

ForgeSolar Cookie Policy

This site uses cookies to enable tool usage and functionality, to collect anonymous information regarding site usage, and to recognize your repeat visits and preferences.
To learn more about our policies, view the ForgeSolar Privacy Policy. By clicking "I Accept" on this banner, or by using this site, you consent to the use of cookies unless you have disabled them.

I Accept



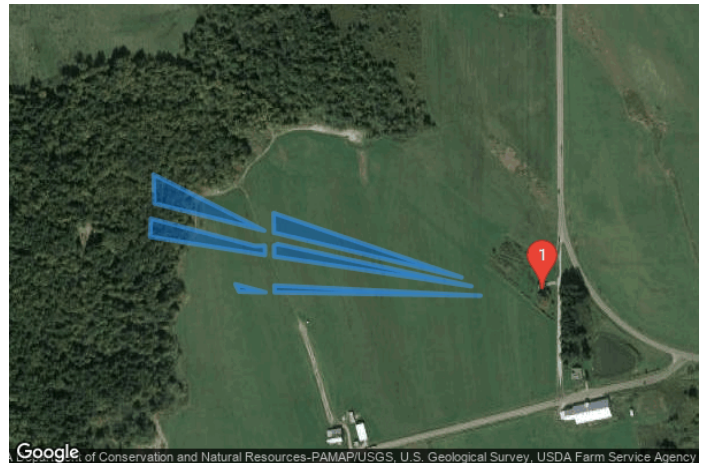
ForgeSolar

South Ripley Solar

South Ripley R95

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55432.9843

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

Glare with potential for temporary after-image predicted

PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
54a	30.0	180.0	111	765	1,294.0
54b	30.0	180.0	768	0	1,295.0
54c	30.0	180.0	197	1,223	1,294.0
54d	30.0	180.0	702	0	1,294.0
54e	30.0	180.0	283	24	1,294.0
54f	30.0	180.0	485	0	1,295.0

Component Data

PV Array(s)

Total PV footprint area: 4.1 acres

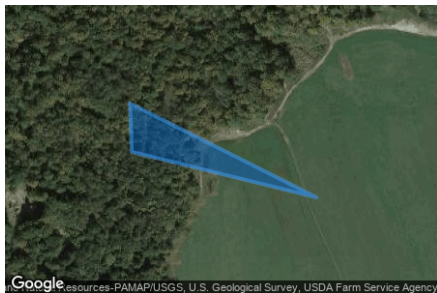
Name: 54a
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 1.1 acres
Rated power: 0.55 kW
Panel material: Smooth glass with AR coating
Vary reflectivity with sun position? Yes
Correlate slope error with surface type? Yes
Slope error: 8.43 mrad

Vertex	Latitude	Longitude	Ground elevation	Height above ground	Total elevation
	deg	deg	ft	ft	ft
1	42.183274	-79.663870	1494.45	12.00	1506.45
2	42.183003	-79.663865	1496.76	12.00	1508.76
3	42.182388	-79.660362	1519.29	12.00	1531.29



Name: 54b
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.92 acre
Rated power: 0.55 kW
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	42.183805	-79.666110	1475.65	12.00	1487.65
2	42.183405	-79.666092	1477.48	12.00	1489.48
3	42.183031	-79.664042	1497.17	12.00	1509.17



Name: 54c
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.76 acre
Rated power: 0.55 kW
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	42.182847	-79.663794	1498.14	12.00	1510.14
2	42.182825	-79.663862	1499.54	12.00	1511.54
3	42.182675	-79.663859	1501.88	12.00	1513.88
4	42.182266	-79.660177	1521.89	12.00	1533.89



Name: 54d
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.84 acre
Rated power: 0.55 kW
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	42.182821	-79.664215	1499.12	12.00	1511.12
2	42.182823	-79.664032	1499.95	12.00	1511.95
3	42.182694	-79.664030	1501.78	12.00	1513.78
4	42.182945	-79.666174	1476.25	12.00	1488.25
5	42.183197	-79.666159	1476.62	12.00	1488.62

Name: 54e
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.42 acre
Rated power: 0.55 kW
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	42.182136	-79.660008	1523.45	12.00	1535.45
2	42.182181	-79.663851	1504.82	12.00	1516.82
3	42.182277	-79.663853	1504.57	12.00	1516.57

Name: 54f
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 0.06 acre
Rated power: 0.55 kW
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	42.182294	-79.664581	1491.82	12.00	1503.83
2	42.182192	-79.664514	1492.03	12.00	1504.03
3	42.182183	-79.664021	1503.17	12.00	1515.17

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.182209	-79.658849	1539.19	5.40	1544.59

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	
54a	30.0	180.0	111	765	1,294.0	
54b	30.0	180.0	768	0	1,295.0	
54c	30.0	180.0	197	1,223	1,294.0	
54d	30.0	180.0	702	0	1,294.0	
54e	30.0	180.0	283	24	1,294.0	
54f	30.0	180.0	485	0	1,295.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
54a (green)	0	0	0	16	39	0	0	56	0	0	0	0
54a (yellow)	0	0	0	357	27	0	0	271	110	0	0	0
54b (green)	0	0	0	228	153	0	5	382	0	0	0	0
54b (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
54c (green)	0	0	0	99	0	0	0	93	5	0	0	0
54c (yellow)	0	0	299	313	0	0	0	63	548	0	0	0
54d (green)	0	0	5	348	0	0	0	193	156	0	0	0
54d (yellow)	0	0	0	0	0	0	0	0	0	0	0	0
54e (green)	0	0	144	0	0	0	0	0	139	0	0	0
54e (yellow)	0	0	11	0	0	0	0	0	13	0	0	0
54f (green)	0	0	245	0	0	0	0	0	240	0	0	0
54f (yellow)	0	0	0	0	0	0	0	0	0	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

54a potential temporary after-image

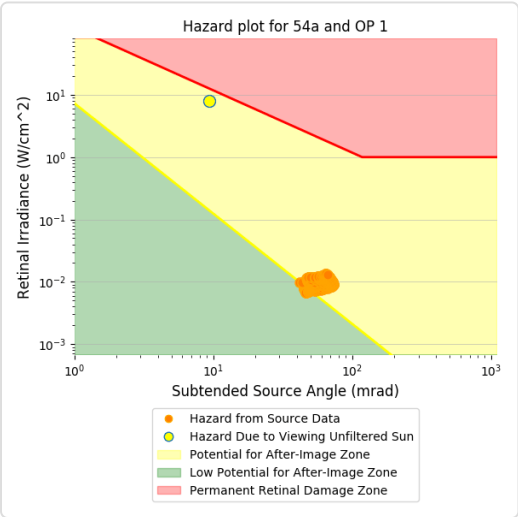
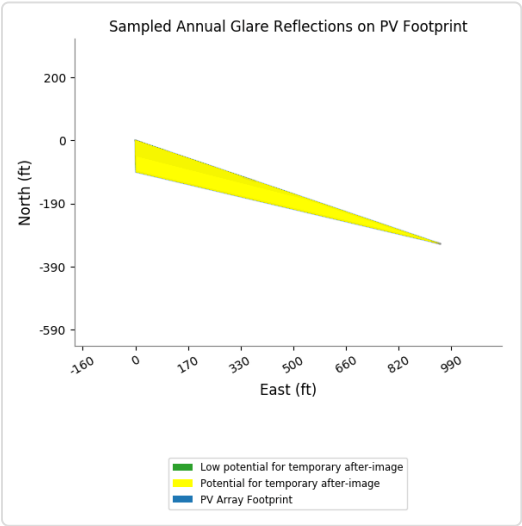
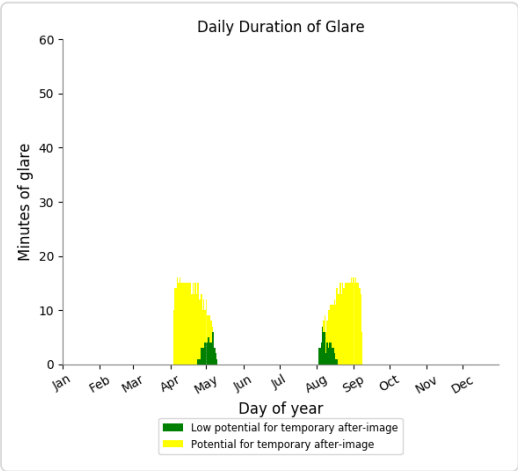
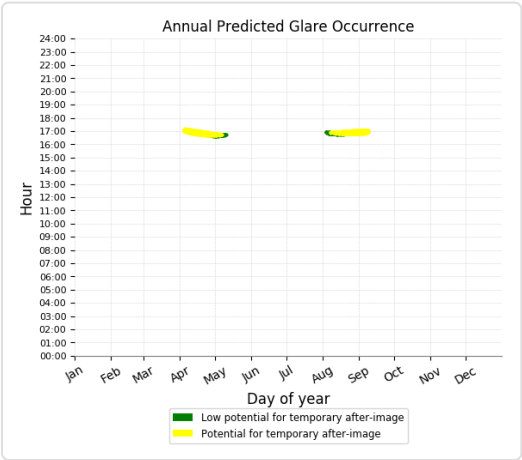
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	111	765

54a - OP Receptor (OP 1)

PV array is expected to produce the following glare for receptors at this location:

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



54b low potential for temporary after-image

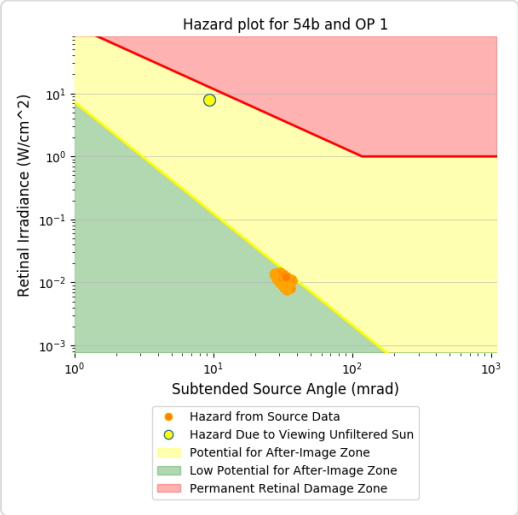
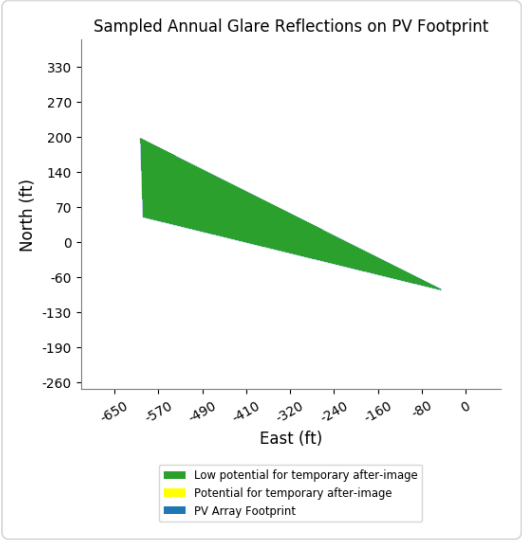
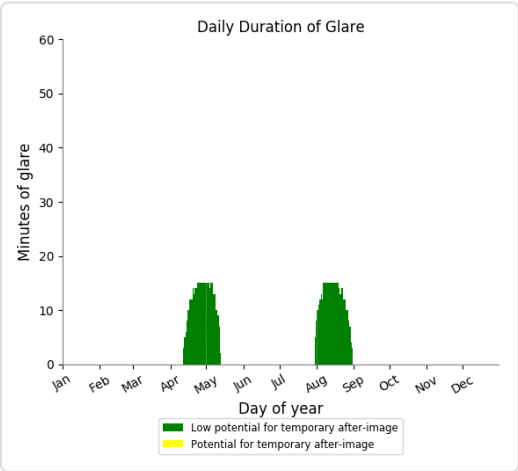
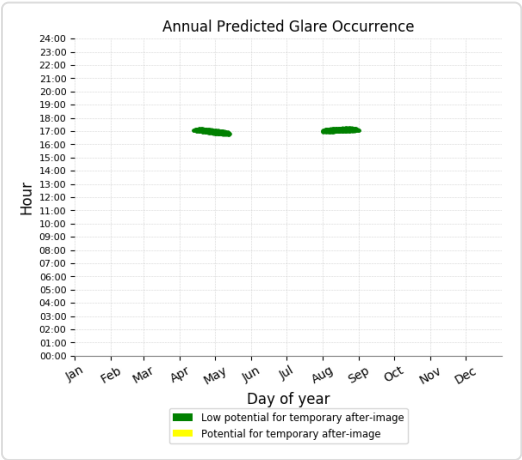
Predicted energy output: 1,295.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	768	0

54b - OP Receptor (OP 1)

PV array is expected to produce the following glare for receptors at this location:

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



54c potential temporary after-image

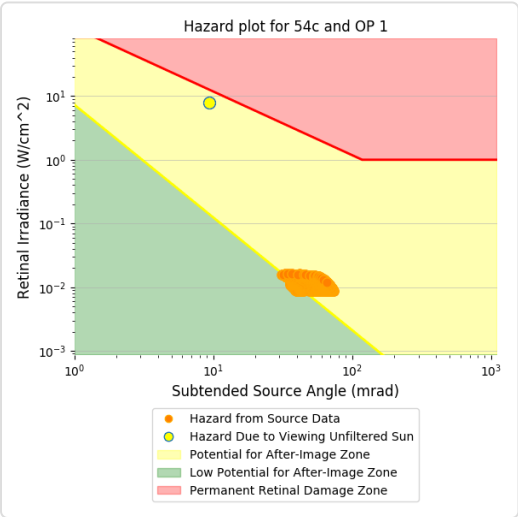
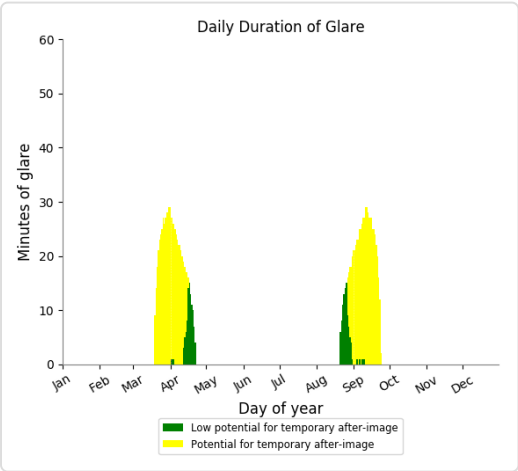
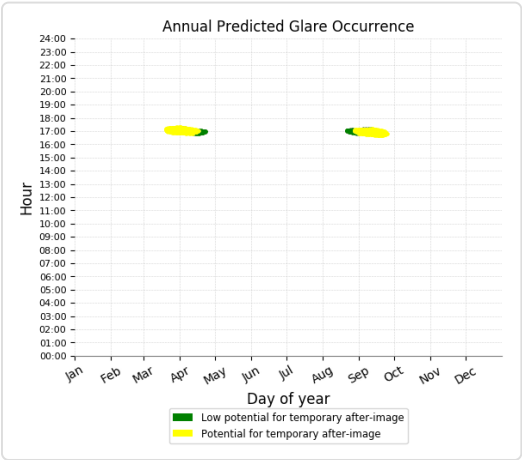
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	197	1223

54c - OP Receptor (OP 1)

PV array is expected to produce the following glare for receptors at this location:

- 197 minutes of "green" glare with low potential to cause temporary after-image.
- 1,223 minutes of "yellow" glare with potential to cause temporary after-image.



54d low potential for temporary after-image

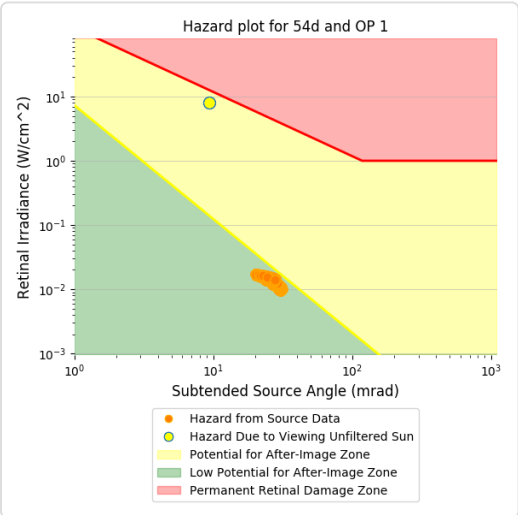
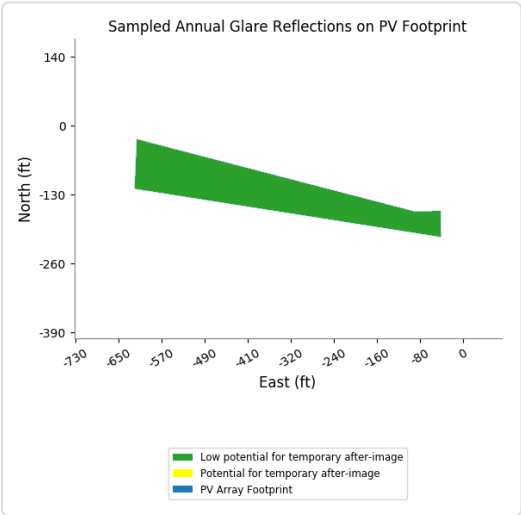
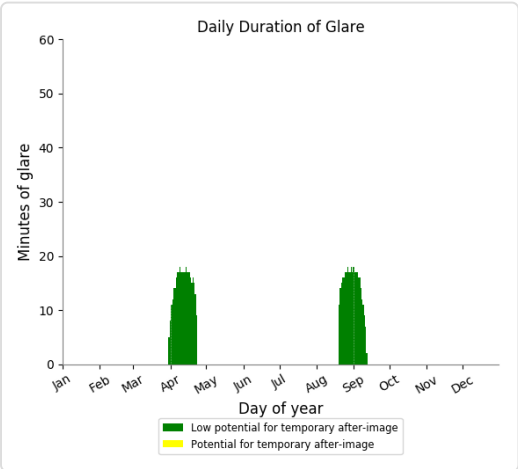
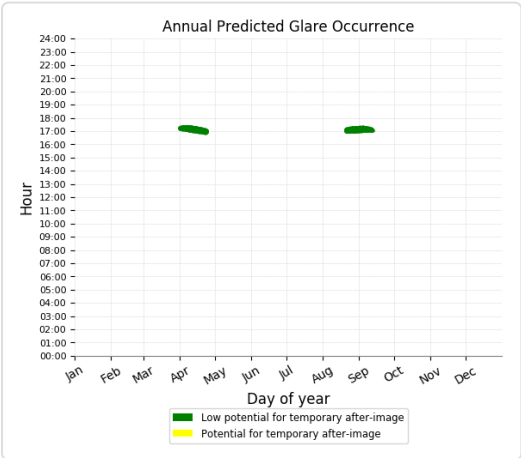
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	702	0

54d - OP Receptor (OP 1)

PV array is expected to produce the following glare for receptors at this location:

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



54e potential temporary after-image

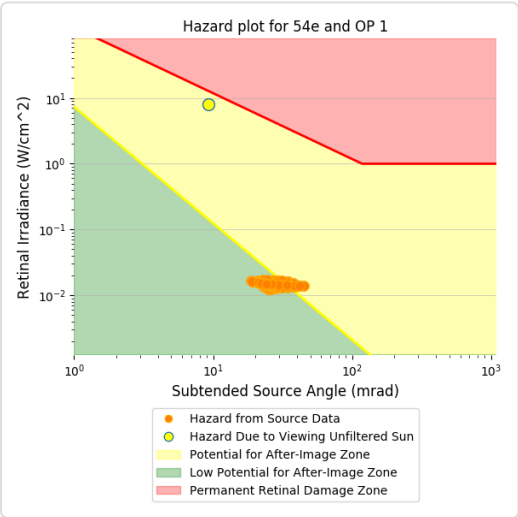
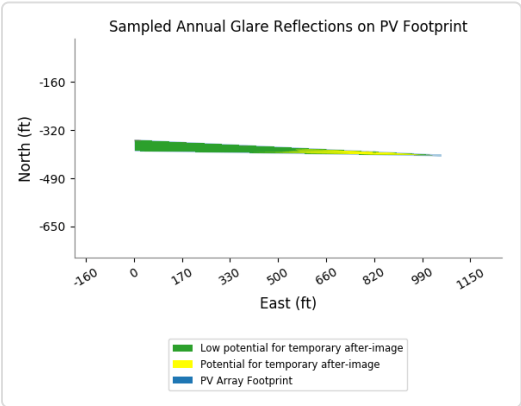
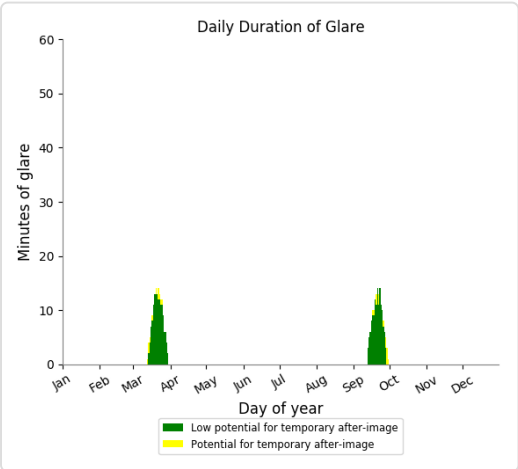
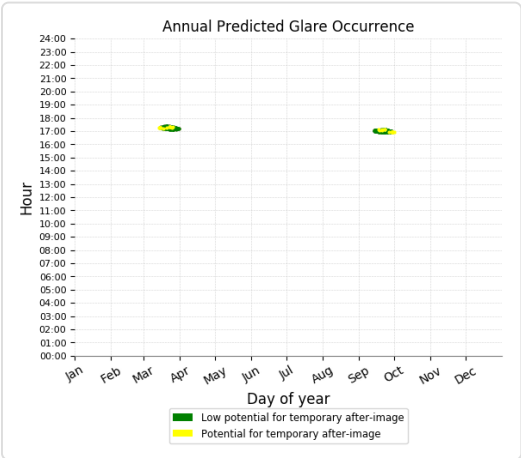
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	283	24

54e - OP Receptor (OP 1)

PV array is expected to produce the following glare for receptors at this location:

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



54f low potential for temporary after-image

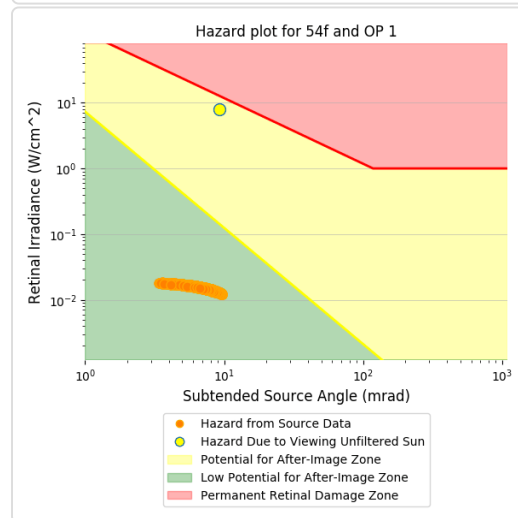
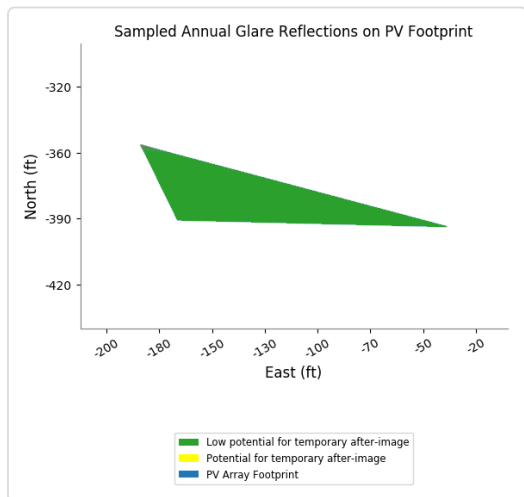
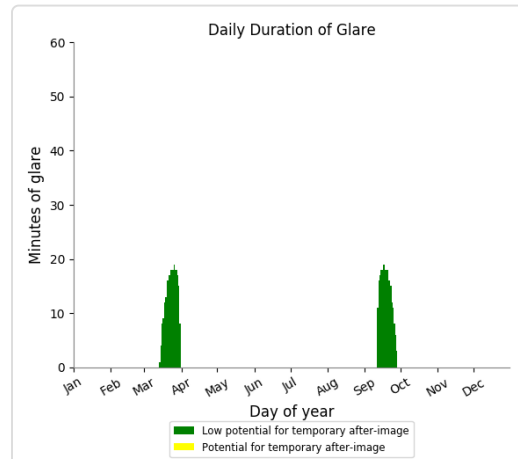
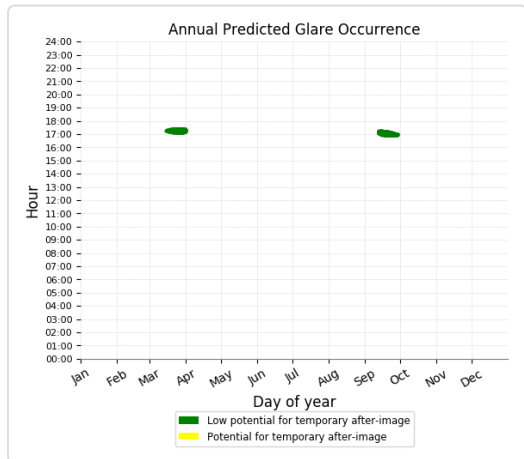
Predicted energy output: 1,295.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	485	0

54f - OP Receptor (OP 1)

PV array is expected to produce the following glare for receptors at this location:

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



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.

ForgeSolar Cookie Policy

This site uses cookies to enable tool usage and functionality, to collect anonymous information regarding site usage, and to recognize your repeat visits and preferences.
To learn more about our policies, view the ForgeSolar Privacy Policy. By clicking "I Accept" on this banner, or by using this site, you consent to the use of cookies unless you have disabled them.

I Accept



ForgeSolar

South Ripley Solar

South Ripley R100

Created June 22, 2021
Updated July 28, 2021
Time-step 1 minute
Timezone offset UTC-6
Site ID 55441.9843

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

Glare with potential for temporary after-image predicted

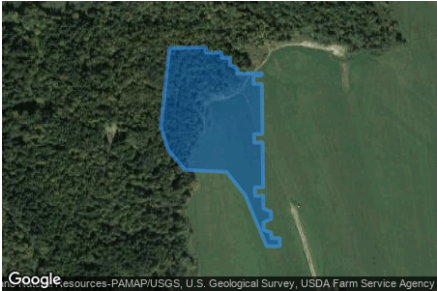
PV Name	Tilt	Orientation	"Green" Glare	"Yellow" Glare	Energy Produced
	deg	deg	min	min	kWh
45	30.0	180.0	0	3,492	1,294.0
47	30.0	180.0	0	0	1,295.0

Component Data

PV Array(s)

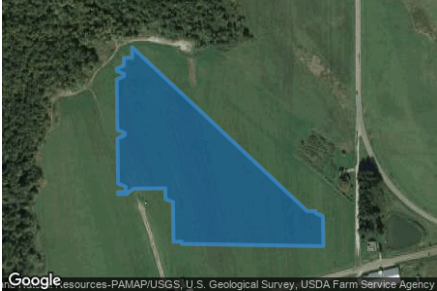
Total PV footprint area: 25.8 acres

Name: 45
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 9.6 acres
Rated power: 0.55 kW
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	42.181838	-79.664351	1493.92	12.00	1505.92
2	42.181952	-79.664411	1492.51	12.00	1504.51
3	42.182339	-79.664832	1488.79	12.00	1500.80
4	42.182370	-79.665754	1485.44	12.00	1497.44
5	42.182695	-79.666128	1486.10	12.00	1498.11
6	42.183072	-79.666290	1489.58	12.00	1501.58
7	42.184381	-79.666098	1504.25	12.00	1516.25
8	42.184388	-79.665291	1505.74	12.00	1517.74
9	42.184301	-79.665286	1506.20	12.00	1518.20
10	42.184304	-79.664940	1502.27	12.00	1514.27
11	42.184216	-79.664938	1501.51	12.00	1513.52
12	42.184218	-79.664755	1498.79	12.00	1510.79
13	42.184095	-79.664753	1497.63	12.00	1509.63
14	42.184044	-79.664586	1494.30	12.00	1506.30
15	42.183957	-79.664584	1494.03	12.00	1506.03
16	42.183962	-79.664051	1483.07	12.00	1495.07
17	42.183927	-79.664051	1483.25	12.00	1495.25
18	42.183925	-79.664234	1483.22	12.00	1495.22
19	42.183785	-79.664232	1486.51	12.00	1498.51
20	42.183787	-79.664048	1484.87	12.00	1496.87
21	42.182963	-79.664034	1498.52	12.00	1510.52
22	42.182962	-79.664218	1498.35	12.00	1510.35
23	42.182821	-79.664215	1499.20	12.00	1511.20
24	42.182823	-79.664032	1500.08	12.00	1512.09
25	42.182088	-79.664019	1504.11	12.00	1516.11
26	42.182086	-79.664203	1500.26	12.00	1512.26
27	42.182086	-79.664203	1500.26	12.00	1512.26
28	42.181946	-79.664200	1497.85	12.00	1509.85
29	42.181947	-79.664017	1501.56	12.00	1513.56
30	42.181737	-79.664013	1499.53	12.00	1511.53
31	42.181686	-79.663846	1500.94	12.00	1512.94
32	42.181564	-79.663844	1500.22	12.00	1512.22
33	42.181509	-79.664009	1496.39	12.00	1508.39
34	42.181387	-79.664007	1492.60	12.00	1504.60
35	42.181336	-79.663840	1498.21	12.00	1510.21
36	42.181248	-79.663835	1497.44	12.00	1509.44
37	42.181250	-79.663655	1499.62	12.00	1511.62
38	42.181116	-79.663653	1499.13	12.00	1511.13
39	42.181119	-79.663943	1492.73	12.00	1504.73

Name: 47
Axis tracking: Fixed (no rotation)
Tilt: 30.0 deg
Orientation: 180.0 deg
Footprint area: 16.2 acres
Rated power: 0.55 kW
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	42.181638	-79.659650	1522.23	12.00	1534.23
2	42.181640	-79.659467	1524.78	12.00	1536.78
3	42.181605	-79.659466	1524.23	12.00	1536.23
4	42.181554	-79.659299	1527.11	12.00	1539.11
5	42.181065	-79.659291	1520.29	12.00	1532.29
6	42.181102	-79.662434	1502.39	12.00	1514.39
7	42.181139	-79.662435	1502.23	12.00	1514.23
8	42.181137	-79.662618	1503.89	12.00	1515.89
9	42.181785	-79.662629	1500.54	12.00	1512.54
10	42.181836	-79.662796	1501.81	12.00	1513.81
11	42.182011	-79.662799	1500.12	12.00	1512.12
12	42.182005	-79.663498	1506.97	12.00	1518.97
13	42.182005	-79.663502	1507.03	12.00	1519.03
14	42.181916	-79.663667	1506.15	12.00	1518.15
15	42.181914	-79.663846	1503.73	12.00	1515.73
16	42.181949	-79.663847	1504.06	12.00	1516.06
17	42.181951	-79.663667	1506.15	12.00	1518.15
18	42.182038	-79.663682	1505.96	12.00	1517.96
19	42.182089	-79.663849	1504.93	12.00	1516.93
20	42.182825	-79.663862	1499.54	12.00	1511.54
21	42.182879	-79.663697	1496.70	12.00	1508.70
22	42.182914	-79.663697	1496.20	12.00	1508.21
23	42.182965	-79.663864	1496.92	12.00	1508.92
24	42.183788	-79.663878	1483.51	12.00	1495.51
25	42.183842	-79.663713	1483.35	12.00	1495.35
26	42.183877	-79.663714	1483.27	12.00	1495.27
27	42.183928	-79.663881	1482.15	12.00	1494.15
28	42.183963	-79.663881	1482.31	12.00	1494.31
29	42.184018	-79.663716	1483.04	12.00	1495.04
30	42.184140	-79.663718	1482.28	12.00	1494.28
31	42.184142	-79.663535	1484.49	12.00	1496.49
32	42.184317	-79.663538	1485.92	12.00	1497.92

Discrete Observation Receptors

Number	Latitude	Longitude	Ground elevation	Height above ground	Total Elevation
	deg	deg	ft	ft	ft
OP 1	42.181055	-79.658209	1532.88	5.40	1538.28

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	
45	30.0	180.0	0	3,492	1,294.0	
47	30.0	180.0	0	0	1,295.0	

Distinct glare per month

Excludes overlapping glare from PV array for multiple receptors at matching time(s)

PV	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
45 (green)	0	0	0	0	0	0	0	0	0	0	0	0
45 (yellow)	0	0	240	542	573	570	583	560	424	0	0	0

PV & Receptor Analysis Results

Results for each PV array and receptor

45 potential temporary after-image

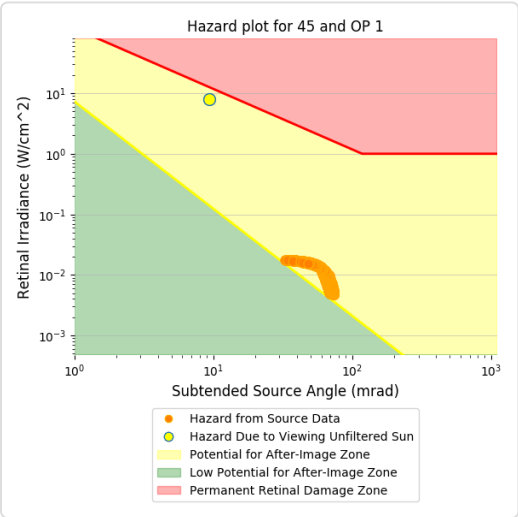
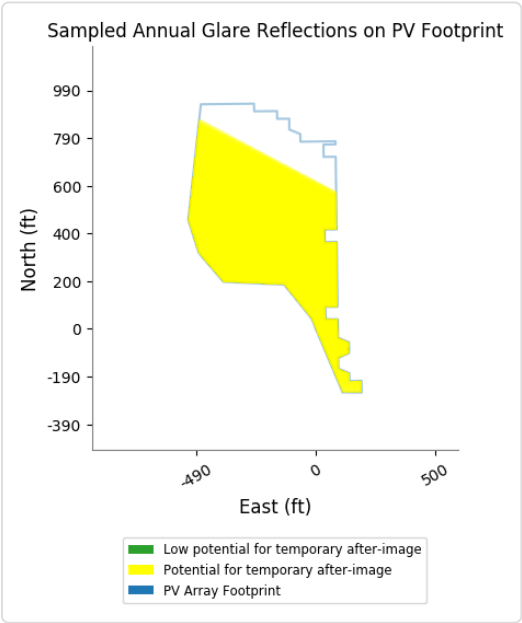
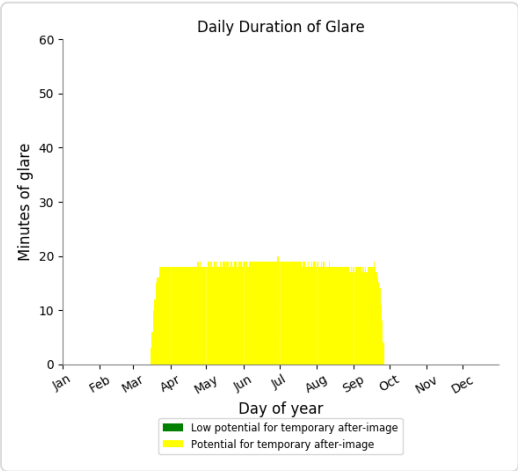
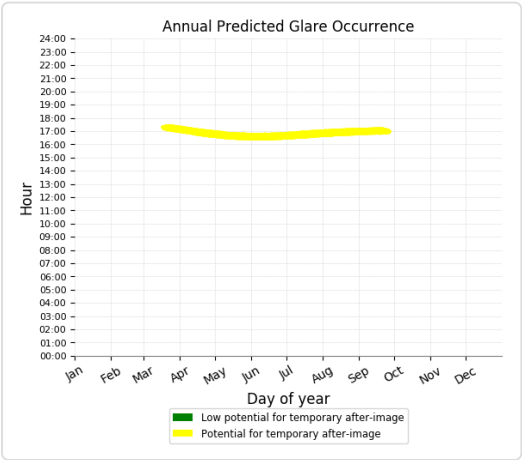
Predicted energy output: 1,294.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	0	3492

45 - OP Receptor (OP 1)

PV array is expected to produce the following glare for receptors at this location:

- 0 minutes of "green" glare with low potential to cause temporary after-image.
- 3,492 minutes of "yellow" glare with potential to cause temporary after-image.



47 no glare found

Predicted energy output: 1,295.0 kWh (assuming sunny, clear skies)

Component	Green glare (min)	Yellow glare (min)
OP: OP 1	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.

Appendix B. Summary of Post-processed Model Results

Receptor ID	Average Annual Hours of Glare	
	Raw SGHAT Model Outputs	Post-processed Data
6	3.38	0
8	18.87	4.73
23	10.60	6.03
47	24.92	15.57
72	0.9	0
79	79.67	38.54
93	63.28	24.64
94	75.87	46.00
95	75.97	53.57
100	58.20	29.25