.01
3	40.922171	-84.515483	750.34	15.00	765.34
4	40.922923	-84.515506	750.19	15.00	765.19
5	40.923001	-84.518776	748.14	15.00	763.15
6	40.923823	-84.518801	748.77	15.00	763.78
7	40.923815	-84.519268	747.10	15.00	762.10
8	40.924683	-84.519497	747.32	15.00	762.32
9	40.925537	-84.519523	748.64	15.00	763.64
10	40.925548	-84.518950	749.24	15.00	764.24
11	40.926369	-84.518975	747.45	15.00	762.45
12	40.926376	-84.518592	747.77	15.00	762.77
13	40.927198	-84.518617	745.57	15.00	760.57
14	40.927248	-84.515735	748.59	15.00	763.59
15	40.928069	-84.515760	748.63	15.00	763.63

Name: 16**Axis tracking:** Single-axis rotation**Tracking axis orientation:** 0.0 deg**Tracking axis tilt:** 0.0 deg**Tracking axis panel offset:** 0.0 deg**Maximum tracking angle:** 55.0 deg**Resting angle:** 55.0 deg**Footprint area:** 36.8 acres**Rated power:** -**Panel material:** Smooth glass with AR coating**Vary reflectivity with sun position?** Yes**Correlate slope error with surface type?** Yes**Slope error:** 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.922454	-84.523168	749.24	15.00	764.24
2	40.922189	-84.523160	750.31	15.00	765.31
3	40.922192	-84.522969	750.32	15.00	765.32
4	40.921635	-84.522952	750.25	15.00	765.25
5	40.921641	-84.522618	750.06	15.00	765.07
6	40.921358	-84.522083	749.75	15.00	764.75
7	40.920829	-84.522066	750.17	15.00	765.17
8	40.920877	-84.519297	749.88	15.00	764.88
9	40.920567	-84.519174	750.18	15.00	765.18
10	40.917509	-84.519081	751.71	15.00	766.71
11	40.917434	-84.523375	751.78	15.00	766.78
12	40.922447	-84.523529	748.52	15.00	763.52

Name: 17

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 9.5 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.919799	-84.518747	750.84	15.00	765.84
2	40.919807	-84.518291	750.81	15.00	765.81
3	40.919250	-84.518274	751.08	15.00	766.08
4	40.919314	-84.514450	751.77	15.00	766.77
5	40.918411	-84.514422	751.94	15.00	766.94
6	40.918344	-84.518706	751.65	15.00	766.65

**Name: 18**

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 70.5 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.917133	-84.519070	752.14	15.00	767.14
2	40.911541	-84.518990	754.55	15.00	769.55
3	40.911348	-84.518989	754.53	15.00	769.53
4	40.910472	-84.519064	754.74	15.00	769.74
5	40.910393	-84.523543	755.06	15.00	770.06
6	40.912887	-84.523619	754.00	15.00	769.00
7	40.917052	-84.523649	752.28	15.00	767.28

**Name: 19**

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 46.8 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.930539	-84.512570	746.47	15.00	761.47
2	40.930569	-84.510890	747.04	15.00	762.04
3	40.931497	-84.510918	745.89	15.00	760.89
4	40.931600	-84.504920	747.45	15.00	762.46
5	40.928945	-84.504840	748.54	15.00	763.55
6	40.928792	-84.513738	747.56	15.00	762.56
7	40.930518	-84.513791	747.15	15.00	762.15
8	40.930525	-84.513409	746.97	15.00	761.97



Name: 20
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 65.9 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.928166	-84.505868	748.70	15.00	763.70
2	40.927901	-84.505860	748.55	15.00	763.55
3	40.927916	-84.505016	748.60	15.00	763.60
4	40.927315	-84.504790	749.56	15.00	764.56
5	40.925583	-84.504732	750.37	15.00	765.37
6	40.925534	-84.506866	749.42	15.00	764.42
7	40.925546	-84.507443	749.80	15.00	764.80
8	40.925408	-84.507540	749.88	15.00	764.88
9	40.924724	-84.507528	750.14	15.00	765.14
10	40.924602	-84.513728	749.72	15.00	764.72
11	40.928114	-84.513806	747.81	15.00	762.81

Name: 21
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 45.9 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.922669	-84.504744	751.46	15.00	766.46
2	40.921769	-84.504716	752.58	15.00	767.58
3	40.921767	-84.504812	752.03	15.00	767.03
4	40.918479	-84.504711	753.06	15.00	768.06
5	40.918434	-84.507282	752.29	15.00	767.29
6	40.917612	-84.507257	752.84	15.00	767.84
7	40.917580	-84.509077	752.36	15.00	767.36
8	40.920074	-84.509153	751.61	15.00	766.61
9	40.922596	-84.509132	750.82	15.00	765.82
10	40.922635	-84.506921	751.59	15.00	766.59

Name: 22
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 215.5 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.917291	-84.504676	753.18	15.00	768.18
2	40.916441	-84.504651	753.55	15.00	768.55
3	40.913919	-84.504672	754.72	15.00	769.72
4	40.913917	-84.504767	754.43	15.00	769.43
5	40.906460	-84.504731	757.72	15.00	772.72
6	40.904762	-84.504778	758.47	15.00	773.47
7	40.904757	-84.505062	758.06	15.00	773.06
8	40.903874	-84.505035	758.16	15.00	773.16
9	40.903741	-84.512797	758.53	15.00	773.53
10	40.909592	-84.512951	755.86	15.00	770.86
11	40.909736	-84.512668	755.98	15.00	770.98
12	40.912186	-84.512710	755.06	15.00	770.06
13	40.912309	-84.513345	754.58	15.00	769.58
14	40.914505	-84.513421	753.35	15.00	768.35
15	40.914801	-84.513915	753.67	15.00	768.67
16	40.917297	-84.513888	753.49	15.00	768.49
17	40.917320	-84.511686	752.22	15.00	767.22
18	40.909717	-84.511692	755.91	15.00	770.91
19	40.909763	-84.509031	756.07	15.00	771.07
20	40.912225	-84.509106	754.97	15.00	769.97
21	40.915516	-84.509110	753.31	15.00	768.31
22	40.917214	-84.509063	752.54	15.00	767.54

2-Mile Flight Path Receptor(s)

Name: FP 1
Description: None
Threshold height : 50 ft
Direction: 269.7 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.864745	-84.602263	785.04	50.00	835.04
2-mile point	40.864897	-84.563987	782.14	606.33	1388.47



Name: FP 2
Description: None
Threshold height : 50 ft
Direction: 89.3 deg
Glide slope: 3.0 deg
Pilot view restricted? Yes
Vertical view restriction: 30.0 deg
Azimuthal view restriction: 50.0 deg

Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.864697	-84.616103	783.44	50.00	833.44
2-mile point	40.864354	-84.654376	784.54	602.33	1386.87



Route Receptor(s)

Name: Route 1**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.924587	-84.495055	750.94	0.00	750.94
2	40.924555	-84.499947	750.14	0.00	750.14
3	40.924620	-84.504625	750.54	0.00	750.54
4	40.924587	-84.511620	749.64	0.00	749.64
5	40.924555	-84.514023	750.64	0.00	750.64

Name: Route 2**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.933471	-84.514088	744.14	0.00	744.14
2	40.931477	-84.514066	748.14	0.00	748.14
3	40.928203	-84.514066	748.44	0.00	748.44
4	40.924596	-84.514089	749.54	0.00	749.54
5	40.922132	-84.514132	746.84	0.00	746.84
6	40.920575	-84.514046	752.84	0.00	752.84

Name: Route 3**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.931824	-84.533513	751.94	0.00	751.94
2	40.931808	-84.537955	751.84	0.00	751.84
3	40.931792	-84.543963	752.14	0.00	752.14
4	40.931775	-84.552396	752.84	0.00	752.84
5	40.931613	-84.559498	753.54	0.00	753.54
6	40.931514	-84.564688	755.74	0.00	755.74
7	40.931433	-84.572166	757.24	0.00	757.24

Name: Route 4**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.931778	-84.546789	752.14	0.00	752.14
2	40.929898	-84.546746	752.54	0.00	752.54
3	40.926672	-84.546661	753.64	0.00	753.64
4	40.925018	-84.546639	754.14	0.00	754.14
5	40.922521	-84.546596	749.24	0.00	749.24

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	40.947593	-84.562567	750.20	5.40	755.60
OP 3	40.949450	-84.562478	748.04	5.40	753.44
OP 19	40.924052	-84.571616	758.63	5.40	764.03
OP 31	40.917395	-84.563437	761.00	5.40	766.40
OP 32	40.917512	-84.557465	757.37	5.40	762.78
OP 33	40.916969	-84.554380	755.23	5.40	760.63
OP 35	40.917544	-84.533074	754.58	5.40	759.98
OP 36	40.917809	-84.516843	752.74	5.40	758.15
OP 39	40.932069	-84.546691	751.95	5.40	757.36
OP 41	40.931191	-84.558032	754.02	5.40	759.42
OP 42	40.931338	-84.559228	754.06	5.40	759.46
OP 43	40.931296	-84.565620	756.49	5.40	761.90
OP 57	40.928973	-84.546979	752.92	5.40	758.32
OP 58	40.924578	-84.546121	753.09	5.40	758.49
OP 71	40.952085	-84.562416	746.81	5.40	752.21
OP 72	40.948698	-84.562501	750.01	5.40	755.41
OP 73	40.946421	-84.562508	751.00	5.40	756.40
OP 87	40.924333	-84.533125	752.03	5.40	757.43
OP 88	40.923842	-84.533074	752.33	5.40	757.73
OP 106	40.904901	-84.513778	759.41	5.40	764.81
OP 107	40.907613	-84.513562	758.04	5.40	763.44
OP 117	40.911693	-84.494591	756.20	5.40	761.60
OP 118	40.909507	-84.494580	756.28	5.40	761.68
OP 119	40.905869	-84.494290	758.52	5.40	763.92
OP 127	40.924192	-84.510930	751.30	5.40	756.70
OP 128	40.924197	-84.510187	752.32	5.40	757.72
OP 129	40.923161	-84.507399	752.99	5.40	758.39
OP 130	40.924990	-84.506500	751.66	5.40	757.06
OP 131	40.924806	-84.504884	751.03	5.40	756.43
OP 132	40.925201	-84.502704	751.27	5.40	756.67
OP 145	40.944867	-84.556814	749.46	5.40	754.86
OP 155	40.917802	-84.505932	753.78	5.40	759.18
OP 162	40.931249	-84.504244	747.49	5.40	752.89
OP 164	40.931498	-84.512002	747.51	5.40	752.91
OP 165	40.930543	-84.516341	747.23	5.40	752.63
OP 191	40.929038	-84.546410	752.49	5.40	757.89
OP 222	40.910889	-84.513730	756.49	5.40	761.89
OP 223	40.925379	-84.503940	751.17	5.40	756.57
OP 227	40.953112	-84.558468	746.86	5.40	752.26
OP 228	40.925489	-84.546307	757.39	5.40	762.79

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
1	SA tracking	SA tracking	0	0	-	-
10	SA tracking	SA tracking	0	0	-	-
11	SA tracking	SA tracking	0	0	-	-
12	SA tracking	SA tracking	0	0	-	-
13	SA tracking	SA tracking	0	0	-	-
14	SA tracking	SA tracking	0	0	-	-
15	SA tracking	SA tracking	0	0	-	-
16	SA tracking	SA tracking	0	0	-	-
17	SA tracking	SA tracking	0	0	-	-
18	SA tracking	SA tracking	0	0	-	-
19	SA tracking	SA tracking	0	0	-	-
20	SA tracking	SA tracking	0	0	-	-
21	SA tracking	SA tracking	0	0	-	-
22	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

1 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

10 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

11 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

12 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

13 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

14 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

15 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

16 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

17 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

18 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

19 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

20 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

21 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

22 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

PV Array(s)

Total PV footprint area: 799.4 acres

Name: 13
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 54.3 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.924452	-84.528848	750.51	15.00	765.51
2	40.921754	-84.528765	751.65	15.00	766.65
3	40.920880	-84.528840	749.68	15.00	764.68
4	40.920843	-84.529353	750.43	15.00	765.43
5	40.919225	-84.529303	749.52	15.00	764.52
6	40.919201	-84.530634	751.27	15.00	766.27
7	40.918240	-84.530604	750.85	15.00	765.85
8	40.917551	-84.530954	751.44	15.00	766.44
9	40.917533	-84.531976	752.89	15.00	767.90
10	40.918355	-84.532001	752.74	15.00	767.74
11	40.918336	-84.533053	753.29	15.00	768.29
12	40.922528	-84.533182	751.89	15.00	766.89
13	40.922542	-84.532417	751.94	15.00	766.94
14	40.924387	-84.532474	751.14	15.00	766.14

Name: 14
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 27.5 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.928385	-84.523609	748.17	15.00	763.17
2	40.928432	-84.519670	747.56	15.00	762.56
3	40.927527	-84.519642	745.59	15.00	760.59
4	40.927501	-84.520254	746.76	15.00	761.76
5	40.926702	-84.520259	744.81	15.00	759.81
6	40.926675	-84.520650	745.93	15.00	760.93
7	40.925888	-84.520640	746.31	15.00	761.31
8	40.925879	-84.521052	747.48	15.00	762.48
9	40.925053	-84.521022	747.27	15.00	762.27
10	40.925039	-84.522104	748.63	15.00	763.63
11	40.924165	-84.522105	747.20	15.00	762.21
12	40.924140	-84.523479	749.19	15.00	764.19

Name: 15

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 49.2 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.928091	-84.514526	748.05	15.00	763.05
2	40.922189	-84.514456	751.01	15.00	766.01
3	40.922171	-84.515483	750.34	15.00	765.34
4	40.922923	-84.515506	750.19	15.00	765.19
5	40.923001	-84.518776	748.14	15.00	763.15
6	40.923823	-84.518801	748.77	15.00	763.78
7	40.923815	-84.519268	747.10	15.00	762.10
8	40.924683	-84.519497	747.32	15.00	762.32
9	40.925537	-84.519523	748.64	15.00	763.64
10	40.925548	-84.518950	749.24	15.00	764.24
11	40.926369	-84.518975	747.45	15.00	762.45
12	40.926376	-84.518592	747.77	15.00	762.77
13	40.927198	-84.518617	745.57	15.00	760.57
14	40.927248	-84.515735	748.59	15.00	763.59
15	40.928069	-84.515760	748.63	15.00	763.63

Name: 16

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 36.8 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.922454	-84.523168	749.24	15.00	764.24
2	40.922189	-84.523160	750.31	15.00	765.31
3	40.922192	-84.522969	750.32	15.00	765.32
4	40.921635	-84.522952	750.25	15.00	765.25
5	40.921641	-84.522618	750.06	15.00	765.07
6	40.921358	-84.522083	749.75	15.00	764.75
7	40.920829	-84.522066	750.17	15.00	765.17
8	40.920877	-84.519297	749.88	15.00	764.88
9	40.920567	-84.519174	750.18	15.00	765.18
10	40.917509	-84.519081	751.71	15.00	766.71
11	40.917434	-84.523375	751.78	15.00	766.78
12	40.922447	-84.523529	748.52	15.00	763.52

Name: 17

Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 9.5 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.919799	-84.518747	750.84	15.00	765.84
2	40.919807	-84.518291	750.81	15.00	765.81
3	40.919250	-84.518274	751.08	15.00	766.08
4	40.919314	-84.514450	751.77	15.00	766.77
5	40.918411	-84.514422	751.94	15.00	766.94
6	40.918344	-84.518706	751.65	15.00	766.65

Name: 18
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 70.6 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



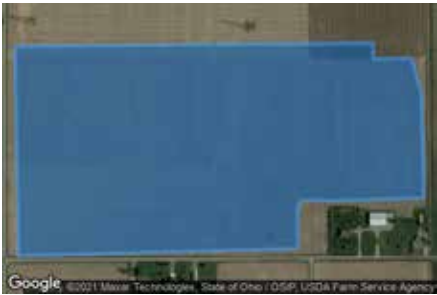
Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.917133	-84.519070	752.14	15.00	767.14
2	40.911541	-84.518990	754.55	15.00	769.55
3	40.911348	-84.518989	754.53	15.00	769.53
4	40.910472	-84.519064	754.74	15.00	769.74
5	40.910393	-84.523543	755.06	15.00	770.06
6	40.912887	-84.523619	754.00	15.00	769.00
7	40.917052	-84.523649	752.28	15.00	767.28

Name: 19
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 46.8 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.930539	-84.512570	746.47	15.00	761.47
2	40.930569	-84.510890	747.04	15.00	762.04
3	40.931497	-84.510918	745.89	15.00	760.89
4	40.931600	-84.504920	747.45	15.00	762.46
5	40.928945	-84.504840	748.54	15.00	763.55
6	40.928792	-84.513738	747.56	15.00	762.56
7	40.930518	-84.513791	747.15	15.00	762.15
8	40.930525	-84.513409	746.97	15.00	761.97

Name: 20
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 65.9 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.928166	-84.505868	748.70	15.00	763.70
2	40.927901	-84.505860	748.55	15.00	763.55
3	40.927916	-84.505016	748.60	15.00	763.60
4	40.927315	-84.504790	749.56	15.00	764.56
5	40.925583	-84.504732	750.37	15.00	765.37
6	40.925534	-84.506866	749.42	15.00	764.42
7	40.925546	-84.507443	749.80	15.00	764.80
8	40.925408	-84.507540	749.88	15.00	764.88
9	40.924724	-84.507528	750.14	15.00	765.14
10	40.924602	-84.513728	749.72	15.00	764.72
11	40.928114	-84.513806	747.81	15.00	762.81

Name: 21
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 45.9 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.922669	-84.504744	751.46	15.00	766.46
2	40.921769	-84.504716	752.58	15.00	767.58
3	40.921767	-84.504812	752.03	15.00	767.03
4	40.918479	-84.504711	753.06	15.00	768.06
5	40.918434	-84.507282	752.29	15.00	767.29
6	40.917612	-84.507257	752.84	15.00	767.84
7	40.917580	-84.509077	752.36	15.00	767.36
8	40.920074	-84.509153	751.61	15.00	766.61
9	40.922596	-84.509132	750.82	15.00	765.82
10	40.922635	-84.506921	751.59	15.00	766.59

Name: 22
Axis tracking: Single-axis rotation
Tracking axis orientation: 0.0 deg
Tracking axis tilt: 0.0 deg
Tracking axis panel offset: 0.0 deg
Maximum tracking angle: 55.0 deg
Resting angle: 55.0 deg
Footprint area: 215.6 acres
Rated power: -
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.917291	-84.504676	753.18	15.00	768.18
2	40.916441	-84.504651	753.55	15.00	768.55
3	40.913919	-84.504672	754.72	15.00	769.72
4	40.913917	-84.504767	754.43	15.00	769.43
5	40.906460	-84.504731	757.72	15.00	772.72
6	40.904762	-84.504778	758.47	15.00	773.47
7	40.904757	-84.505062	758.06	15.00	773.06
8	40.903874	-84.505035	758.16	15.00	773.16
9	40.903741	-84.512797	758.53	15.00	773.53
10	40.909592	-84.512951	755.86	15.00	770.86
11	40.909736	-84.512668	755.98	15.00	770.98
12	40.912186	-84.512710	755.06	15.00	770.06
13	40.912309	-84.513345	754.58	15.00	769.58
14	40.914505	-84.513421	753.35	15.00	768.35
15	40.914801	-84.513915	753.67	15.00	768.67
16	40.917297	-84.513888	753.49	15.00	768.49
17	40.917320	-84.511686	752.22	15.00	767.22
18	40.909717	-84.511692	755.91	15.00	770.91
19	40.909763	-84.509031	756.07	15.00	771.07
20	40.912225	-84.509106	754.97	15.00	769.97
21	40.915516	-84.509110	753.31	15.00	768.31
22	40.917214	-84.509063	752.54	15.00	767.54

Name: 24**Axis tracking:** Single-axis rotation**Tracking axis orientation:** 0.0 deg**Tracking axis tilt:** 0.0 deg**Tracking axis panel offset:** 0.0 deg**Maximum tracking angle:** 55.0 deg**Resting angle:** 55.0 deg**Footprint area:** 15.9 acres**Rated power:** -**Panel material:** Smooth glass with AR coating**Vary reflectivity with sun position?** Yes**Correlate slope error with surface type?** Yes**Slope error:** 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.919040	-84.528897	750.20	15.00	765.20
2	40.919119	-84.524070	751.89	15.00	766.89
3	40.917687	-84.524014	752.34	15.00	767.34
4	40.917627	-84.528854	751.94	15.00	766.94

Name: 25**Axis tracking:** Single-axis rotation**Tracking axis orientation:** 0.0 deg**Tracking axis tilt:** 0.0 deg**Tracking axis panel offset:** 0.0 deg**Maximum tracking angle:** 55.0 deg**Resting angle:** 55.0 deg**Footprint area:** 14.8 acres**Rated power:** -**Panel material:** Smooth glass with AR coating**Vary reflectivity with sun position?** Yes**Correlate slope error with surface type?** Yes**Slope error:** 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.924479	-84.504407	750.32	15.00	765.32
2	40.924492	-84.502510	749.89	15.00	764.89
3	40.921144	-84.502390	751.33	15.00	766.33
4	40.921121	-84.503969	751.61	15.00	766.61
5	40.921404	-84.504333	752.07	15.00	767.07

Name: 26**Axis tracking:** Single-axis rotation**Tracking axis orientation:** 0.0 deg**Tracking axis tilt:** 0.0 deg**Tracking axis panel offset:** 0.0 deg**Maximum tracking angle:** 55.0 deg**Resting angle:** 55.0 deg**Footprint area:** 141.2 acres**Rated power:** -**Panel material:** Smooth glass with AR coating**Vary reflectivity with sun position?** Yes**Correlate slope error with surface type?** Yes**Slope error:** 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.911998	-84.495190	753.86	15.00	768.86
2	40.910189	-84.495104	754.75	15.00	769.75
3	40.903545	-84.495353	757.50	15.00	772.50
4	40.903495	-84.498233	757.83	15.00	772.83
5	40.903506	-84.504352	759.07	15.00	774.07
6	40.904481	-84.504382	758.77	15.00	773.77
7	40.904601	-84.500187	757.31	15.00	772.31
8	40.906809	-84.500239	756.40	15.00	771.40
9	40.906897	-84.500629	756.38	15.00	771.38
10	40.906889	-84.502425	756.37	15.00	771.37
11	40.908498	-84.502505	755.69	15.00	770.69
12	40.908503	-84.502846	755.77	15.00	770.77
13	40.910947	-84.502936	754.75	15.00	769.75
14	40.910920	-84.504484	751.61	15.00	766.61
15	40.911894	-84.504545	752.65	15.00	767.65
16	40.911985	-84.498645	754.47	15.00	769.47

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Name: 27

Axis tracking: Single-axis rotation

Tracking axis orientation: 0.0 deg

Tracking axis tilt: 0.0 deg

Tracking axis panel offset: 0.0 deg

Maximum tracking angle: 55.0 deg

Resting angle: 55.0 deg

Footprint area: 5.6 acres

Rated power: -

Panel material: Smooth glass with AR coating

Vary reflectivity with sun position? Yes

Correlate slope error with surface type? Yes

Slope error: 8.43 mrad



Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.930668	-84.514409	747.06	15.00	762.06
2	40.928945	-84.514362	747.63	15.00	762.63
3	40.928935	-84.515771	748.13	15.00	763.14
4	40.930638	-84.515829	746.48	15.00	761.48

2-Mile Flight Path Receptor(s)

Name: FP 1

Description: None

Threshold height : 50 ft

Direction: 269.7 deg

Glide slope: 3.0 deg

Pilot view restricted? Yes

Vertical view restriction: 30.0 deg

Azimuthal view restriction: 50.0 deg



Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.864745	-84.602263	785.04	50.00	835.04
2-mile point	40.864897	-84.563987	782.14	606.33	1388.47

Name: FP 2

Description: None

Threshold height : 50 ft

Direction: 89.3 deg

Glide slope: 3.0 deg

Pilot view restricted? Yes

Vertical view restriction: 30.0 deg

Azimuthal view restriction: 50.0 deg



Point	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
Threshold	40.864697	-84.616103	783.44	50.00	833.44
2-mile point	40.864354	-84.654376	784.54	602.33	1386.87

https://www.forgesolar.com/projects/9844/configs/56544/

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Route Receptor(s)

Name: Route 1**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.924587	-84.495055	750.94	0.00	750.94
2	40.924555	-84.499947	750.14	0.00	750.14
3	40.924620	-84.504625	750.54	0.00	750.54
4	40.924587	-84.511620	749.64	0.00	749.64
5	40.924555	-84.514023	750.64	0.00	750.64

Name: Route 2**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.933471	-84.514088	744.14	0.00	744.14
2	40.931477	-84.514066	748.14	0.00	748.14
3	40.928203	-84.514066	748.44	0.00	748.44
4	40.924596	-84.514089	749.54	0.00	749.54
5	40.922132	-84.514132	746.84	0.00	746.84
6	40.920575	-84.514046	752.84	0.00	752.84

Name: Route 3**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.931824	-84.533513	751.94	0.00	751.94
2	40.931808	-84.537955	751.84	0.00	751.84
3	40.931792	-84.543963	752.14	0.00	752.14
4	40.931775	-84.552396	752.84	0.00	752.84
5	40.931613	-84.559498	753.54	0.00	753.54
6	40.931514	-84.564688	755.74	0.00	755.74
7	40.931433	-84.572166	757.24	0.00	757.24

Name: Route 4**Route type:** Two-way**View angle:** 50.0 deg

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	40.931778	-84.546789	752.14	0.00	752.14
2	40.929898	-84.546746	752.54	0.00	752.54
3	40.926672	-84.546661	753.64	0.00	753.64
4	40.925018	-84.546639	754.14	0.00	754.14
5	40.922521	-84.546596	749.24	0.00	749.24

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	40.947593	-84.562567	750.20	5.40	755.60
OP 3	40.949450	-84.562478	748.04	5.40	753.44
OP 19	40.924052	-84.571616	758.63	5.40	764.03
OP 31	40.917395	-84.563437	761.00	5.40	766.40
OP 32	40.917512	-84.557465	757.37	5.40	762.78
OP 33	40.916969	-84.554380	755.23	5.40	760.63
OP 35	40.917544	-84.533074	754.58	5.40	759.98
OP 36	40.917809	-84.516843	752.74	5.40	758.15
OP 39	40.932069	-84.546691	751.95	5.40	757.36
OP 41	40.931191	-84.558032	754.02	5.40	759.42
OP 42	40.931338	-84.559228	754.06	5.40	759.46
OP 43	40.931296	-84.565620	756.49	5.40	761.90
OP 57	40.928973	-84.546979	752.92	5.40	758.32
OP 58	40.924578	-84.546121	753.09	5.40	758.49
OP 71	40.952085	-84.562416	746.81	5.40	752.21
OP 72	40.948698	-84.562501	750.01	5.40	755.41
OP 73	40.946421	-84.562508	751.00	5.40	756.40
OP 87	40.924333	-84.533125	752.03	5.40	757.43
OP 88	40.923842	-84.533074	752.33	5.40	757.73
OP 106	40.904901	-84.513778	759.41	5.40	764.81
OP 107	40.907613	-84.513562	758.04	5.40	763.44
OP 117	40.911693	-84.494591	756.20	5.40	761.60
OP 118	40.909507	-84.494580	756.28	5.40	761.68
OP 119	40.905869	-84.494290	758.52	5.40	763.92
OP 127	40.924192	-84.510930	751.30	5.40	756.70
OP 128	40.924197	-84.510187	752.32	5.40	757.72
OP 129	40.923161	-84.507399	752.99	5.40	758.39
OP 130	40.924990	-84.506500	751.66	5.40	757.06
OP 131	40.924806	-84.504884	751.03	5.40	756.43
OP 132	40.925201	-84.502704	751.27	5.40	756.67
OP 145	40.944867	-84.556814	749.46	5.40	754.86
OP 155	40.917802	-84.505932	753.78	5.40	759.18
OP 162	40.931249	-84.504244	747.49	5.40	752.89
OP 164	40.931498	-84.512002	747.51	5.40	752.91
OP 165	40.930543	-84.516341	747.23	5.40	752.63
OP 191	40.929038	-84.546410	752.49	5.40	757.89
OP 222	40.910889	-84.513730	756.49	5.40	761.89
OP 223	40.925379	-84.503940	751.17	5.40	756.57
OP 227	40.953112	-84.558468	746.86	5.40	752.26
OP 228	40.925489	-84.546307	757.39	5.40	762.79

Summary of PV Glare Analysis

PV configuration and total predicted glare

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced	Data File
	deg	deg	min	min	kWh	
13	SA tracking	SA tracking	0	0	-	-
14	SA tracking	SA tracking	0	0	-	-
15	SA tracking	SA tracking	0	0	-	-
16	SA tracking	SA tracking	0	0	-	-
17	SA tracking	SA tracking	0	0	-	-
18	SA tracking	SA tracking	0	0	-	-
19	SA tracking	SA tracking	0	0	-	-
20	SA tracking	SA tracking	0	0	-	-
21	SA tracking	SA tracking	0	0	-	-
22	SA tracking	SA tracking	0	0	-	-
24	SA tracking	SA tracking	0	0	-	-
25	SA tracking	SA tracking	0	0	-	-
26	SA tracking	SA tracking	0	0	-	-
27	SA tracking	SA tracking	0	0	-	-

PV & Receptor Analysis Results

Results for each PV array and receptor

13 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

14 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

15 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

16 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

17 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

18 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

19 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

20 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

21 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

22 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

24 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

25 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

26 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

27 no glare found

Component	Green glare (min)	Yellow glare (min)
FP: FP 1	0	0
FP: FP 2	0	0
OP: OP 1	0	0
OP: OP 3	0	0
OP: OP 19	0	0
OP: OP 31	0	0
OP: OP 32	0	0
OP: OP 33	0	0
OP: OP 35	0	0
OP: OP 36	0	0
OP: OP 39	0	0
OP: OP 41	0	0
OP: OP 42	0	0
OP: OP 43	0	0
OP: OP 57	0	0
OP: OP 58	0	0
OP: OP 71	0	0
OP: OP 72	0	0
OP: OP 73	0	0
OP: OP 87	0	0
OP: OP 88	0	0
OP: OP 106	0	0
OP: OP 107	0	0
OP: OP 117	0	0
OP: OP 118	0	0
OP: OP 119	0	0
OP: OP 127	0	0
OP: OP 128	0	0
OP: OP 129	0	0
OP: OP 130	0	0
OP: OP 131	0	0
OP: OP 132	0	0
OP: OP 145	0	0
OP: OP 155	0	0
OP: OP 162	0	0
OP: OP 164	0	0
OP: OP 165	0	0
OP: OP 191	0	0
OP: OP 222	0	0
OP: OP 223	0	0
OP: OP 227	0	0
OP: OP 228	0	0
Route: Route 1	0	0
Route: Route 2	0	0
Route: Route 3	0	0
Route: Route 4	0	0

No glare found

Assumptions

- Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
- Glare analyses do not account for physical obstructions between reflectors and receptors. This includes buildings, tree cover and geographic obstructions
- Detailed system geometry is not rigorously simulated.
- The glare hazard determination relies on several approximations including observer eye characteristics, angle of view, and typical blink response time. Actual values and results may vary.
- The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
- Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare.
- The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
- Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
- Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
- Glare vector plots are simplified representations of analysis data. Actual glare emanations and results may differ.
- Refer to the **Help page** for detailed assumptions and limitations not listed here.

**This foregoing document was electronically filed with the Public Utilities
Commission of Ohio Docketing Information System on**

11/16/2021 11:54:33 AM

in

Case No(s). 21-0823-EL-BGN

Summary: Application Exhibit N - Solar Glare Analysis electronically filed by Teresa
Orahood on behalf of Herrnstein, Kara