Exhibit D
Shadow Flicker Analysis

EDR

October 14, 2021

DICKINSON WRIGHT PLLC

EDR

Memorandum

To: Nate Pedder, Firelands Wind, LLC

From: Lindsay Donahoe, EDR

Date: October 14, 2021

Reference: Emerson Creek Wind Updated Shadow Flicker Analysis

EDR Project No: 17119

INTRODUCTION

This memorandum presents the findings of an updated shadow flicker analysis for the Emerson Creek Wind Farm (the Project). As submitted in the application for a Certificate of Environmental Compatibility and Public Need (Certificate Application) to the Ohio Power Siting Board (OSPB) in October 2018 (OPSB Case No. 18-1607-EL-BGN), Firelands Wind, LLC (the Applicant) is proposed a Project that consisted of up to 87 wind turbines. Since that time, seven turbines (T10, T57, T59, T64, T66, T71, and T78) have been shifted. Potential shadow flicker effects have been re-analyzed to account for the shift to these seven turbines.

Several wind turbine generators are being considered for this Project, with different combinations of turbine models proposed for each turbine location. The turbine model with the worst-case impacts (i.e., the turbine with the largest rotor diameter) under consideration for the Project is the General Electric (GE) 158 turbine with a rotor diameter of 158 meters (518 feet) and a hub height of 117 meters (384 feet), for a total height of 196 meters (643 feet).

Shadow flicker refers to the shadows that a wind turbine casts over structures and observers at times of the day when the sun is directly behind the turbine rotor from an observer's position. During intervals of sunshine, operating wind turbine generators will cast a shadow on surrounding areas as the rotor blades pass in front of the sun, causing a flickering effect while the rotor is in motion. Shadow flicker is most pronounced in northern latitudes during winter months because of the lower angle of the sun in the winter sky. However, it is possible to encounter shadow flicker anywhere for brief periods after sunrise and before sunset (U.S. Department of the Interior, 2005). Shadow flicker does not occur when fog or clouds obscure the sun, or when turbines are not operating. Obstacles such as terrain, vegetation, and/or buildings occurring between residences and wind turbines can significantly reduce or eliminate shadow flicker effects.

The location and duration of shadow flicker can be predicted quite accurately using computer modeling programs and input data regarding turbine locations, turbine dimensions, receptor locations, local topography, and sunshine frequency. A conservative assumption that the turbines

are in continuous operation is also applied. Shadow flicker effects predicted by the modeling exercise are expressed in terms of frequency (hours per year) at each receptor location.

METHODS

The updated shadow flicker analysis evaluated the potential impact of 30 GE158 turbines, each with a rotor diameter of 158 meters and a hub height of 117 meters. The 30 turbine locations modeled in this analysis included the seven shifted turbine locations and any turbine with potential to contribute shadow flicker to receptors within 10 rotor diameters (1,580 meters) of a shifted turbine (i.e., any turbine within 10 rotor diameters of receptors within 10 rotor diameters of a shifted turbine; see Figure 1). Consistent with the Emerson Creek Wind Farm Shadow Flicker Report (EDR, 2019a) a study area of 10 rotor diameters around the 30 modeled turbines was used for the analysis of shadow flicker effects.

As described in Section 3.3 of the Emerson Creek Wind Farm Shadow Flicker Report (EDR, 2019a), Rule 4906-4-09(E)(1) of the Ohio Administrative Code (OAC) requires that, "*The Facility shall be designed to avoid unreasonable adverse shadow flicker effect at any non-participating sensitive receptor within 1,000 meters of any turbine. At a minimum, the facility shall be operated so that shadow flicker levels do not exceed thirty hours per year at any such receptor.*" The OPSB has used this threshold of acceptability (i.e., 30 annual hours of shadow flicker) in certifying all commercial wind power projects to date in Ohio (OPSB, 2011a, 2011b, 2012, 2013, 2014).

WindPRO 3.4.415 software and the associated Shadow module was used to conduct the shadow flicker analysis. *WindPRO* is a widely accepted modeling software package developed specifically for the design and evaluation of wind power projects. Input variables and assumptions used for shadow flicker modeling calculations for the proposed Project include:

- The latitude and longitude coordinates of 30 wind turbine sites (provided by the Applicant).
- The latitude and longitude coordinates for 159 potential receptors located within the 1,580-meter Study Area around shifted turbines (provided by the Applicant).
- USGS 1:24,000 topographic mapping and USGS digital elevation model (DEM) data.
- The rotor diameter (158 meters) and hub height (117 meters) for the GE158 turbine.
- Annual wind rose data (provided by the Applicant) to determine the approximate directional frequency of rotor orientation throughout the year (Table A1 of Attachment A).
- To account for the occurrence of cloudy conditions, the average monthly percent of available sunshine for the nearest National Oceanic and Atmospheric Administration (NOAA) weather station in Cleveland, Ohio was used (Table A2 of Attachment A). Data were obtained from NOAA's "Comparative Climatic Data for the United States through 2015" (http://www.ncdc.noaa.gov).

- No allowance was made for wind being below or above generation speeds. Blades are assumed to be moving during all daylight hours when the sun's elevation is more than 3 degrees above the horizon. Shadow flicker is generally considered imperceptible when the sun is less than 3 degrees above the horizon due to the scattering effect of the atmosphere on low angle sunlight (States Committee for Pollution Control, 2002).
- The possible screening effect of trees and buildings adjacent to the receptors was not taken into consideration in the modeling. In addition, the number and/or orientation of windows in residential receptors were not considered in the analysis.

Based on these variables and assumptions, *WindPRO* was used to calculate the theoretical number of hours per year that shadow flicker would occur at any given location in the vicinity of turbine the shifted turbines.

The model calculations include the cumulative sum of shadow hours for all turbines. This omni-directional approach reports total shadow flicker results at a receptor regardless of the presence or orientation of windows at the receptor residence (i.e., it assumes shadows from all directions can be perceived at a residence, which may or may not be true). A receptor in the model is defined as a one square meter area, one meter above ground level; the actual dimensions of the house or window locations are not taken into consideration.

RESULTS

Output from the model includes the following information:

- Calculated shadow flicker time (specific days, maximum hours per day, and total hours per year when shadow flicker is expected) at each of the receptors located in the Study Areas.
- Tabulated and plotted time of day that structures are predicted to receive shadow flicker (Attachment B).
- Shadow isolines, which are used to create maps showing turbine locations, receptors, and projected shadow flicker duration (hours per year) without taking into consideration the effect of screening provided by vegetation and structures (Figure 2).

A summary of the projected shadow flicker at each of the 159 receptors within 1,580 meters of a shifted turbine is presented below:

- 54 (34%) of the receptors are not expected to experience any shadow flicker,
- 1 (1%) of the receptors may be affected 0-1 hour/year,
- 41 (26%) of the receptors may be affected 1-10 hours/year,
- 24 (15%) of the receptors may be affected 10-20 hours/year,
- 16 (10%) of the receptors may be affected 20-30 hours/year,

- 23 (15%) of the receptors may be affected for more than 30 hours/year.

As these results indicate, 85% of the receptors within 10 rotor diameters of a shifted turbine are predicted to receive less than 30 hours of shadow flicker per year with 61% predicted to receive less than 10 hours of shadow flicker per year. While 23 receptors were predicted to received more than 30 hours of shadow flicker per year, 16 (70%) are Project participants (see Figure 2). Table 1 provides the results of the predicted shadow flicker at each structure calculated to experience more than 30 hours of shadow flicker per year. The times of day and duration of shadow flicker experienced by each structure will vary throughout the calendar year based on the position of the sun in the sky and the direction of prevailing winds. See Attachment B for detailed calendars that illustrate the specific times of year and day that shadow flicker may occur.

Table 1. Receptors Predicted to Receive Over 30 Hours of Shadow Flicker Annually

Receptor ID	Participation Status	Predicted Shadow Flicker (hh:mm/year)	Max Daily Shadow Flicker (hh:mm/day)	Days with Shadow Flicker (days/year)
596	Non-participating	30:15	0:54	204
1314	Non-participating	30:57	1:03	159
1505	Non-participating	30:59	0:43	157
1389	Non-participating	38:01	1:00	207
770	Non-participating	49:42	2:07	190
1375	Non-participating	100:18	2:10	266
1179	Non-participating	103:12	2:17	266
1231	Participating	30:00	1:53	123
1468	Participating	30:06	1:04	76
1518	Participating	32:12	1:38	166
1570	Participating	32:33	0:58	158
1603	Participating	33:17	0:48	255
688	Participating	37:11	1:04	182
1237	Participating	37:36	1:06	183
614	Participating	42:28	1:05	193
941	Participating	47:17	1:08	237
940	Participating	50:10	1:13	242
1549	Participating	63:28	1:39	227
404	Participating	86:18	2:25	219
427	Participating	87:24	2:11	276
1043	Participating	90:16	2:28	228
197	Participating	97:17	1:54	272
1056	Participating	108:28	2:03	292

While seven non-participating receptors (596, 770, 1179, 1314, 1375, 1389, and 1505) were predicted to receive over 30 hours of shadow flicker per year, six of those receptors (596, 770, 1179, 1314, 1375, and 1505) were previously predicted to receive over 30 hours in the 2019 shadow flicker analyses (EDR, 2019a, 2019b). In addition, multiple turbines contributed to the total yearly shadow flicker at each of those receptors. Turbines contributing to the shadow flicker at the seven non-participating receptors predicted to receive over 30 hours of shadow flicker per year are listed in Table 2.

Table 2. Turbines Contributing to Shadow Flicker

Receptor ID	Turbines Contributing to Shadow Flicker
596	T9, T10a, T12, T13
770	T67, T68, T69
1179	T67, T68, T69, T71a
1314	T10a, T12, T13
1375	T67, T68, T69, T71a
1389	T52, T53, T57a, T78a
1505	T68. T71a

CONCLUSIONS

In summary, WindPRO predicted that 23 receptors will receive more than 30 hours of shadow flicker per year from the proposed turbine shifts to T10, T57, T59, T64, T66, T71, and T78 and other contributing turbines. Of the 23 receptors, 16 are located on properties owned by Project participants. The seven non-participating receptors predicted to receive over 30 hours of shadow flicker would receive shadow flicker from multiple turbines, and not only the shifted turbines.

The shadow flicker analysis also included numerous more general underlying assumptions that contribute to worst-case predicted shadow flicker results. The analysis does not take into account important real-world factors, including the actual location and orientation of windows and the screening effects associated with existing, site-specific conditions and obstacles such as trees and/or buildings. Also, the analysis assumes turbine rotors are in continuous motion. Given these assumptions, the predicted shadow-flicker frequency represents a conservative scenario and likely overstates the actual frequency of shadow flicker that would be experienced at any given receptor location. In addition, many of the modeled shadow flicker hours are expected to be low intensity because they would occur during the early morning or late afternoon hours when the sun is low in the sky.

Furthermore, to provide a worst-case scenario results, this analysis evaluated the potential impact of GE158 turbines because they were the largest rotor diameter and total height of any turbine model under consideration and would therefore produce the greatest amount of shadow flicker. The actual shadow flicker to be produced will be dependent on the turbine model selected, the number of turbines constructed, and the turbine sites selected for the Facility.

REFERENCES

Environmental Design & Research, Landscape Architecture, Engineering & Environmental Services, D.P.C. (EDR). 2019a. Shadow Flicker Report: Emerson Creek Wind. January 2019.

EDR. 2019b. Updated Shadow Flicker Analysis. September 2019.

Ohio Power Siting Board (OPSB). 2011a. Opinion, Order, and Certificate in the Matter of Hog Creek Windfarm, LLC. Case No. 10-654-EL-BGN, Section V, (44), p. 32.

OPSB. 2011b. Opinion, Order, and Certificate in the Matter of Hardin Wind Energy, LLC. Case No. 11-3446-EL-BGA. Opinion Section D, p. 5.

OPSB. 2012. Opinion, Order, and Certificate in the Matter of Champaign Wind, LLC. Case No. 12-160-EL-BGN. Section VI, (F), P. 48.

OPSB. 2013. Opinion, Order, and Certificate in the Matter of Northwest Ohio Wind, LLC. Case No. 13-0197-EL-BGN. Section V, (39).

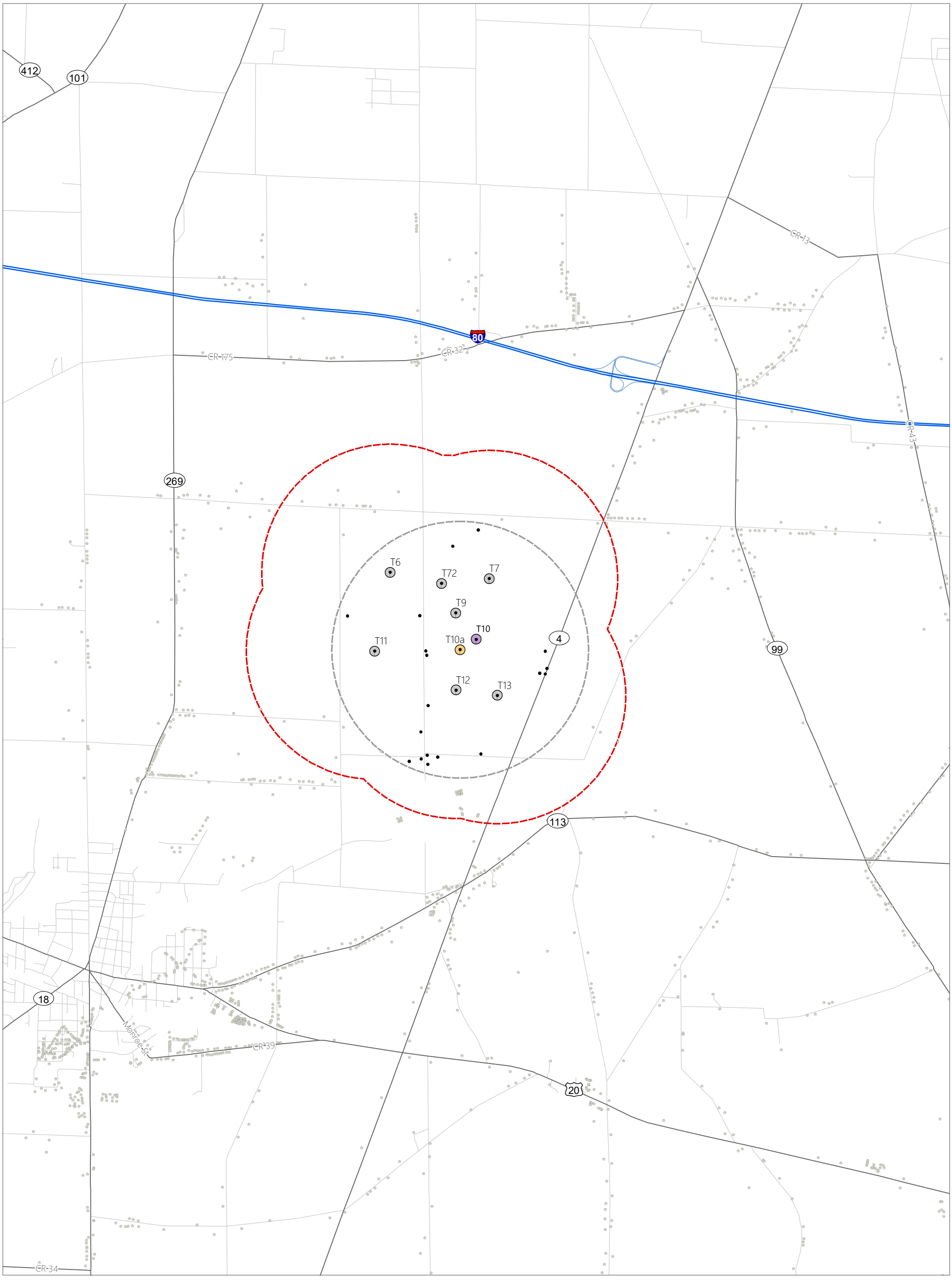
OPSB. 2014. Opinion, Order, and Certificate in the Matter of Hardin Wind, LLC. Case No. 13-1177-EL-BGN. Opinion Section D, p. 2.

States Committee for Pollution Control – Nordrhein-Westfalen, 2002. Notes on the Identification and Evaluation of the Optical Emissions of Wind Turbines. Available at: http://www.umwelt.sachsen.de/umwelt/download/laerm_licht_mobilfunk/WEA-Schattenwurf-Hinweise_LAI.pdf (Accessed March 2018).

U.S. Department of the Interior. 2005. Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States. Bureau of Land Management.

FIGURES

Figure 1. Proposed Turbine Layout

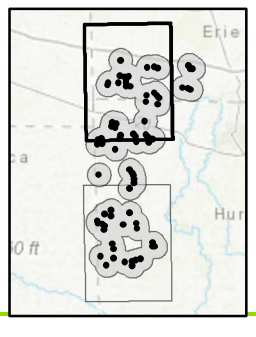


Emerson Creek Wind

Erie and Huron Counties, Ohio

Updated Shadow Flicker Analysis

- Receptor
- Receptor Not Impacted by Shifted Wind Turbine
- Shifted Wind Turbine Location
- Contributing Wind Turbine
- Previous Wind Turbine Location
- 1,580 Meter Study Area Around Shifted Wind Turbine
- 1,580 Meter Shadow Flicker Study Area



0 1,000 2,000 4,000
Feet

Prepared September 28, 2021
Basemap: Esri StreetMap North America, 2008.

EDR

Figure 1. Proposed Turbine Layout

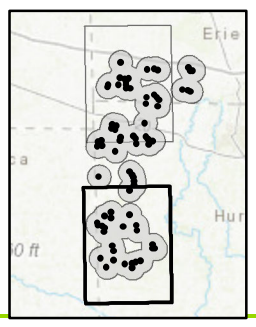
269
4
T48
T50
T51
T52
T53
T57a
T57
T78a
T78
T59a
T59
T56
CR-7
162
99
T61
T60
T62
T79
T63
T64a
T64
T65
T66
T66a
T67
T68
T69
T70
T71a
T71
CR-73
Egypt-Rd
TWHY-104
103
224

Emerson Creek Wind

Erie and Huron Counties, Ohio

Updated Shadow Flicker Analysis

- Receptor
- Receptor Not Impacted by Shifted Wind Turbine
- Shifted Wind Turbine Location
- Contributing Wind Turbine
- Previous Wind Turbine Location
- 1,580 Meter Study Area Around Shifted Wind Turbine
- 1,580 Meter Shadow Flicker Study Area

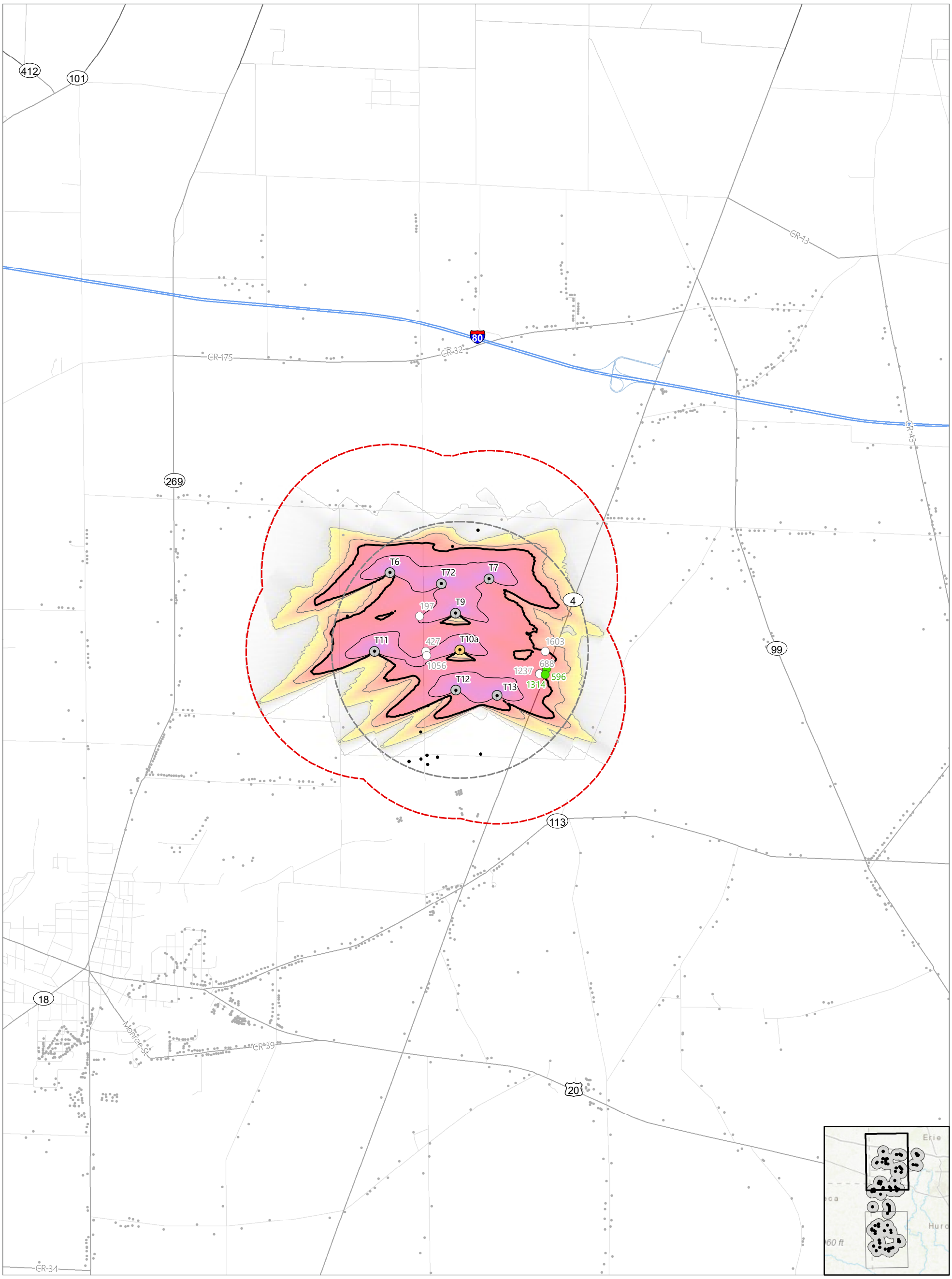


0 1,000 2,000 4,000
Feet

Prepared September 28, 2021
Basemap: Esri StreetMap North America, 2008.

EDR

Figure 2. Projected Shadow Flicker



Emerson Creek Wind

Erie and Huron Counties, Ohio

Updated Shadow Flicker Analysis

- Non-participant > 30 Hours/Year
- Participant > 30 Hours/Year
- Receptor < 30 Hours/Year
- Receptor Not Impacted by Shifted Wind Turbine
- Shifted Wind Turbine
- Contributing Wind Turbine
- 1,580-meter Study Area Around Shifted Wind Turbine
- 1,580-meter Shadow Flicker Study Area

Shadow Flicker Isolines

- 0 hours/year
- 10 hours/year
- 20 hours/year
- 30 hours/year
- 100 hours/year

Shadow Flicker (hours/year)

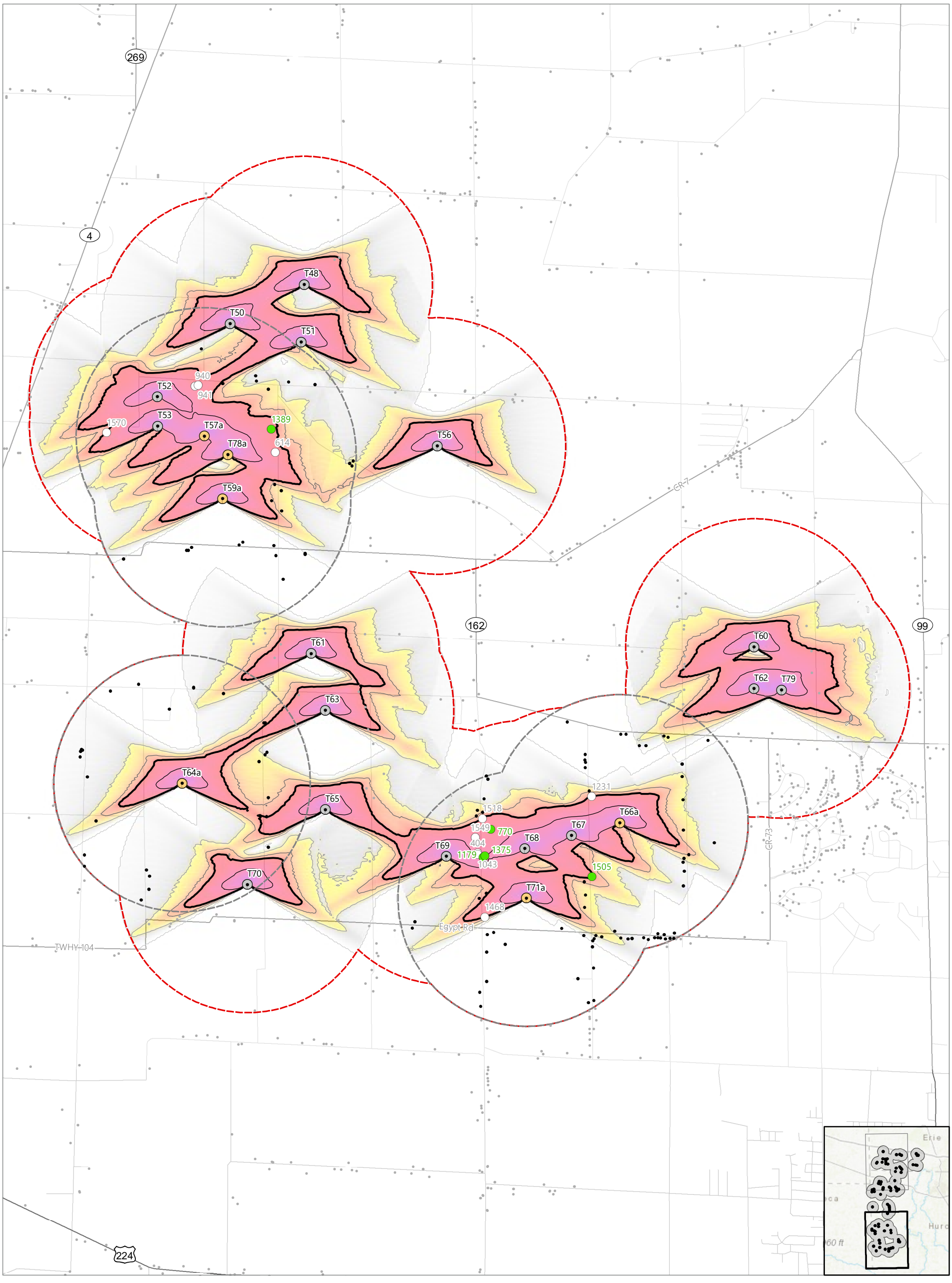
- < 1
- 1 - 10
- 10 - 20
- 20 - 30
- 30 - 100
- > 100

0 1,000 2,000 4,000
Feet

Prepared September 28, 2021
Basemap: ESRI StreetMap North America, 2008.

EDR

Figure 2. Projected Shadow Flicker



Emerson Creek Wind

Erie and Huron Counties, Ohio

Updated Shadow Flicker Analysis

- Non-participant > 30 Hours/Year
- Participant > 30 Hours/Year
- Receptor < 30 Hours/Year
- Receptor Not Impacted by Shifted Wind Turbine
- Shifted Wind Turbine
- Contributing Wind Turbine
- 1,580-meter Study Area Around Shifted Wind Turbine
- 1,580-meter Shadow Flicker Study Area

Shadow Flicker Isolines

- 0 hours/year
- 10 hours/year
- 20 hours/year
- 30 hours/year
- 100 hours/year

Shadow Flicker (hours/year)

- < 1
- 1 - 10
- 10 - 20
- 20 - 30
- 30 - 100
- > 100

0 1,000 2,000 4,000
Feet

Prepared September 28, 2021
Basemap: ESRI StreetMap North America, 2008.

EDR

EDR

Memorandum

ATTACHMENT A

WindRose and Sunshine Data

Table A1. Wind Rose Data

Sector	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW
Frequency	3.43	3.44	6.36	7.66	3.71	3.36	3.02	4.22	5.65	12.21	12.78	12.18	8.42	6.36	4.20	3.01
Hours of Operation	300	301	557	671	325	294	265	370	495	1,070	1,120	1,067	738	557	368	264

Source: Wind rose data provided by Firelands Wind, LLC.

Table A2. Sunshine Probability Data[1]

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Probability of Sunshine[2]	0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

[1]Source: NOAA Comparative Climatic Data for the United States through 2015 – Cleveland, Ohio Weather Station.

[2]Defined by NOAA as the total time that sunshine reaches the surface of the earth, expressed as the percentage of the maximum amount possible from sunrise to sunset with clear sky conditions.

EDR

Memorandum

ATTACHMENT B

WindPro Overview Reports and Calendars

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Main Result

Calculation: 2021-09-24_Shadow Flicker

Assumptions for shadow calculations

Maximum distance for influence	1,580	m
Minimum sun height over horizon for influence	3	°
Day step for calculation	1	days
Time step for calculation	1	minutes

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067

W	WNW	NW	NNW	Sum
738	557	368	264	8,760

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: CONTOURLINE_2019-09-04_Emerson GE Scenario_0.wpo (1)
Obstacles not used in calculation
Eye height for map: 1.5 m
Grid resolution: 1.0 m

All coordinates are in
UTM (north)-NAD83 (US+CA) Zone: 17

WTGs

	Easting	Northing	Z [m]	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	RPM [RPM]
T10a	350,398	4,574,724	219.8	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T11	349,345	4,574,707	219.9	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T12	350,350	4,574,226	220.5	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T13	350,857	4,574,162	220.6	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T48	348,005	4,557,522	254.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T50	347,092	4,557,039	257.1	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T51	347,966	4,556,813	256.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T52	346,197	4,556,140	262.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T53	346,199	4,555,777	263.2	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T56	349,644	4,555,533	258.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T57a	346,774	4,555,656	260.3	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T59a	346,998	4,554,884	262.2	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T6	349,536	4,575,675	218.1	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T60	353,545	4,553,057	260.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T61	348,088	4,552,978	268.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T62	353,545	4,552,542	262.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T63	348,266	4,552,276	270.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T64a	346,499	4,551,376	272.9	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T65	348,263	4,551,052	272.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T66a	351,891	4,550,889	267.1	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T67	351,296	4,550,733	266.7	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T68	350,723	4,550,572	269.1	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T69	349,753	4,550,479	270.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T7	350,757	4,575,599	220.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T70	347,305	4,550,132	275.5	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T71a	350,739	4,549,963	268.0	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T72	350,171	4,575,541	218.6	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T78a	347,064	4,555,428	260.3	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T79	353,883	4,552,527	261.5	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0
T9	350,345	4,575,176	219.1	GE WIND ENERGY 5.3-158 Thrust 700 5300 1...	Yes	GE WIND ENERGY	5.3-158 Thrust 700-5,300	5,300	158.0	117.0	0.0

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Main Result

Calculation: 2021-09-24_Shadow Flicker

Shadow receptor-Input

No.	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
2	351,971	4,551,976	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
7	347,724	4,554,982	261.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
11	347,408	4,556,393	259.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
27	350,270	4,551,427	265.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
28	346,094	4,550,068	278.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
40	351,670	4,549,484	270.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
47	347,527	4,551,727	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
54	347,645	4,555,057	262.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
56	350,180	4,548,624	276.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
72	352,661	4,551,610	262.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
102	348,139	4,556,289	258.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
130	352,437	4,551,955	264.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
133	352,046	4,549,462	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
169	352,673	4,551,172	265.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
195	345,622	4,552,512	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
197	349,904	4,575,140	219.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
225	347,418	4,556,330	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
229	346,647	4,552,551	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
237	349,858	4,549,572	272.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
252	350,125	4,573,402	222.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
262	345,273	4,551,786	276.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
281	349,773	4,573,347	222.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
312	351,558	4,549,360	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
325	352,676	4,550,799	264.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
336	347,205	4,554,311	264.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
350	347,544	4,550,966	271.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
383	348,565	4,555,317	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
387	350,248	4,551,465	264.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
403	351,996	4,549,454	268.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
404	350,142	4,550,519	270.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
410	347,011	4,552,480	273.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
412	351,450	4,549,498	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
417	347,565	4,551,197	273.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
427	349,978	4,574,706	219.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
445	346,062	4,550,304	278.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
454	349,368	4,549,669	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
479	347,562	4,556,232	258.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
481	353,057	4,550,640	259.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
482	350,482	4,549,391	272.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
517	349,922	4,573,377	222.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
519	346,998	4,556,297	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
528	351,177	4,549,585	270.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
529	351,459	4,550,162	270.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
536	351,377	4,548,969	270.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
543	352,674	4,550,401	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
573	346,646	4,552,558	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
584	345,263	4,551,791	276.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
596	351,467	4,574,491	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
609	351,597	4,549,496	271.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
614	347,647	4,555,453	260.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
617	350,625	4,576,196	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
620	352,744	4,550,496	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
652	351,520	4,551,282	266.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
662	345,252	4,551,767	276.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
688	351,382	4,574,432	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
691	347,450	4,551,641	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
701	350,255	4,549,296	273.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
706	348,019	4,554,197	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
714	352,661	4,551,611	262.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
738	351,573	4,549,097	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
762	352,686	4,550,451	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
770	350,305	4,550,810	266.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
780	351,470	4,551,732	265.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
781	352,675	4,550,109	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
787	346,742	4,556,724	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Main Result

Calculation: 2021-09-24_Shadow Flicker

...continued from previous page

No.	Easting	Northing	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
793	346,580	4,554,244	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
794	350,342	4,549,535	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
809	348,596	4,555,286	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
823	350,203	4,551,016	265.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
841	351,578	4,549,458	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
871	350,129	4,550,974	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
876	349,995	4,573,422	222.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
881	352,663	4,551,458	262.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
885	347,510	4,552,119	273.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
889	345,780	4,554,139	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
890	352,190	4,549,472	270.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
901	351,464	4,551,664	266.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
911	346,620	4,554,278	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
927	350,163	4,549,957	270.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
940	346,662	4,556,274	262.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
941	346,699	4,556,285	262.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
946	351,472	4,551,632	267.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
952	345,999	4,549,935	278.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
964	347,633	4,554,303	264.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
979	350,253	4,548,933	276.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
982	346,100	4,550,230	275.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1025	351,248	4,552,131	264.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1039	352,245	4,549,448	270.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1043	350,142	4,550,503	271.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1044	350,138	4,551,042	264.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1056	349,990	4,574,656	219.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1060	351,470	4,551,566	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1108	348,018	4,554,207	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1109	351,472	4,549,995	265.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1117	349,916	4,573,710	222.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1128	350,169	4,548,801	276.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1169	347,251	4,554,344	264.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1174	347,604	4,554,855	261.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1178	352,046	4,549,461	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1179	350,209	4,550,467	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1201	345,969	4,552,596	271.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1231	351,546	4,551,216	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1237	351,379	4,574,429	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1241	349,338	4,549,590	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1245	352,136	4,551,836	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1265	347,565	4,550,586	276.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1282	350,262	4,549,509	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1301	350,250	4,550,020	270.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1314	351,448	4,574,421	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1350	347,815	4,556,316	258.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1375	350,231	4,550,485	271.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1381	345,441	4,550,912	280.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1389	347,600	4,555,737	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1404	351,906	4,549,468	269.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1410	347,726	4,554,730	261.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1423	352,688	4,550,290	267.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1428	351,562	4,549,433	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1434	347,529	4,552,120	272.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1435	351,829	4,549,549	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1441	346,559	4,554,245	268.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1445	350,004	4,574,032	221.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1452	352,981	4,551,903	264.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1467	352,215	4,551,836	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1468	350,232	4,549,730	271.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1481	345,336	4,551,451	276.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1505	351,549	4,550,227	270.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1512	345,249	4,551,701	277.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1517	351,907	4,551,977	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1518	350,198	4,550,943	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1532	347,003	4,556,299	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1548	347,745	4,553,886	258.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Main Result

Calculation: 2021-09-24_Shadow Flicker

...continued from previous page

No.	Easting	Northing	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
1549	350,111	4,550,708	267.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1570	345,571	4,555,696	262.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1575	351,460	4,549,844	270.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1577	347,660	4,554,179	264.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1583	349,015	4,575,139	219.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1591	351,459	4,550,161	270.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1594	352,489	4,551,940	264.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1603	351,451	4,574,702	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1604	345,301	4,550,492	278.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1631	350,223	4,551,183	266.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1637	347,547	4,551,757	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1640	346,345	4,552,287	270.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1653	350,311	4,575,995	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1673	348,613	4,555,346	260.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1709	352,364	4,549,521	270.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1733	345,301	4,550,350	278.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1876	352,439	4,549,510	272.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1899	351,507	4,548,672	270.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1906	352,395	4,549,468	272.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
2093	351,575	4,548,699	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
2303	352,455	4,549,457	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
2556	352,322	4,549,473	271.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
2899	352,366	4,549,470	272.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
3007	352,512	4,549,465	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
3021	352,567	4,549,530	271.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
3177	350,000	4,573,310	222.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
3224	352,559	4,549,465	274.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
3234	350,657	4,573,439	222.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

Calculation Results

Shadow receptor

	Shadow, worst case			Shadow, expected values
No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
2	0:00	0	0:00	0:00
7	40:07	64	0:49	13:18
11	27:52	86	0:29	7:35
27	28:24	86	0:31	4:13
28	13:42	40	0:29	4:54
40	33:39	71	0:37	11:35
47	48:21	105	0:38	9:20
54	55:03	93	0:54	17:54
56	0:00	0	0:00	0:00
72	11:17	34	0:25	1:57
102	23:45	80	0:25	5:00
130	27:15	89	0:24	12:16
133	15:47	53	0:26	5:20
169	35:28	60	0:50	10:54
195	0:00	0	0:00	0:00
197	344:31	272	1:54	97:17
225	28:58	98	0:29	8:10
229	10:55	42	0:23	4:27
237	43:00	78	0:41	19:32
252	0:00	0	0:00	0:00
262	11:57	38	0:28	3:00
281	0:00	0	0:00	0:00
312	0:00	0	0:00	0:00
325	48:21	99	0:46	16:19
336	0:00	0	0:00	0:00
350	82:30	136	0:54	29:59
383	28:36	83	0:33	10:35
387	28:54	82	0:30	4:11
403	18:57	61	0:27	6:26

To be continued on next page...

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Main Result

Calculation: 2021-09-24_Shadow Flicker

...continued from previous page

No.	Shadow, worst case Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow, expected values Shadow hours per year [h/year]
404	272:52	219	2:25	86:18
410	41:12	108	0:32	16:45
412	0:00	0	0:00	0:00
417	61:50	114	0:51	18:26
427	291:46	276	2:11	87:24
445	11:54	37	0:28	3:34
454	10:58	39	0:25	4:12
479	67:43	151	0:40	16:04
481	17:12	47	0:31	5:36
482	0:00	0	0:00	0:00
517	0:00	0	0:00	0:00
519	96:36	201	0:45	27:39
528	0:00	0	0:00	0:00
529	68:54	122	0:49	23:00
536	0:00	0	0:00	0:00
543	17:29	66	0:25	5:46
573	10:49	42	0:23	4:23
584	11:38	38	0:28	2:55
596	102:25	204	0:54	30:15
609	28:08	63	0:35	9:37
614	139:17	193	1:05	42:28
617	17:38	50	0:31	4:34
620	59:27	119	0:42	20:29
652	118:56	98	1:42	18:12
662	11:25	37	0:27	2:53
688	122:05	182	1:04	37:11
691	67:47	139	0:39	13:05
701	0:00	0	0:00	0:00
706	0:00	0	0:00	0:00
714	11:03	34	0:25	1:55
738	0:00	0	0:00	0:00
762	38:35	95	0:37	13:02
770	204:01	190	2:07	49:42
780	0:00	0	0:00	0:00
781	18:07	70	0:24	6:13
787	32:29	81	0:36	8:29
793	0:00	0	0:00	0:00
794	0:00	0	0:00	0:00
809	31:08	87	0:35	11:50
823	121:36	142	1:33	20:42
841	12:08	42	0:22	4:06
871	115:36	160	1:05	21:29
876	0:00	0	0:00	0:00
881	60:51	94	0:49	12:28
885	78:33	146	0:49	25:34
889	0:00	0	0:00	0:00
890	10:13	41	0:22	3:24
901	0:00	0	0:00	0:00
911	0:00	0	0:00	0:00
927	70:36	88	1:02	24:58
940	160:07	242	1:13	50:10
941	151:25	237	1:08	47:17
946	0:00	0	0:00	0:00
952	12:12	40	0:27	4:33
964	0:00	0	0:00	0:00
979	0:00	0	0:00	0:00
982	13:20	38	0:30	4:13
1025	0:00	0	0:00	0:00
1039	0:00	0	0:00	0:00
1043	284:48	228	2:28	90:16
1044	88:43	140	0:52	14:37
1056	351:44	292	2:03	108:28
1060	0:00	0	0:00	0:00
1108	0:00	0	0:00	0:00
1109	40:35	63	0:49	13:53

To be continued on next page...

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Main Result

Calculation: 2021-09-24_Shadow Flicker

...continued from previous page

	Shadow, worst case			Shadow, expected values
No.	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
1117	30:19	66	0:35	13:54
1128	0:00	0	0:00	0:00
1169	0:00	0	0:00	0:00
1174	63:16	82	0:59	21:48
1178	15:49	53	0:26	5:21
1179	312:40	266	2:17	103:12
1201	0:00	0	0:00	0:00
1231	178:13	123	1:53	30:00
1237	123:05	183	1:06	37:36
1241	11:01	41	0:24	4:23
1245	13:26	57	0:19	6:12
1265	19:14	36	0:41	3:18
1282	0:00	0	0:00	0:00
1301	88:46	96	1:12	28:37
1314	98:36	159	1:03	30:57
1350	30:03	84	0:31	6:11
1375	299:05	266	2:10	100:18
1381	35:06	80	0:34	15:55
1389	129:50	207	1:00	38:01
1404	27:23	84	0:30	9:26
1410	51:16	81	0:50	17:04
1423	11:14	42	0:24	3:43
1428	1:52	16	0:08	0:37
1434	82:54	151	0:50	27:23
1435	26:36	70	0:33	9:03
1441	0:00	0	0:00	0:00
1445	56:04	101	0:44	23:01
1452	0:00	0	0:00	0:00
1467	8:43	46	0:16	4:03
1468	66:06	76	1:04	30:06
1481	14:15	40	0:30	4:34
1505	90:50	157	0:43	30:59
1512	11:14	36	0:27	2:55
1517	0:00	0	0:00	0:00
1518	168:43	166	1:38	32:12
1532	95:34	201	0:44	27:23
1548	0:00	0	0:00	0:00
1549	226:30	227	1:39	63:28
1570	89:23	158	0:58	32:33
1575	48:40	75	0:51	16:16
1577	0:00	0	0:00	0:00
1583	115:58	214	1:08	25:22
1591	68:45	121	0:49	22:56
1594	26:38	82	0:24	12:02
1603	115:22	255	0:48	33:17
1604	0:00	0	0:00	0:00
1631	29:40	78	0:32	5:32
1637	36:10	90	0:33	7:28
1640	0:00	0	0:00	0:00
1653	136:48	144	1:14	25:15
1673	29:42	81	0:36	10:57
1709	0:00	0	0:00	0:00
1733	0:00	0	0:00	0:00
1876	0:00	0	0:00	0:00
1899	0:00	0	0:00	0:00
1906	0:00	0	0:00	0:00
2093	0:00	0	0:00	0:00
2303	0:00	0	0:00	0:00
2556	0:00	0	0:00	0:00
2899	0:00	0	0:00	0:00
3007	0:00	0	0:00	0:00
3021	0:00	0	0:00	0:00
3177	0:00	0	0:00	0:00
3224	0:00	0	0:00	0:00
3234	0:00	0	0:00	0:00

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Main Result

Calculation: 2021-09-24_Shadow Flicker

Total amount of flickering on the shadow receptors caused by each WTG

No.	Name	Worst case [h/year]	Expected [h/year]
T10a	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (149)	395:34	128:07
T11	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (150)	230:01	53:35
T12	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (151)	141:31	33:29
T13	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (152)	244:29	69:54
T48	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (153)	0:00	0:00
T50	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (154)	0:00	0:00
T51	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (155)	46:11	19:45
T52	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (156)	141:24	43:21
T53	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (157)	216:30	60:18
T56	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (158)	33:03	12:48
T57a	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (159)	149:05	40:42
T59a	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (160)	212:50	64:59
T6	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (146)	40:06	11:35
T60	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (161)	0:00	0:00
T61	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (162)	41:08	18:13
T62	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (163)	13:47	6:23
T63	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (164)	66:45	25:09
T64a	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (165)	182:39	58:40
T65	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (166)	158:24	40:06
T66a	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (177)	338:50	79:38
T67	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (167)	206:48	60:04
T68	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (168)	529:36	151:00
T69	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (169)	411:03	121:15
T7	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (147)	117:23	22:45
T70	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (170)	62:23	18:00
T71a	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (171)	473:25	153:38
T72	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (172)	24:36	10:32
T78a	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (175)	178:15	51:50
T79	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (176)	25:27	11:23
T9	GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (148)	203:00	76:12

Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

Project:

2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 197 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1653)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June		
1	07:58		08:27 (T10a)	07:44		08:39 (T10a)	07:07			07:16		07:50 (T9)	06:30		07:17 (T9)	06:01		06:23 (T7)
	17:13	108	16:41 (T11)	17:47	92	16:46 (T11)	18:22			19:56	29	08:19 (T9)	20:27	80	08:37 (T9)	20:57	55	08:17 (T9)
2	07:58		08:27 (T10a)	07:43		08:40 (T10a)	07:06			07:14		07:46 (T9)	06:29		07:17 (T9)	06:01		06:22 (T7)
	17:14	108	16:41 (T11)	17:49	88	16:45 (T11)	18:23			19:57	36	08:22 (T9)	20:28	79	08:36 (T9)	20:58	56	08:16 (T9)
3	07:58		08:27 (T10a)	07:42		08:41 (T10a)	07:04			07:13		07:44 (T9)	06:27		07:16 (T9)	06:00		06:22 (T7)
	17:14	109	16:42 (T11)	17:50	83	16:44 (T11)	18:24			19:58	41	08:25 (T9)	20:29	79	08:35 (T9)	20:59	56	08:15 (T9)
4	07:58		08:28 (T10a)	07:41		08:42 (T10a)	07:03			07:11		07:41 (T9)	06:26		07:16 (T9)	06:00		06:22 (T7)
	17:15	109	16:42 (T11)	17:51	80	16:43 (T11)	18:25			19:59	46	08:27 (T9)	20:30	79	08:35 (T9)	21:00	55	08:15 (T9)
5	07:58		08:28 (T10a)	07:40		08:43 (T10a)	07:01			07:09		07:38 (T9)	06:25		07:17 (T9)	06:00		06:21 (T7)
	17:16	109	16:43 (T11)	17:52	75	16:42 (T11)	18:26			20:00	51	08:29 (T9)	20:32	78	08:35 (T9)	21:00	55	08:14 (T9)
6	07:58		08:28 (T10a)	07:39		08:44 (T10a)	06:59			07:08		07:36 (T9)	06:24		07:17 (T9)	05:59		06:21 (T7)
	17:17	111	16:44 (T11)	17:54	68	16:40 (T11)	18:27			20:00	55	08:31 (T9)	20:33	77	08:34 (T9)	21:01	55	08:13 (T9)
7	07:58		08:29 (T10a)	07:37		08:46 (T10a)	06:58			07:06		07:34 (T9)	06:23		07:18 (T9)	05:59		06:21 (T7)
	17:18	110	16:44 (T11)	17:55	60	16:38 (T11)	18:29			20:02	58	08:32 (T9)	20:34	76	08:34 (T9)	21:02	55	08:13 (T9)
8	07:58		08:29 (T10a)	07:36		08:47 (T10a)	07:56			07:05		07:33 (T9)	06:21		07:17 (T9)	05:59		06:21 (T7)
	17:19	112	16:45 (T11)	17:56	50	16:34 (T11)	19:30			20:03	61	08:34 (T9)	20:35	75	08:32 (T9)	21:02	53	08:12 (T9)
9	07:57		08:29 (T10a)	07:35		08:49 (T10a)	07:55			07:03		07:31 (T9)	06:20		07:17 (T9)	05:58		06:21 (T7)
	17:20	111	16:45 (T11)	17:57	31	09:20 (T10a)	19:31			20:04	63	08:34 (T9)	20:36	75	08:32 (T9)	21:03	52	08:12 (T9)
10	07:57		08:29 (T10a)	07:34		08:51 (T10a)	07:53			07:01		07:29 (T9)	06:19		07:18 (T9)	05:58		06:20 (T7)
	17:21	112	16:45 (T11)	17:59	27	09:18 (T10a)	19:32			20:05	66	08:35 (T9)	20:37	74	08:32 (T9)	21:03	52	08:11 (T9)
11	07:57		08:30 (T10a)	07:33		08:54 (T10a)	07:51			07:00		07:28 (T9)	06:18		07:18 (T9)	05:58		06:20 (T7)
	17:22	112	16:46 (T11)	18:00	22	09:16 (T10a)	19:33			20:06	68	08:36 (T9)	20:38	73	08:31 (T9)	21:04	51	08:10 (T9)
12	07:57		08:29 (T10a)	07:31		08:57 (T10a)	07:50			06:58		07:27 (T9)	06:17		07:19 (T9)	05:58		06:20 (T7)
	17:23	113	16:46 (T11)	18:01	14	09:11 (T10a)	19:34			20:07	69	08:36 (T9)	20:39	71	08:30 (T9)	21:05	50	08:10 (T9)
13	07:56		08:30 (T10a)	07:30			07:48			06:57		07:26 (T9)	06:16		07:19 (T9)	05:58		06:20 (T7)
	17:24	114	16:47 (T11)	18:02			19:35			20:08	71	08:37 (T9)	20:40	71	08:30 (T9)	21:05	49	08:09 (T9)
14	07:56		08:31 (T10a)	07:29			07:46			06:55		07:24 (T9)	06:15		07:19 (T9)	05:58		06:20 (T7)
	17:26	114	16:48 (T11)	18:04			19:37			20:09	73	08:37 (T9)	20:41	70	08:29 (T9)	21:05	48	08:09 (T9)
15	07:56		08:31 (T10a)	07:28			07:45			06:53		07:23 (T9)	06:14		07:20 (T9)	05:58		06:20 (T7)
	17:27	114	16:48 (T11)	18:05			19:38			20:10	74	08:37 (T9)	20:42	68	08:28 (T9)	21:06	48	08:08 (T9)
16	07:55		08:31 (T10a)	07:26			07:43			06:52		07:23 (T9)	06:13		07:20 (T9)	05:58		06:20 (T7)
	17:28	113	16:48 (T11)	18:06			19:39			20:11	75	08:38 (T9)	20:43	68	08:28 (T9)	21:06	47	08:08 (T9)
17	07:55		08:31 (T10a)	07:25			07:41			06:50		07:21 (T9)	06:12		07:22 (T9)	05:58		06:20 (T7)
	17:29	113	16:48 (T11)	18:07			19:40			20:12	77	08:38 (T9)	20:44	66	08:28 (T9)	21:07	46	08:08 (T9)
18	07:54		08:32 (T10a)	07:24			07:40			06:49		07:21 (T9)	06:11		07:22 (T9)	05:58		06:20 (T7)
	17:30	113	16:49 (T11)	18:09			19:41			20:13	78	08:39 (T9)	20:45	65	08:27 (T9)	21:07	45	08:07 (T9)
19	07:54		08:32 (T10a)	07:22			07:38			06:47		07:20 (T9)	06:10		07:23 (T9)	05:58		06:21 (T7)
	17:31	113	16:49 (T11)	18:10			19:42			20:14	78	08:38 (T9)	20:46	63	08:26 (T9)	21:07	45	08:08 (T9)
20	07:53		08:32 (T10a)	07:21			07:36			06:46		07:20 (T9)	06:09		07:23 (T9)	05:58		06:21 (T7)
	17:32	113	16:49 (T11)	18:11			19:43			20:15	79	08:39 (T9)	20:47	62	08:25 (T9)	21:08	45	08:08 (T9)
21	07:53		08:33 (T10a)	07:19			07:35			06:44		07:19 (T9)	06:08		07:24 (T9)	05:58		06:21 (T7)
	17:34	113	16:50 (T11)	18:12			19:44			20:17	79	08:38 (T9)	20:48	60	08:24 (T9)	21:08	45	08:08 (T9)
22	07:52		08:33 (T10a)	07:18			07:33			06:43		07:19 (T9)	06:08		07:25 (T9)	05:59		06:21 (T7)
	17:35	111	16:49 (T11)	18:13			19:45			20:18	80	08:39 (T9)	20:49	59	08:24 (T9)	21:08	45	08:08 (T9)
23	07:51		08:33 (T10a)	07:16			07:31			06:41		07:19 (T9)	06:07		07:26 (T9)	05:59		06:21 (T7)
	17:36	111	16:49 (T11)	18:15			19:46			20:19	80	08:39 (T9)	20:50	57	08:23 (T9)	21:08	45	08:08 (T9)
24	07:51		08:33 (T10a)	07:15			07:30			06:40		07:18 (T9)	06:06		07:26 (T9)	05:59		06:22 (T7)
	17:37	110	16:49 (T11)	18:16			19:47			20:20	80	08:38 (T9)	20:51	56	08:22 (T9)	21:09	45	08:09 (T9)
25	07:50		08:35 (T10a)	07:13			07:28			06:38		07:18 (T9)	06:05		07:28 (T9)	05:59		06:22 (T7)
	17:39	108	16:50 (T11)	18:17			19:49			20:21	80	08:38 (T9)	20:51	54	08:22 (T9)	21:09	45	08:09 (T9)
26	07:49		08:35 (T10a)	07:12			07:26			06:37		07:17 (T9)	06:05		07:28 (T9)	06:00		06:22 (T7)
	17:40	107	16:49 (T11)	18:18			19:50			20:22	81	08:38 (T9)	20:52	53	08:21 (T9)	21:09	47	08:10 (T9)
27	07:48		08:35 (T10a)	07:10			07:25			06:36		07:17 (T9)	06:04		07:29 (T9)	06:00		06:23 (T7)
	17:41	106	16:49 (T11)	18:19			19:51			20:23	81	08:38 (T9)	20:53	51	08:20 (T9)	21:09	47	08:11 (T9)
28	07:47		08:36 (T10a)	07:09			07:23			06:34		07:17 (T9)	06:03		07:30 (T9)	06:00		06:23 (T7)
	17:42	102	16:48 (T11)	18:21			19:52			20:24	81	08:38 (T9)	20:54	50	08:20 (T9)	21:09	48	08:12 (T9)
29	07:47		08:36 (T10a)				07:21			06:33		07:16 (T9)	06:03		07:30 (T9)	06:01		06:24 (T7)
	17:44	101	16:48 (T11)				19:53			20:25	81	08:37 (T9)	20:55	49	08:19 (T9)	21:09	49	08:13 (T9)
30	07:46		08:37 (T10a)				07:19			06:31		07:16 (T9)	06:02		07:32 (T9)	06:01		06:24 (T7)
	17:45	99	16:47 (T11)				19:54			20:26	81	08:37 (T9)	20:56	47	08:19 (T9)	21:09	49	08:13 (T9)
31	07:45		08:38 (T10a)				07:18		07:56 (T9)				06:02		06:23 (T7)			
	17:46	95	16:47 (T11)				19:55	19	08:15 (T9)				20:57	54	08:17 (T9)			
Potential sun hours	297			297			370			399			449			453		
Total, worst case		3394			690			19			2052			2039			1483	
Sun reduction		0.31			0.40			0.44			0.52			0.57			0.64	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.63			0.60			0.65			0.65			0.65			0.69	
Total reduction		0.19			0.24			0.28			0.34			0.37			0.43	
Total, real		653			164			5			688			750			645	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 197 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1653)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:02		06:24 (T7)	06:26		07:29 (T9)	06:57		07:27 (T9)	07:28			07:02		08:20 (T10a)	07:37		08:12 (T10a)
	21:09	51	08:14 (T9)	20:50	72	08:41 (T9)	20:07	68	08:35 (T9)	19:15			17:28	29	08:49 (T10a)	17:03	112	16:28 (T11)
2	06:02		06:25 (T7)	06:27		07:29 (T9)	06:58		07:28 (T9)	07:29			07:03		08:18 (T10a)	07:38		08:12 (T10a)
	21:09	51	08:15 (T9)	20:49	73	08:42 (T9)	20:06	66	08:34 (T9)	19:13			17:27	33	08:51 (T10a)	17:03	113	16:29 (T11)
3	06:03		06:25 (T7)	06:28		07:28 (T9)	06:59		07:29 (T9)	07:30			07:05		08:16 (T10a)	07:39		08:13 (T10a)
	21:09	53	08:16 (T9)	20:48	74	08:42 (T9)	20:04	63	08:32 (T9)	19:11			17:25	52	16:04 (T11)	17:03	111	16:29 (T11)
4	06:03		06:26 (T7)	06:29		07:28 (T9)	07:00		07:30 (T9)	07:31			07:06		08:14 (T10a)	07:40		08:13 (T10a)
	21:09	53	08:17 (T9)	20:47	75	08:43 (T9)	20:02	61	08:31 (T9)	19:10			17:24	62	16:07 (T11)	17:03	112	16:29 (T11)
5	06:04		06:27 (T7)	06:30		07:27 (T9)	07:01		07:31 (T9)	07:32			07:07		08:14 (T10a)	07:41		08:14 (T10a)
	21:08	54	08:19 (T9)	20:46	76	08:43 (T9)	20:01	58	08:29 (T9)	19:08			17:23	69	16:10 (T11)	17:03	110	16:29 (T11)
6	06:05		06:27 (T7)	06:31		07:27 (T9)	07:02		07:32 (T9)	07:33			07:08		08:13 (T10a)	07:42		08:14 (T10a)
	21:08	54	08:19 (T9)	20:45	77	08:44 (T9)	19:57	55	08:27 (T9)	19:06			17:22	75	16:12 (T11)	17:02	111	16:30 (T11)
7	06:05		06:28 (T7)	06:32		07:27 (T9)	07:03		07:34 (T9)	07:34			07:09		08:11 (T10a)	07:43		08:15 (T10a)
	21:08	56	08:21 (T9)	20:44	77	08:44 (T9)	19:56	51	08:25 (T9)	19:05			17:21	81	16:13 (T11)	17:02	110	16:30 (T11)
8	06:06		06:28 (T7)	06:33		07:26 (T9)	07:04		07:36 (T9)	07:35			07:11		08:11 (T10a)	07:44		08:16 (T10a)
	21:08	56	08:21 (T9)	20:42	78	08:44 (T9)	19:54	46	08:22 (T9)	19:03			17:20	85	16:15 (T11)	17:02	109	16:30 (T11)
9	06:06		06:29 (T7)	06:34		07:26 (T9)	07:05		07:38 (T9)	07:36			07:12		08:10 (T10a)	07:45		08:16 (T10a)
	21:07	55	08:22 (T9)	20:41	79	08:45 (T9)	19:52	42	08:20 (T9)	19:02			17:19	89	16:16 (T11)	17:02	109	16:31 (T11)
10	06:07		06:30 (T7)	06:35		07:26 (T9)	07:06		07:40 (T9)	07:37			07:13		08:09 (T10a)	07:46		08:17 (T10a)
	21:07	56	08:24 (T9)	20:40	79	08:45 (T9)	19:51	37	08:17 (T9)	19:00			17:18	93	16:17 (T11)	17:02	108	16:31 (T11)
11	06:08		06:30 (T7)	06:36		07:26 (T9)	07:07		07:42 (T9)	07:38			07:14		08:09 (T10a)	07:47		08:18 (T10a)
	21:06	56	08:24 (T9)	20:39	79	08:45 (T9)	19:49	30	08:12 (T9)	18:58			17:17	96	16:18 (T11)	17:02	108	16:32 (T11)
12	06:09		06:31 (T7)	06:37		07:25 (T9)	07:08		07:46 (T9)	07:39			07:16		08:09 (T10a)	07:48		08:17 (T10a)
	21:06	55	08:25 (T9)	20:37	80	08:45 (T9)	19:47	21	08:07 (T9)	18:57			17:16	99	16:19 (T11)	17:03	108	16:31 (T11)
13	06:09		06:33 (T7)	06:38		07:25 (T9)	07:09			07:40			07:17		08:08 (T10a)	07:49		08:18 (T10a)
	21:05	53	08:26 (T9)	20:36	80	08:45 (T9)	19:46			18:55			17:15	102	16:20 (T11)	17:03	107	16:32 (T11)
14	06:10		07:40 (T9)	06:39		07:24 (T9)	07:10			07:42			07:18		08:08 (T10a)	07:49		08:19 (T10a)
	21:05	48	08:28 (T9)	20:35	80	08:44 (T9)	19:44			18:54			17:14	102	16:20 (T11)	17:03	106	16:32 (T11)
15	06:11		07:39 (T9)	06:40		07:24 (T9)	07:11			07:43			07:19		08:08 (T10a)	07:50		08:20 (T10a)
	21:04	49	08:28 (T9)	20:33	80	08:44 (T9)	19:42			18:52			17:13	106	16:22 (T11)	17:03	106	16:33 (T11)
16	06:12		07:38 (T9)	06:41		07:24 (T9)	07:12			07:44			07:20		08:08 (T10a)	07:51		08:20 (T10a)
	21:04	51	08:29 (T9)	20:32	80	08:44 (T9)	19:40			18:50			17:12	107	16:22 (T11)	17:03	106	16:33 (T11)
17	06:12		07:38 (T9)	06:42		07:23 (T9)	07:13			07:45			07:21		08:08 (T10a)	07:51		08:21 (T10a)
	21:03	52	08:30 (T9)	20:30	81	08:44 (T9)	19:39			18:49			17:11	108	16:23 (T11)	17:04	105	16:33 (T11)
18	06:13		07:37 (T9)	06:43		07:23 (T9)	07:14			07:46			07:23		08:07 (T10a)	07:52		08:22 (T10a)
	21:03	54	08:31 (T9)	20:29	81	08:44 (T9)	19:37			18:47			17:10	110	16:23 (T11)	17:04	104	16:34 (T11)
19	06:14		07:37 (T9)	06:44		07:23 (T9)	07:15			07:47			07:24		08:08 (T10a)	07:53		08:21 (T10a)
	21:02	55	08:32 (T9)	20:27	81	08:44 (T9)	19:35			18:46			17:10	111	16:24 (T11)	17:04	105	16:34 (T11)
20	06:15		07:35 (T9)	06:45		07:23 (T9)	07:16			07:48			07:25		08:08 (T10a)	07:53		08:22 (T10a)
	21:01	57	08:32 (T9)	20:26	81	08:44 (T9)	19:34			18:44			17:09	111	16:24 (T11)	17:05	105	16:35 (T11)
21	06:16		07:35 (T9)	06:46		07:23 (T9)	07:17			07:49			07:26		08:08 (T10a)	07:54		08:22 (T10a)
	21:00	58	08:33 (T9)	20:25	80	08:43 (T9)	19:32			18:43			17:08	113	16:25 (T11)	17:05	105	16:35 (T11)
22	06:17		07:35 (T9)	06:47		07:23 (T9)	07:18			07:51			07:27		08:08 (T10a)	07:54		08:23 (T10a)
	21:00	59	08:34 (T9)	20:23	80	08:43 (T9)	19:30			18:41			17:08	113	16:25 (T11)	17:06	105	16:36 (T11)
23	06:18		07:34 (T9)	06:48		07:24 (T9)	07:19			07:52			07:29		08:09 (T10a)	07:55		08:23 (T10a)
	20:59	61	08:35 (T9)	20:22	78	08:42 (T9)	19:28			18:40			17:07	113	16:26 (T11)	17:06	105	16:36 (T11)
24	06:19		07:34 (T9)	06:49		07:24 (T9)	07:20			07:53			07:30		08:09 (T10a)	07:55		08:23 (T10a)
	20:58	62	08:36 (T9)	20:20	78	08:42 (T9)	19:27			18:39			17:06	113	16:26 (T11)	17:07	105	16:36 (T11)
25	06:19		07:33 (T9)	06:50		07:24 (T9)	07:21			07:54			07:31		08:09 (T10a)	07:56		08:25 (T10a)
	20:57	64	08:37 (T9)	20:18	77	08:41 (T9)	19:25			18:37			17:06	113	16:26 (T11)	17:07	104	16:37 (T11)
26	06:20		07:33 (T9)	06:51		07:24 (T9)	07:22			07:55			07:32		08:09 (T10a)	07:56		08:25 (T10a)
	20:56	65	08:38 (T9)	20:17	77	08:41 (T9)	19:23			18:36			17:05	113	16:26 (T11)	17:08	105	16:37 (T11)
27	06:21		07:31 (T9)	06:52		07:25 (T9)	07:23			07:56			07:33		08:10 (T10a)	07:56		08:25 (T10a)
	20:55	67	08:38 (T9)	20:15	75	08:40 (T9)	19:22			18:34			17:05	114	16:27 (T11)	17:09	106	16:38 (T11)
28	06:22		07:31 (T9)	06:53		07:25 (T9)	07:25			07:58			07:34		08:11 (T10a)	07:57		08:26 (T10a)
	20:54	68	08:39 (T9)	20:14	74	08:39 (T9)	19:20			18:33			17:05	114	16:28 (T11)	17:09	106	16:39 (T11)
29	06:23		07:30 (T9)	06:54		07:25 (T9)	07:26			07:59			07:35		08:11 (T10a)	07:57		08:26 (T10a)
	20:54	69	08:39 (T9)	20:12	73	08:38 (T9)	19:18			18:32			17:04	113	16:28 (T11)	17:10	106	16:39 (T11)
30	06:24		07:30 (T9)	06:55		07:26 (T9)	07:27			08:00		09:26 (T10a)	07:36		08:11 (T10a)	07:57		08:26 (T10a)
	20:53	70	08:40 (T9)	20:11	71	08:37 (T9)	19:16			18:30	16	09:42 (T10a)	17:04	113	16:28 (T11)	17:11	107	16:40 (T11)
31	06:25		07:29 (T9)	06:56		07:27 (T9)				08:01		09:22 (T10a)				07:57		08:26 (T10a)
	20:51	72	08:41 (T9)	20:09	69	08:36 (T9)				18:29	23	09:45 (T10a)				17:12	107	16:40 (T11)
Potential sun hours	460			429			375			345			297			287		
Total, worst case		1784			2395			598			39			2852			3326	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.66			0.65			0.65			0.52			0.62			0.63	
Total reduction		0.43			0.39			0.38			0.25			0.18			0.14	
Total, real		771			942			228			10			526			456	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 404 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1667)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February	March			April			May			June
1	07:57		08:33 (T71a)	07:43	07:07			07:16		07:46 (T68)	06:30		07:02 (T67)	06:02
	17:13	48	09:21 (T71a)	17:48	18:22			19:56	100	19:12 (T69)	20:27	111	18:44 (T69)	20:57
2	07:57		08:34 (T71a)	07:42	07:06			07:15		07:41 (T68)	06:29		07:03 (T67)	06:01
	17:14	47	09:21 (T71a)	17:49	18:23			19:57	112	19:13 (T69)	20:28	105	18:42 (T69)	20:57
3	07:57		08:34 (T71a)	07:41	07:04			07:13		07:37 (T68)	06:28		07:05 (T67)	06:01
	17:15	47	09:21 (T71a)	17:50	18:24			19:58	117	19:12 (T69)	20:29	98	18:40 (T69)	20:58
4	07:57		08:35 (T71a)	07:40	07:02			07:11		07:33 (T68)	06:27		07:06 (T67)	06:01
	17:16	47	09:22 (T71a)	17:51	18:25			19:59	123	19:11 (T69)	20:30	89	18:36 (T69)	20:59
5	07:57		08:36 (T71a)	07:39	07:01			07:10		07:32 (T68)	06:25		07:17 (T68)	06:00
	17:17	46	09:22 (T71a)	17:53	18:26			20:00	127	19:12 (T69)	20:31	70	18:32 (T69)	20:59
6	07:57		08:36 (T71a)	07:38	06:59			07:08		07:29 (T68)	06:24		07:18 (T68)	06:00
	17:18	46	09:22 (T71a)	17:54	18:28			20:00	131	19:11 (T69)	20:32	50	08:08 (T68)	21:00
7	07:57		08:37 (T71a)	07:37	06:58		17:23 (T69)	07:06		07:27 (T68)	06:23		07:19 (T68)	06:00
	17:19	46	09:23 (T71a)	17:55	18:29	23	17:46 (T69)	20:01	133	19:10 (T69)	20:33	48	08:07 (T68)	21:01
8	07:57		08:38 (T71a)	07:36	07:56		18:18 (T69)	07:05		07:26 (T68)	06:22		07:20 (T68)	05:59
	17:20	45	09:23 (T71a)	17:57	19:30	32	18:50 (T69)	20:02	134	19:10 (T69)	20:34	46	08:06 (T68)	21:01
9	07:57		08:39 (T71a)	07:35	07:54		18:14 (T69)	07:03		07:24 (T68)	06:21		07:21 (T68)	05:59
	17:21	45	09:24 (T71a)	17:58	19:31	40	18:54 (T69)	20:03	136	19:09 (T69)	20:35	44	08:05 (T68)	21:02
10	07:57		08:39 (T71a)	07:33	07:53		18:11 (T69)	07:02		07:22 (T68)	06:20		07:22 (T68)	05:59
	17:22	44	09:23 (T71a)	17:59	19:32	46	18:57 (T69)	20:04	138	19:08 (T69)	20:36	42	08:04 (T68)	21:03
11	07:56		08:40 (T71a)	07:32	07:51		18:08 (T69)	07:00		07:22 (T68)	06:18		07:23 (T68)	05:59
	17:23	43	09:23 (T71a)	18:00	19:33	51	18:59 (T69)	20:06	138	19:08 (T69)	20:37	40	08:03 (T68)	21:03
12	07:56		08:41 (T71a)	07:31	07:50		18:06 (T69)	06:58		07:17 (T67)	06:17		07:24 (T68)	05:59
	17:24	43	09:24 (T71a)	18:01	19:34	55	19:01 (T69)	20:07	142	19:07 (T69)	20:38	37	08:01 (T68)	21:04
13	07:56		08:41 (T71a)	07:30	07:48		18:04 (T69)	06:57		07:16 (T67)	06:16		07:26 (T68)	05:59
	17:25	42	09:23 (T71a)	18:03	19:35	58	19:02 (T69)	20:08	143	19:07 (T69)	20:39	34	08:00 (T68)	21:04
14	07:55		08:42 (T71a)	07:28	07:46		18:01 (T69)	06:55		07:14 (T67)	06:15		07:27 (T68)	05:59
	17:26	41	09:23 (T71a)	18:04	19:37	63	19:04 (T69)	20:09	144	19:06 (T69)	20:40	31	07:58 (T68)	21:05
15	07:55		08:42 (T71a)	07:27	07:45		18:00 (T69)	06:54		07:13 (T67)	06:14		07:29 (T68)	05:59
	17:27	41	09:23 (T71a)	18:05	19:38	65	19:05 (T69)	20:10	145	19:06 (T69)	20:41	27	07:56 (T68)	21:05
16	07:55		08:44 (T71a)	07:26	07:43		17:58 (T69)	06:52		07:11 (T67)	06:13		07:31 (T68)	05:59
	17:28	39	09:23 (T71a)	18:06	19:39	68	19:06 (T69)	20:11	144	19:04 (T69)	20:42	23	07:54 (T68)	21:06
17	07:54		08:44 (T71a)	07:25	07:41		17:56 (T69)	06:51		07:10 (T67)	06:12		07:33 (T68)	05:59
	17:30	38	09:22 (T71a)	18:08	19:40	71	19:07 (T69)	20:12	145	19:04 (T69)	20:43	18	07:51 (T68)	21:06
18	07:54		08:46 (T71a)	07:23	07:40		17:55 (T69)	06:49		07:08 (T67)	06:11		07:37 (T68)	05:59
	17:31	36	09:22 (T71a)	18:09	19:41	74	19:09 (T69)	20:13	144	19:02 (T69)	20:44	10	07:47 (T68)	21:06
19	07:53		08:46 (T71a)	07:22	07:38		17:54 (T69)	06:47		07:07 (T67)	06:11			05:59
	17:32	35	09:21 (T71a)	18:10	19:42	75	19:09 (T69)	20:14	144	19:02 (T69)	20:45			21:07
20	07:53		08:48 (T71a)	07:20	07:36		17:52 (T69)	06:46		07:05 (T67)	06:10			05:59
	17:33	33	09:21 (T71a)	18:11	19:43	77	19:09 (T69)	20:15	143	19:00 (T69)	20:46			21:07
21	07:52		08:49 (T71a)	07:19	07:35		17:52 (T69)	06:44		07:04 (T67)	06:09			05:59
	17:34	31	09:20 (T71a)	18:12	19:44	79	19:11 (T69)	20:16	143	19:00 (T69)	20:47			21:07
22	07:51		08:50 (T71a)	07:18	07:33		17:50 (T69)	06:43		07:02 (T67)	06:08			05:59
	17:35	29	09:19 (T71a)	18:14	19:45	81	19:11 (T69)	20:17	142	18:58 (T69)	20:48			21:07
23	07:51		08:53 (T71a)	07:16	07:31		17:49 (T69)	06:42		07:01 (T67)	06:07			06:00
	17:37	26	09:19 (T71a)	18:15	19:46	82	19:11 (T69)	20:18	141	18:57 (T69)	20:49			21:08
24	07:50		08:54 (T71a)	07:15	07:30		17:49 (T69)	06:40		06:59 (T67)	06:07			06:00
	17:38	23	09:17 (T71a)	18:16	19:47	83	19:12 (T69)	20:19	140	18:55 (T69)	20:50			21:08
25	07:49		08:57 (T71a)	07:13	07:28		17:48 (T69)	06:39		06:59 (T67)	06:06			06:00
	17:39	18	09:15 (T71a)	18:17	19:48	84	19:12 (T69)	20:20	137	18:54 (T69)	20:51			21:08
26	07:48		09:00 (T71a)	07:12	07:26		17:47 (T69)	06:37		06:59 (T67)	06:05			06:00
	17:40	12	09:12 (T71a)	18:18	19:50	85	19:12 (T69)	20:21	134	18:53 (T69)	20:52			21:08
27	07:48			07:10	07:25		17:47 (T69)	06:36		06:59 (T67)	06:05			06:01
	17:42			18:20	19:51	86	19:13 (T69)	20:23	130	18:51 (T69)	20:52			21:08
28	07:47			07:09	07:23		17:46 (T69)	06:35		07:00 (T67)	06:04			06:01
	17:43			18:21	19:52	87	19:13 (T69)	20:24	126	18:50 (T69)	20:53			21:08
29	07:46				07:21		17:45 (T69)	06:33		07:00 (T67)	06:03			06:02
	17:44				19:53	87	19:12 (T69)	20:25	123	18:49 (T69)	20:54			21:08
30	07:45				07:20		17:45 (T69)	06:32		07:00 (T67)	06:03			06:02
	17:45				19:54	88	19:13 (T69)	20:26	117	18:46 (T69)	20:55			21:08
31	07:44				07:18		17:45 (T69)				06:02			
	17:46				19:55	88	19:13 (T69)				20:56			
Potential sun hours	297			297	370			399			448			452
Total, worst case		991				1728			4016			923		
Sun reduction		0.31				0.44			0.52			0.57		
Oper. time red.		1.00				1.00			1.00			1.00		
Wind dir. red.		0.53				0.66			0.66			0.65		
Total reduction		0.16				0.28			0.34			0.37		
Total, real		159				490			1346			339		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 404 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1667)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:03			06:27		07:34 (T68)	06:57		07:21 (T68)	07:28		17:44 (T69)	07:02			07:37		08:22 (T71a)
	21:08			20:50	37	08:11 (T68)	20:07	138	19:07 (T69)	19:15	56	18:40 (T69)	17:28			17:04	43	09:05 (T71a)
2	06:03			06:28		07:32 (T68)	06:58		07:21 (T68)	07:29		17:45 (T69)	07:03			07:38		08:22 (T71a)
	21:08			20:49	41	08:13 (T68)	20:05	138	19:07 (T69)	19:13	53	18:38 (T69)	17:27			17:04	44	09:06 (T71a)
3	06:04			06:29		07:31 (T68)	06:59		07:22 (T68)	07:30		17:47 (T69)	07:04			07:39		08:22 (T71a)
	21:08			20:48	43	08:14 (T68)	20:04	136	19:07 (T69)	19:11	48	18:35 (T69)	17:26			17:04	45	09:07 (T71a)
4	06:04			06:30		07:30 (T68)	07:00		07:23 (T68)	07:31		17:50 (T69)	07:05			07:40		08:22 (T71a)
	21:08			20:47	45	08:15 (T68)	20:02	134	19:07 (T69)	19:10	42	18:32 (T69)	17:25			17:03	45	09:07 (T71a)
5	06:05			06:31		07:29 (T68)	07:01		07:24 (T68)	07:32		17:53 (T69)	07:07			07:41		08:22 (T71a)
	21:08			20:45	47	08:16 (T68)	20:01	133	19:07 (T69)	19:08	37	18:30 (T69)	17:23			17:03	46	09:08 (T71a)
6	06:05			06:31		07:28 (T68)	07:02		07:25 (T68)	07:33		17:57 (T69)	07:08			07:42		08:22 (T71a)
	21:07			20:44	49	08:17 (T68)	19:57	131	19:07 (T69)	19:07	28	18:25 (T69)	17:22			17:03	46	09:08 (T71a)
7	06:06			06:32		07:27 (T68)	07:03		07:27 (T68)	07:34		18:03 (T69)	07:09			07:43		08:23 (T71a)
	21:07			20:43	61	18:38 (T69)	19:56	127	19:07 (T69)	19:05	16	18:19 (T69)	17:21			17:03	46	09:09 (T71a)
8	06:07			06:33		07:19 (T67)	07:04		07:28 (T68)	07:35			07:10			07:44		08:23 (T71a)
	21:07			20:42	77	18:43 (T69)	19:54	123	19:06 (T69)	19:03			17:20			17:03	47	09:10 (T71a)
9	06:07			06:34		07:15 (T67)	07:05		07:31 (T68)	07:36			07:11			07:44		08:23 (T71a)
	21:06			20:41	92	18:47 (T69)	19:52	118	19:06 (T69)	19:02			17:19			17:03	47	09:10 (T71a)
10	06:08			06:35		07:13 (T67)	07:06		07:33 (T68)	07:37			07:13			07:45		08:24 (T71a)
	21:06			20:39	100	18:49 (T69)	19:51	113	19:06 (T69)	19:00			17:18			17:03	47	09:11 (T71a)
11	06:09			06:36		07:11 (T67)	07:07		07:38 (T68)	07:38			07:14			07:46		08:24 (T71a)
	21:06			20:38	108	18:52 (T69)	19:49	102	19:05 (T69)	18:58			17:17			17:03	48	09:12 (T71a)
12	06:09			06:37		07:10 (T67)	07:08		17:36 (T69)	07:39			07:15			07:47		08:24 (T71a)
	21:05			20:37	114	18:54 (T69)	19:47	88	19:04 (T69)	18:57			17:16			17:03	47	09:11 (T71a)
13	06:10			06:38		07:09 (T67)	07:09		17:35 (T69)	07:40			07:16			07:48		08:24 (T71a)
	21:05			20:35	118	18:55 (T69)	19:45	88	19:03 (T69)	18:55			17:15			17:03	48	09:12 (T71a)
14	06:11			06:39		07:08 (T67)	07:10		17:35 (T69)	07:41			07:17			07:49		08:25 (T71a)
	21:04			20:34	124	18:57 (T69)	19:44	88	19:03 (T69)	18:54			17:14			17:04	48	09:13 (T71a)
15	06:12			06:40		07:07 (T67)	07:11		17:35 (T69)	07:42			07:19			07:49		08:26 (T71a)
	21:04			20:33	128	18:58 (T69)	19:42	87	19:02 (T69)	18:52			17:13			17:04	48	09:14 (T71a)
16	06:12			06:41		07:06 (T67)	07:12		17:35 (T69)	07:44			07:20		08:33 (T71a)	07:50		08:26 (T71a)
	21:03			20:31	131	18:59 (T69)	19:40	86	19:01 (T69)	18:51			17:13	12	08:45 (T71a)	17:04	47	09:13 (T71a)
17	06:13			06:42		07:06 (T67)	07:13		17:35 (T69)	07:45			07:21		08:29 (T71a)	07:51		08:26 (T71a)
	21:03			20:30	134	19:00 (T69)	19:39	85	19:00 (T69)	18:49			17:12	19	08:48 (T71a)	17:04	48	09:14 (T71a)
18	06:14			06:43		07:05 (T67)	07:14		17:35 (T69)	07:46			07:22		08:28 (T71a)	07:51		08:27 (T71a)
	21:02			20:28	138	19:01 (T69)	19:37	84	18:59 (T69)	18:48			17:11	23	08:51 (T71a)	17:05	48	09:15 (T71a)
19	06:15			06:44		07:06 (T67)	07:15		17:35 (T69)	07:47			07:23		08:27 (T71a)	07:52		08:27 (T71a)
	21:01			20:27	139	19:02 (T69)	19:35	84	18:59 (T69)	18:46			17:10	26	08:53 (T71a)	17:05	48	09:15 (T71a)
20	06:16			06:45		07:07 (T67)	07:16		17:35 (T69)	07:48			07:24		08:25 (T71a)	07:53		08:28 (T71a)
	21:01			20:26	140	19:03 (T69)	19:34	83	18:58 (T69)	18:45			17:10	29	08:54 (T71a)	17:05	48	09:16 (T71a)
21	06:16			06:46		07:08 (T67)	07:17		17:36 (T69)	07:49			07:26		08:24 (T71a)	07:53		08:28 (T71a)
	21:00			20:24	142	19:04 (T69)	19:32	80	18:56 (T69)	18:43			17:09	31	08:55 (T71a)	17:06	48	09:16 (T71a)
22	06:17			06:47		07:08 (T67)	07:18		17:36 (T69)	07:50			07:27		08:24 (T71a)	07:54		08:29 (T71a)
	20:59			20:23	143	19:04 (T69)	19:30	79	18:55 (T69)	18:42			17:08	33	08:57 (T71a)	17:06	48	09:17 (T71a)
23	06:18			06:48		07:09 (T67)	07:19		17:36 (T69)	07:51			07:28		08:23 (T71a)	07:54		08:29 (T71a)
	20:58			20:21	143	19:04 (T69)	19:28	78	18:54 (T69)	18:40			17:08	35	08:58 (T71a)	17:07	48	09:17 (T71a)
24	06:19			06:49		07:10 (T67)	07:20		17:37 (T69)	07:53			07:29		08:23 (T71a)	07:55		08:30 (T71a)
	20:57			20:20	145	19:05 (T69)	19:27	76	18:53 (T69)	18:39			17:07	36	08:59 (T71a)	17:07	48	09:18 (T71a)
25	06:20			06:50		07:11 (T67)	07:21		17:37 (T69)	07:54			07:30		08:22 (T71a)	07:55		08:30 (T71a)
	20:57			20:18	144	19:05 (T69)	19:25	74	18:51 (T69)	18:37			17:06	38	09:00 (T71a)	17:08	48	09:18 (T71a)
26	06:21		07:46 (T68)	06:51		07:12 (T67)	07:22		17:38 (T69)	07:55			07:31		08:22 (T71a)	07:55		08:30 (T71a)
	20:56	14	08:00 (T68)	20:17	145	19:06 (T69)	19:23	72	18:50 (T69)	18:36			17:06	39	09:01 (T71a)	17:09	48	09:18 (T71a)
27	06:22		07:43 (T68)	06:52		07:13 (T67)	07:23		17:39 (T69)	07:56			07:32		08:22 (T71a)	07:56		08:31 (T71a)
	20:55	20	08:03 (T68)	20:15	144	19:06 (T69)	19:22	69	18:48 (T69)	18:35			17:06	41	09:03 (T71a)	17:09	48	09:19 (T71a)
28	06:23		07:41 (T68)	06:53		07:14 (T67)	07:24		17:40 (T69)	07:57			07:34		08:22 (T71a)	07:56		08:32 (T71a)
	20:54	24	08:05 (T68)	20:13	145	19:07 (T69)	19:20	66	18:46 (T69)	18:33			17:05	41	09:03 (T71a)	17:10	48	09:20 (T71a)
29	06:24		07:39 (T68)	06:54		07:15 (T67)	07:25		17:41 (T69)	07:58			07:35		08:22 (T71a)	07:56		08:32 (T71a)
	20:53	29	08:08 (T68)	20:12	144	19:07 (T69)	19:18	64	18:45 (T69)	18:32			17:05	42	09:04 (T71a)	17:11	48	09:20 (T71a)
30	06:25		07:37 (T68)	06:55		07:16 (T67)	07:26		17:42 (T69)	07:59			07:36		08:22 (T71a)	07:56		08:32 (T71a)
	20:52	32	08:09 (T68)	20:10	143	19:07 (T69)	19:17	61	18:43 (T69)	18:31			17:04	43	09:05 (T71a)	17:12	48	09:20 (T71a)
31	06:26		07:36 (T68)	06:56		07:17 (T67)				08:01						07:57		08:33 (T71a)
	20:51	35	08:11 (T68)	20:09	142	19:07 (T69)				18:29						17:12	47	09:20 (T71a)
Potential sun hours	459			428			375			345			298			288		
Total, worst case		154			3446			2885			280			488			1461	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.65			0.66			0.65			0.66			0.53			0.53	
Total reduction		0.42			0.39			0.38			0.31			0.16			0.11	
Total, real		65			1355			1096			87			76			167	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 427 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1671)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June		
1	07:58		09:10 (T12)	07:44		08:10 (T13)	07:07			07:16		07:46 (T10a)	06:30		07:23 (T10a)	06:01		07:45 (T10a)
	17:13	55	10:05 (T12)	17:47	36	08:46 (T13)	18:22			19:56	109	19:29 (T11)	20:27	81	08:44 (T10a)	20:57	34	08:19 (T10a)
2	07:58		09:11 (T12)	07:43		08:10 (T13)	07:06			07:14		07:44 (T10a)	06:29		07:24 (T10a)	06:01		07:46 (T10a)
	17:14	55	10:06 (T12)	17:49	36	08:46 (T13)	18:23			19:57	112	19:28 (T11)	20:28	80	08:44 (T10a)	20:58	32	08:18 (T10a)
3	07:58		09:12 (T12)	07:42		08:11 (T13)	07:04			07:13		07:42 (T10a)	06:27		07:23 (T10a)	06:00		07:48 (T10a)
	17:14	54	10:06 (T12)	17:50	35	08:46 (T13)	18:24			19:58	117	19:29 (T11)	20:29	80	08:43 (T10a)	20:59	29	08:17 (T10a)
4	07:58		09:12 (T12)	07:41		08:11 (T13)	07:03			07:11		07:40 (T10a)	06:26		07:23 (T10a)	06:00		07:49 (T10a)
	17:15	54	10:06 (T12)	17:51	34	08:45 (T13)	18:25			19:59	119	19:28 (T11)	20:30	79	08:42 (T10a)	21:00	27	08:16 (T10a)
5	07:58		09:13 (T12)	07:40		08:12 (T13)	07:01			07:09		07:38 (T10a)	06:25		07:24 (T10a)	06:00		07:50 (T10a)
	17:16	53	10:06 (T12)	17:52	33	08:45 (T13)	18:26			20:00	123	19:28 (T11)	20:32	78	08:42 (T10a)	21:00	24	08:14 (T10a)
6	07:58		09:14 (T12)	07:39		08:13 (T13)	06:59			07:08		07:37 (T10a)	06:24		07:24 (T10a)	05:59		07:52 (T10a)
	17:17	52	10:06 (T12)	17:54	31	08:44 (T13)	18:27			20:00	124	19:28 (T11)	20:33	77	08:41 (T10a)	21:01	21	08:13 (T10a)
7	07:58		09:15 (T12)	07:37		08:14 (T13)	06:58			07:06		07:35 (T10a)	06:23		07:25 (T10a)	05:59		07:54 (T10a)
	17:18	51	10:06 (T12)	17:55	30	08:44 (T13)	18:29			20:01	126	19:27 (T11)	20:34	76	08:41 (T10a)	21:02	18	08:12 (T10a)
8	07:58		09:16 (T12)	07:36		08:15 (T13)	07:56			07:05		07:35 (T10a)	06:21		07:24 (T10a)	05:59		07:56 (T10a)
	17:19	50	10:06 (T12)	17:56	27	08:42 (T13)	19:30			20:03	127	19:27 (T11)	20:35	75	08:39 (T10a)	21:02	15	08:11 (T10a)
9	07:57		08:19 (T13)	07:35		08:16 (T13)	07:55			07:03		07:33 (T10a)	06:20		07:25 (T10a)	05:58		07:59 (T10a)
	17:20	55	10:05 (T12)	17:57	25	08:41 (T13)	19:31			20:04	129	19:26 (T11)	20:36	74	08:39 (T10a)	21:03	10	08:09 (T10a)
10	07:57		08:19 (T13)	07:34		08:18 (T13)	07:53			07:01		07:32 (T10a)	06:19		07:25 (T10a)	05:58		08:01 (T10a)
	17:21	57	10:05 (T12)	17:59	22	08:40 (T13)	19:32			20:05	129	19:25 (T11)	20:37	73	08:38 (T10a)	21:03	4	08:05 (T10a)
11	07:57		08:19 (T13)	07:33		08:20 (T13)	07:51			07:00		07:31 (T10a)	06:18		07:26 (T10a)	05:58		
	17:22	57	10:05 (T12)	18:00	18	08:38 (T13)	19:33			20:06	130	19:25 (T11)	20:38	71	08:37 (T10a)	21:04		
12	07:57		08:18 (T13)	07:31		08:23 (T13)	07:50			06:58		07:30 (T10a)	06:17		07:27 (T10a)	05:58		
	17:23	58	10:04 (T12)	18:01	11	08:34 (T13)	19:34			20:07	130	19:24 (T11)	20:39	70	08:37 (T10a)	21:04		
13	07:56		08:18 (T13)	07:30			07:48			06:57		07:29 (T10a)	06:16		07:27 (T10a)	05:58		
	17:24	58	10:04 (T12)	18:02			19:35			20:08	131	19:24 (T11)	20:40	69	08:36 (T10a)	21:05		
14	07:56		08:18 (T13)	07:29			07:46			06:55		07:28 (T10a)	06:15		07:28 (T10a)	05:58		
	17:26	59	10:04 (T12)	18:04			19:37			20:09	129	19:22 (T11)	20:41	67	08:35 (T10a)	21:05		
15	07:56		08:17 (T13)	07:28			07:45			06:53		07:27 (T10a)	06:14		07:28 (T10a)	05:58		
	17:27	58	10:03 (T12)	18:05			19:38			20:10	129	19:21 (T11)	20:42	66	08:34 (T10a)	21:06		
16	07:55		08:17 (T13)	07:26			07:43			06:52		07:27 (T10a)	06:13		07:29 (T10a)	05:58		
	17:28	58	10:03 (T12)	18:06			19:39			20:11	127	19:20 (T11)	20:43	64	08:33 (T10a)	21:06		
17	07:55		08:16 (T13)	07:25			07:41			06:50		07:26 (T10a)	06:12		07:31 (T10a)	05:58		
	17:29	57	10:01 (T12)	18:07			19:40			20:12	125	19:18 (T11)	20:44	62	08:33 (T10a)	21:07		
18	07:54		08:16 (T13)	07:24			07:40		19:00 (T11)	06:49		07:26 (T10a)	06:11		07:31 (T10a)	05:58		
	17:30	56	10:01 (T12)	18:09			19:41	11	19:11 (T11)	20:13	123	19:17 (T11)	20:45	61	08:32 (T10a)	21:07		
19	07:54		08:15 (T13)	07:22			07:38		18:54 (T11)	06:47		07:25 (T10a)	06:10		07:32 (T10a)	05:58		
	17:31	54	09:59 (T12)	18:10			19:42	22	19:16 (T11)	20:14	121	19:15 (T11)	20:46	59	08:31 (T10a)	21:07		
20	07:53		08:14 (T13)	07:21			07:36		18:50 (T11)	06:46		07:25 (T10a)	06:09		07:32 (T10a)	05:58		
	17:32	52	09:57 (T12)	18:11			19:43	28	19:18 (T11)	20:15	118	19:14 (T11)	20:47	58	08:30 (T10a)	21:08		
21	07:53		08:14 (T13)	07:19			07:35		18:48 (T11)	06:44		07:24 (T10a)	06:08		07:33 (T10a)	05:58		
	17:34	48	09:55 (T12)	18:12			19:44	33	19:21 (T11)	20:17	114	19:11 (T11)	20:48	56	08:29 (T10a)	21:08		
22	07:52		08:13 (T13)	07:18			07:33		18:45 (T11)	06:43		07:24 (T10a)	06:08		07:35 (T10a)	05:59		
	17:35	43	09:51 (T12)	18:13			19:45	38	19:23 (T11)	20:18	110	19:09 (T11)	20:49	54	08:29 (T10a)	21:08		
23	07:51		08:12 (T13)	07:16			07:31		18:43 (T11)	06:41		07:24 (T10a)	06:07		07:35 (T10a)	05:59		
	17:36	31	08:43 (T13)	18:15			19:46	41	19:24 (T11)	20:19	104	19:06 (T11)	20:50	53	08:28 (T10a)	21:08		
24	07:51		08:11 (T13)	07:15			07:30		18:42 (T11)	06:40		07:23 (T10a)	06:06		07:36 (T10a)	05:59		
	17:37	32	08:43 (T13)	18:16			19:47	43	19:25 (T11)	20:20	95	19:01 (T11)	20:51	51	08:27 (T10a)	21:09		
25	07:50		08:11 (T13)	07:13			07:28		18:40 (T11)	06:38		07:23 (T10a)	06:05		07:38 (T10a)	05:59		
	17:39	34	08:45 (T13)	18:17			19:49	46	19:26 (T11)	20:21	84	08:47 (T10a)	20:51	49	08:27 (T10a)	21:09		
26	07:49		08:10 (T13)	07:12			07:26		18:38 (T11)	06:37		07:23 (T10a)	06:05		07:38 (T10a)	06:00		
	17:40	35	08:45 (T13)	18:18			19:50	49	19:27 (T11)	20:22	83	08:46 (T10a)	20:52	47	08:25 (T10a)	21:09		
27	07:48		08:09 (T13)	07:10			07:25		08:04 (T10a)	06:36		07:23 (T10a)	06:04		07:39 (T10a)	06:00		
	17:41	36	08:45 (T13)	18:19			19:51	71	19:28 (T11)	20:23	83	08:46 (T10a)	20:53	45	08:24 (T10a)	21:09		
28	07:47		08:09 (T13)	07:09			07:23		07:59 (T10a)	06:34		07:23 (T10a)	06:03		07:41 (T10a)	06:00		
	17:42	37	08:46 (T13)	18:21			19:52	81	19:28 (T11)	20:24	83	08:46 (T10a)	20:54	43	08:24 (T10a)	21:09		
29	07:47		08:09 (T13)				07:21		07:55 (T10a)	06:33		07:22 (T10a)	06:03		07:41 (T10a)	06:01		
	17:44	37	08:46 (T13)				19:53	90	19:28 (T11)	20:25	83	08:45 (T10a)	20:55	41	08:22 (T10a)	21:09		
30	07:46		08:09 (T13)				07:19		07:51 (T10a)	06:31		07:23 (T10a)	06:02		07:43 (T10a)	06:01		
	17:45	37	08:46 (T13)				19:54	97	19:28 (T11)	20:26	82	08:45 (T10a)	20:56	39	08:22 (T10a)	21:09		
31	07:45		08:09 (T13)				07:18		07:49 (T10a)				06:02		07:44 (T10a)			
	17:46	37	08:46 (T13)				19:55	103	19:29 (T11)				20:56	36	08:20 (T10a)			
Potential sun hours	297			297			370			399			449			453		
Total, worst case		1510			338			753			3399			1934			214	
Sun reduction		0.31			0.40			0.44			0.52			0.57			0.64	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.53			0.52			0.64			0.64			0.64			0.64	
Total reduction		0.16			0.20			0.27			0.33			0.36			0.40	
Total, real		241			69			206			1107			694			86	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 427 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1671)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:02			06:26		07:37 (T10a)	06:57		07:30 (T10a)	07:28			07:02		07:47 (T13)	07:37		08:01 (T13)
	21:09			20:50	70	08:47 (T10a)	20:07	130	19:24 (T11)	19:15			17:28	23	08:10 (T13)	17:03	57	09:47 (T12)
2	06:02			06:27		07:36 (T10a)	06:58		07:31 (T10a)	07:29			07:03		07:46 (T13)	07:38		08:02 (T13)
	21:09			20:49	72	08:48 (T10a)	20:06	129	19:24 (T11)	19:13			17:27	25	08:11 (T13)	17:03	56	09:48 (T12)
3	06:03		08:04 (T10a)	06:28		07:36 (T10a)	06:59		07:31 (T10a)	07:30			07:05		07:44 (T13)	07:39		08:03 (T13)
	21:09	8	08:12 (T10a)	20:48	73	08:49 (T10a)	20:04	129	19:24 (T11)	19:11			17:25	28	08:12 (T13)	17:03	55	09:49 (T12)
4	06:03		08:02 (T10a)	06:29		07:35 (T10a)	07:00		07:32 (T10a)	07:31			07:06		07:43 (T13)	07:40		09:00 (T12)
	21:09	13	08:15 (T10a)	20:47	75	08:50 (T10a)	20:02	127	19:24 (T11)	19:10			17:24	30	08:13 (T13)	17:03	50	09:50 (T12)
5	06:04		08:01 (T10a)	06:30		07:35 (T10a)	07:01		07:32 (T10a)	07:32			07:07		07:43 (T13)	07:41		09:00 (T12)
	21:08	17	08:18 (T10a)	20:46	75	08:50 (T10a)	20:01	127	19:24 (T11)	19:08			17:23	31	08:14 (T13)	17:03	51	09:51 (T12)
6	06:05		07:59 (T10a)	06:31		07:34 (T10a)	07:02		07:33 (T10a)	07:33			07:08		07:42 (T13)	07:42		09:00 (T12)
	21:08	20	08:19 (T10a)	20:45	77	08:51 (T10a)	19:57	124	19:24 (T11)	19:06			17:22	33	08:15 (T13)	17:02	52	09:52 (T12)
7	06:05		07:58 (T10a)	06:32		07:34 (T10a)	07:03		07:34 (T10a)	07:34			07:09		07:41 (T13)	07:43		09:00 (T12)
	21:08	23	08:21 (T10a)	20:44	77	08:51 (T10a)	19:56	123	19:24 (T11)	19:05			17:21	34	08:15 (T13)	17:02	53	09:53 (T12)
8	06:06		07:56 (T10a)	06:33		07:33 (T10a)	07:04		07:35 (T10a)	07:35			07:11		07:42 (T13)	07:44		09:00 (T12)
	21:08	26	08:22 (T10a)	20:42	79	08:52 (T10a)	19:54	119	19:23 (T11)	19:03			17:20	34	08:16 (T13)	17:02	54	09:54 (T12)
9	06:07		07:55 (T10a)	06:34		07:33 (T10a)	07:05		07:36 (T10a)	07:36			07:12		07:41 (T13)	07:45		09:01 (T12)
	21:07	29	08:24 (T10a)	20:41	79	08:52 (T10a)	19:52	116	19:23 (T11)	19:02			17:19	36	08:17 (T13)	17:02	54	09:55 (T12)
10	06:07		07:55 (T10a)	06:35		07:33 (T10a)	07:06		07:38 (T10a)	07:37			07:13		07:41 (T13)	07:46		09:01 (T12)
	21:07	31	08:26 (T10a)	20:40	79	08:52 (T10a)	19:51	112	19:22 (T11)	19:00			17:18	36	08:17 (T13)	17:02	55	09:56 (T12)
11	06:08		07:53 (T10a)	06:36		07:32 (T10a)	07:07		07:38 (T10a)	07:38			07:14		07:40 (T13)	07:47		09:00 (T12)
	21:06	33	08:26 (T10a)	20:39	81	08:53 (T10a)	19:49	109	19:21 (T11)	18:58			17:17	37	08:17 (T13)	17:02	55	09:55 (T12)
12	06:09		07:52 (T10a)	06:37		07:32 (T10a)	07:08		07:40 (T10a)	07:39			07:15		07:41 (T13)	07:48		09:01 (T12)
	21:06	36	08:28 (T10a)	20:37	81	08:53 (T10a)	19:47	104	19:20 (T11)	18:57			17:16	37	08:18 (T13)	17:03	55	09:56 (T12)
13	06:09		07:52 (T10a)	06:38		07:31 (T10a)	07:09		07:42 (T10a)	07:40			07:17		07:41 (T13)	07:48		09:01 (T12)
	21:05	37	08:29 (T10a)	20:36	82	08:53 (T10a)	19:46	98	19:19 (T11)	18:55			17:15	37	08:18 (T13)	17:03	56	09:57 (T12)
14	06:10		07:51 (T10a)	06:39		07:30 (T10a)	07:10		07:44 (T10a)	07:42			07:18		07:41 (T13)	07:49		09:02 (T12)
	21:05	40	08:31 (T10a)	20:35	83	08:53 (T10a)	19:44	92	19:18 (T11)	18:54			17:14	36	08:17 (T13)	17:03	56	09:58 (T12)
15	06:11		07:49 (T10a)	06:40		07:30 (T10a)	07:11		07:47 (T10a)	07:43			07:19		07:42 (T13)	07:50		09:02 (T12)
	21:04	42	08:31 (T10a)	20:33	83	08:53 (T10a)	19:42	83	19:17 (T11)	18:52			17:13	36	08:18 (T13)	17:03	57	09:59 (T12)
16	06:12		07:49 (T10a)	06:41		07:30 (T10a)	07:12		07:52 (T10a)	07:44			07:20		07:43 (T13)	07:51		09:02 (T12)
	21:04	44	08:33 (T10a)	20:32	83	08:53 (T10a)	19:40	72	19:16 (T11)	18:50			17:12	35	08:18 (T13)	17:03	57	09:59 (T12)
17	06:12		07:48 (T10a)	06:42		07:29 (T10a)	07:13		18:27 (T11)	07:45			07:21		07:44 (T13)	07:51		09:03 (T12)
	21:03	46	08:34 (T10a)	20:30	84	08:53 (T10a)	19:39	48	19:15 (T11)	18:49			17:11	34	08:18 (T13)	17:04	57	10:00 (T12)
18	06:13		07:47 (T10a)	06:43		07:29 (T10a)	07:14		18:27 (T11)	07:46			07:23		07:45 (T13)	07:52		09:03 (T12)
	21:03	48	08:35 (T10a)	20:29	84	08:53 (T10a)	19:37	47	19:14 (T11)	18:47			17:10	32	08:17 (T13)	17:04	58	10:01 (T12)
19	06:14		07:47 (T10a)	06:44		07:29 (T10a)	07:15		18:28 (T11)	07:47			07:24		07:47 (T13)	07:53		09:03 (T12)
	21:02	50	08:37 (T10a)	20:27	97	19:08 (T11)	19:35	44	19:12 (T11)	18:46			17:10	31	08:18 (T13)	17:04	58	10:01 (T12)
20	06:15		07:45 (T10a)	06:45		07:29 (T10a)	07:16		18:29 (T11)	07:48			07:25		07:48 (T13)	07:53		09:04 (T12)
	21:01	52	08:37 (T10a)	20:26	106	19:12 (T11)	19:34	41	19:10 (T11)	18:44			17:09	42	09:26 (T12)	17:05	58	10:02 (T12)
21	06:16		07:45 (T10a)	06:46		07:29 (T10a)	07:17		18:30 (T11)	07:49			07:26		07:49 (T13)	07:54		09:04 (T12)
	21:00	53	08:38 (T10a)	20:25	111	19:14 (T11)	19:32	38	19:08 (T11)	18:43			17:08	48	09:30 (T12)	17:05	58	10:02 (T12)
22	06:17		07:44 (T10a)	06:47		07:29 (T10a)	07:18		18:32 (T11)	07:51			07:27		07:50 (T13)	07:54		09:05 (T12)
	21:00	55	08:39 (T10a)	20:23	114	19:16 (T11)	19:30	34	19:06 (T11)	18:41			17:08	52	09:33 (T12)	17:06	58	10:03 (T12)
23	06:18		07:43 (T10a)	06:48		07:28 (T10a)	07:19		18:34 (T11)	07:52			07:29		07:52 (T13)	07:55		09:05 (T12)
	20:59	57	08:40 (T10a)	20:22	119	19:18 (T11)	19:28	30	19:04 (T11)	18:40			17:07	54	09:36 (T12)	17:06	58	10:03 (T12)
24	06:19		07:43 (T10a)	06:49		07:28 (T10a)	07:20		18:36 (T11)	07:53			07:30		07:53 (T13)	07:55		09:05 (T12)
	20:58	58	08:41 (T10a)	20:20	122	19:19 (T11)	19:27	24	19:00 (T11)	18:39			17:06	57	09:38 (T12)	17:07	58	10:03 (T12)
25	06:19		07:42 (T10a)	06:50		07:29 (T10a)	07:21		18:40 (T11)	07:54			07:31		07:54 (T13)	07:56		09:06 (T12)
	20:57	60	08:42 (T10a)	20:18	123	19:20 (T11)	19:25	16	18:56 (T11)	18:37			17:06	57	09:39 (T12)	17:07	58	10:04 (T12)
26	06:20		07:41 (T10a)	06:51		07:29 (T10a)	07:22			07:55			07:32		07:55 (T13)	07:56		09:07 (T12)
	20:56	62	08:43 (T10a)	20:17	125	19:21 (T11)	19:23			18:36			17:05	58	09:41 (T12)	17:08	57	10:04 (T12)
27	06:21		07:40 (T10a)	06:52		07:29 (T10a)	07:23			07:56			07:33		07:56 (T13)	07:56		09:07 (T12)
	20:55	63	08:43 (T10a)	20:15	127	19:22 (T11)	19:22			18:34			17:05	59	09:42 (T12)	17:09	57	10:04 (T12)
28	06:22		07:39 (T10a)	06:53		07:29 (T10a)	07:24			07:58			07:34		07:58 (T13)	07:57		09:08 (T12)
	20:54	65	08:44 (T10a)	20:14	129	19:23 (T11)	19:20			18:33			17:05	59	09:44 (T12)	17:09	57	10:05 (T12)
29	06:23		07:39 (T10a)	06:54		07:29 (T10a)	07:26			07:59			07:35		07:59 (T13)	07:57		09:09 (T12)
	20:54	66	08:45 (T10a)	20:12	129	19:23 (T11)	19:18			18:32			17:04	58	09:45 (T12)	17:10	56	10:05 (T12)
30	06:24		07:38 (T10a)	06:55		07:29 (T10a)	07:27			08:00		08:52 (T13)	07:36		08:00 (T13)	07:57		09:09 (T12)
	20:53	68	08:46 (T10a)	20:11	131	19:24 (T11)	19:16			18:30	13	09:05 (T13)	17:04	58	09:46 (T12)	17:11	56	10:05 (T12)
31	06:25		07:37 (T10a)	06:56		07:30 (T10a)				08:01		08:49 (T13)				07:57		09:10 (T12)
	20:51	70	08:47 (T10a)	20:09	130	19:24 (T11)				18:29	18	09:07 (T13)				17:12	55	10:05 (T12)
Potential sun hours	460			429			375			345			297			287		
Total, worst case		1272			2980			2116			31			1227			1732	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.64			0.64			0.64			0.52			0.52			0.53	
Total reduction		0.42			0.38			0.37			0.25			0.15			0.11	
Total, real		528			1141			779			8			189			196	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 596 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1685)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June		
1	07:58			07:44		16:29 (T13)	07:07		17:32 (T12)	07:16			06:30		19:27 (T10a)	06:01		
	17:13			17:47	50	17:19 (T13)	18:22	28	18:00 (T12)	19:56			20:27	25	19:52 (T10a)	20:57		
2	07:58			07:43		16:28 (T13)	07:06		17:31 (T12)	07:14			06:29		19:27 (T10a)	06:01		
	17:13			17:48	52	17:20 (T13)	18:23	30	18:01 (T12)	19:57			20:28	23	19:50 (T10a)	20:58		
3	07:58			07:42		16:28 (T13)	07:04		17:32 (T12)	07:13			06:27		19:29 (T10a)	06:00		
	17:14			17:50	52	17:20 (T13)	18:24	31	18:03 (T12)	19:58			20:29	20	19:49 (T10a)	20:59		
4	07:58			07:41		16:28 (T13)	07:03		17:31 (T12)	07:11			06:26		19:31 (T10a)	06:00		20:33 (T9)
	17:15			17:51	53	17:21 (T13)	18:25	32	18:03 (T12)	19:59			20:30	16	19:47 (T10a)	20:59	2	20:35 (T9)
5	07:58			07:40		16:28 (T13)	07:01		17:31 (T12)	07:09			06:25		19:33 (T10a)	05:59		20:31 (T9)
	17:16			17:52	53	17:21 (T13)	18:26	31	18:02 (T12)	20:00			20:31	11	19:44 (T10a)	21:00	4	20:35 (T9)
6	07:58			07:38		16:29 (T13)	06:59		17:32 (T12)	07:08			06:24			05:59		20:30 (T9)
	17:17			17:54	53	17:22 (T13)	18:27	30	18:02 (T12)	20:00			20:33			21:01	6	20:36 (T9)
7	07:58			07:37		16:28 (T13)	06:58		17:32 (T12)	07:06			06:22			05:59		20:30 (T9)
	17:18			17:55	53	17:21 (T13)	18:29	29	18:01 (T12)	20:01			20:34			21:01	7	20:37 (T9)
8	07:58			07:36		16:28 (T13)	07:56		18:32 (T12)	07:05			06:21			05:59		20:30 (T9)
	17:19			17:56	54	17:22 (T13)	19:30	27	18:59 (T12)	20:02			20:35			21:02	8	20:38 (T9)
9	07:57			07:35		16:28 (T13)	07:55		18:34 (T12)	07:03			06:20			05:58		20:29 (T9)
	17:20			17:57	54	17:22 (T13)	19:31	25	18:59 (T12)	20:04			20:36			21:03	8	20:37 (T9)
10	07:57			07:34		16:29 (T13)	07:53		18:35 (T12)	07:01			06:19			05:58		20:28 (T9)
	17:21			17:59	53	17:22 (T13)	19:32	22	18:57 (T12)	20:05			20:37			21:03	10	20:38 (T9)
11	07:57			07:33		16:29 (T13)	07:51		18:37 (T12)	07:00		19:40 (T10a)	06:18			05:58		20:28 (T9)
	17:22			18:00	53	17:22 (T13)	19:33	18	18:55 (T12)	20:06	5	19:45 (T10a)	20:38			21:04	11	20:39 (T9)
12	07:57			07:31		16:29 (T13)	07:50		18:39 (T12)	06:58		19:35 (T10a)	06:17			05:58		20:28 (T9)
	17:23			18:01	52	17:21 (T13)	19:34	13	18:52 (T12)	20:07	11	19:46 (T10a)	20:39			21:04	11	20:39 (T9)
13	07:56			07:30		16:30 (T13)	07:48			06:56		19:33 (T10a)	06:16			05:58		20:28 (T9)
	17:24			18:02	51	17:21 (T13)	19:35			20:08	14	19:47 (T10a)	20:40			21:05	12	20:40 (T9)
14	07:56		16:46 (T13)	07:29		16:30 (T13)	07:46			06:55		19:31 (T10a)	06:15			05:58		20:28 (T9)
	17:25	7	16:53 (T13)	18:04	51	17:21 (T13)	19:36			20:09	17	19:48 (T10a)	20:41			21:05	12	20:40 (T9)
15	07:56		16:42 (T13)	07:27		16:30 (T13)	07:45			06:53		19:29 (T10a)	06:14			05:58		20:28 (T9)
	17:27	15	16:57 (T13)	18:05	50	17:20 (T13)	19:38			20:10	19	19:48 (T10a)	20:42			21:06	12	20:40 (T9)
16	07:55		16:41 (T13)	07:26		16:31 (T13)	07:43			06:52		19:28 (T10a)	06:13			05:58		20:28 (T9)
	17:28	19	17:00 (T13)	18:06	49	17:20 (T13)	19:39			20:11	22	19:50 (T10a)	20:43			21:06	13	20:41 (T9)
17	07:55		16:39 (T13)	07:25		16:32 (T13)	07:41			06:50		19:26 (T10a)	06:12			05:58		20:28 (T9)
	17:29	23	17:02 (T13)	18:07	48	17:20 (T13)	19:40			20:12	24	19:50 (T10a)	20:44			21:07	13	20:41 (T9)
18	07:54		16:38 (T13)	07:23		16:33 (T13)	07:40			06:49		19:26 (T10a)	06:11			05:58		20:28 (T9)
	17:30	26	17:04 (T13)	18:08	45	17:18 (T13)	19:41			20:13	26	19:52 (T10a)	20:45			21:07	13	20:41 (T9)
19	07:54		16:36 (T13)	07:22		16:34 (T13)	07:38			06:47		19:25 (T10a)	06:10			05:58		20:28 (T9)
	17:31	30	17:06 (T13)	18:10	44	17:18 (T13)	19:42			20:14	28	19:53 (T10a)	20:46			21:07	13	20:41 (T9)
20	07:53		16:35 (T13)	07:21		16:35 (T13)	07:36			06:46		19:24 (T10a)	06:09			05:58		20:29 (T9)
	17:32	32	17:07 (T13)	18:11	41	17:16 (T13)	19:43			20:15	30	19:54 (T10a)	20:47			21:08	14	20:43 (T9)
21	07:53		16:35 (T13)	07:19		16:36 (T13)	07:35			06:44		19:24 (T10a)	06:08			05:58		20:29 (T9)
	17:34	34	17:09 (T13)	18:12	47	17:50 (T12)	19:44			20:16	30	19:54 (T10a)	20:48			21:08	14	20:43 (T9)
22	07:52		16:34 (T13)	07:18		16:37 (T13)	07:33			06:43		19:24 (T10a)	06:07			05:59		20:29 (T9)
	17:35	36	17:10 (T13)	18:13	48	17:51 (T12)	19:45			20:18	32	19:56 (T10a)	20:49			21:08	14	20:43 (T9)
23	07:51		16:33 (T13)	07:16		16:39 (T13)	07:31			06:41		19:24 (T10a)	06:07			05:59		20:29 (T9)
	17:36	38	17:11 (T13)	18:15	47	17:52 (T12)	19:46			20:19	33	19:57 (T10a)	20:50			21:08	14	20:43 (T9)
24	07:50		16:32 (T13)	07:15		16:41 (T13)	07:30			06:40		19:23 (T10a)	06:06			05:59		20:30 (T9)
	17:37	40	17:12 (T13)	18:16	45	17:53 (T12)	19:47			20:20	34	19:57 (T10a)	20:50			21:09	13	20:43 (T9)
25	07:50		16:32 (T13)	07:13		16:44 (T13)	07:28			06:38		19:24 (T10a)	06:05			05:59		20:30 (T9)
	17:38	42	17:14 (T13)	18:17	43	17:55 (T12)	19:48			20:21	33	19:57 (T10a)	20:51			21:09	13	20:43 (T9)
26	07:49		16:31 (T13)	07:12		16:47 (T13)	07:26			06:37		19:23 (T10a)	06:05			06:00		20:30 (T9)
	17:40	44	17:15 (T13)	18:18	39	17:56 (T12)	19:50			20:22	33	19:56 (T10a)	20:52			21:09	13	20:43 (T9)
27	07:48		16:31 (T13)	07:10		17:33 (T12)	07:24			06:35		19:24 (T10a)	06:04			06:00		20:31 (T9)
	17:41	45	17:16 (T13)	18:19	24	17:57 (T12)	19:51			20:23	31	19:55 (T10a)	20:53			21:09	13	20:44 (T9)
28	07:47		16:30 (T13)	07:09		17:32 (T12)	07:23			06:34		19:25 (T10a)	06:03			06:00		20:31 (T9)
	17:42	47	17:17 (T13)	18:20	26	17:58 (T12)	19:52			20:24	30	19:55 (T10a)	20:54			21:09	12	20:43 (T9)
29	07:46		16:30 (T13)				07:21			06:33		19:24 (T10a)	06:03			06:01		20:31 (T9)
	17:43	47	17:17 (T13)				19:53			20:25	30	19:54 (T10a)	20:55			21:09	12	20:43 (T9)
30	07:46		16:29 (T13)				07:19			06:31		19:26 (T10a)	06:02			06:01		20:32 (T9)
	17:45	49	17:18 (T13)				19:54			20:26	27	19:53 (T10a)	20:56			21:09	11	20:43 (T9)
31	07:45		16:29 (T13)				07:18						06:02					
	17:46	50	17:19 (T13)				19:55						20:56					
Potential sun hours	297			297			370			399			449			453		
Total, worst case		624			1330			316			509			95			298	
Sun reduction		0.31			0.40			0.44			0.52			0.57			0.64	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.72			0.72			0.68			0.57			0.57			0.52	
Total reduction		0.23			0.29			0.31			0.31			0.33			0.34	
Total, real		143			391			96			155			32			102	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 596 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1685)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December	
1	06:02		20:32 (T9)	06:26			06:57		19:39 (T10a)	07:28		18:19 (T12)	07:02		15:59 (T13)	07:37	
	21:09	11	20:43 (T9)	20:50			20:07	5	19:44 (T10a)	19:15	10	18:29 (T12)	17:28	53	16:52 (T13)	17:03	
2	06:02		20:33 (T9)	06:27			06:58			07:29		18:16 (T12)	07:03		15:58 (T13)	07:38	
	21:09	10	20:43 (T9)	20:49			20:06			19:13	16	18:32 (T12)	17:27	54	16:52 (T13)	17:03	
3	06:03		20:34 (T9)	06:28			06:59			07:30		18:14 (T12)	07:05		15:58 (T13)	07:39	
	21:09	9	20:43 (T9)	20:48			20:04			19:11	20	18:34 (T12)	17:25	53	16:51 (T13)	17:03	
4	06:03		20:35 (T9)	06:29			07:00			07:31		18:12 (T12)	07:06		15:58 (T13)	07:40	
	21:08	8	20:43 (T9)	20:47			20:02			19:10	24	18:36 (T12)	17:24	53	16:51 (T13)	17:03	
5	06:04		20:35 (T9)	06:30			07:01			07:32		18:10 (T12)	07:07		15:58 (T13)	07:41	
	21:08	7	20:42 (T9)	20:46			20:01			19:08	26	18:36 (T12)	17:23	54	16:52 (T13)	17:03	
6	06:05		20:36 (T9)	06:31			07:02			07:33		18:09 (T12)	07:08		15:58 (T13)	07:42	
	21:08	6	20:42 (T9)	20:45			19:57			19:06	28	18:37 (T12)	17:22	53	16:51 (T13)	17:02	
7	06:05		20:38 (T9)	06:32		19:46 (T10a)	07:03			07:34		18:08 (T12)	07:09		15:58 (T13)	07:43	
	21:08	4	20:42 (T9)	20:43	5	19:51 (T10a)	19:56			19:05	29	18:37 (T12)	17:21	53	16:51 (T13)	17:02	
8	06:06		20:38 (T9)	06:33		19:42 (T10a)	07:04			07:35		18:07 (T12)	07:11		15:59 (T13)	07:44	
	21:07	4	20:42 (T9)	20:42	13	19:55 (T10a)	19:54			19:03	30	18:37 (T12)	17:20	52	16:51 (T13)	17:02	
9	06:06		20:41 (T9)	06:34		19:40 (T10a)	07:05			07:36		18:06 (T12)	07:12		15:59 (T13)	07:45	
	21:07	1	20:42 (T9)	20:41	17	19:57 (T10a)	19:52			19:01	31	18:37 (T12)	17:19	52	16:51 (T13)	17:02	
10	06:07			06:35		19:38 (T10a)	07:06			07:37		18:06 (T12)	07:13		16:00 (T13)	07:46	
	21:07			20:40	21	19:59 (T10a)	19:51			19:00	31	18:37 (T12)	17:18	50	16:50 (T13)	17:02	
11	06:08			06:36		19:36 (T10a)	07:07			07:38		18:05 (T12)	07:14		16:00 (T13)	07:47	
	21:06			20:38	24	20:00 (T10a)	19:49			18:58	30	18:35 (T12)	17:17	50	16:50 (T13)	17:02	
12	06:09			06:37		19:34 (T10a)	07:08			07:39		18:05 (T12)	07:15		16:01 (T13)	07:48	
	21:06			20:37	26	20:00 (T10a)	19:47			18:57	29	18:34 (T12)	17:16	49	16:50 (T13)	17:02	
13	06:09			06:38		19:33 (T10a)	07:09			07:40		18:06 (T12)	07:17		16:02 (T13)	07:48	
	21:05			20:36	28	20:01 (T10a)	19:46			18:55	27	18:33 (T12)	17:15	47	16:49 (T13)	17:03	
14	06:10			06:39		19:32 (T10a)	07:10			07:41		18:06 (T12)	07:18		16:02 (T13)	07:49	
	21:05			20:34	29	20:01 (T10a)	19:44			18:53	25	18:31 (T12)	17:14	46	16:48 (T13)	17:03	
15	06:11			06:40		19:31 (T10a)	07:11			07:43		17:24 (T13)	07:19		16:04 (T13)	07:50	
	21:04			20:33	31	20:02 (T10a)	19:42			18:52	30	18:29 (T12)	17:13	45	16:49 (T13)	17:03	
16	06:12			06:41		19:30 (T10a)	07:12			07:44		17:18 (T13)	07:20		16:04 (T13)	07:51	
	21:04			20:32	32	20:02 (T10a)	19:40			18:50	41	18:28 (T12)	17:12	44	16:48 (T13)	17:03	
17	06:12			06:42		19:30 (T10a)	07:13			07:45		17:14 (T13)	07:21		16:05 (T13)	07:51	
	21:03			20:30	33	20:03 (T10a)	19:39			18:49	44	18:26 (T12)	17:11	42	16:47 (T13)	17:04	
18	06:13			06:43		19:29 (T10a)	07:14			07:46		17:12 (T13)	07:23		16:06 (T13)	07:52	
	21:03			20:29	34	20:03 (T10a)	19:37			18:47	45	18:24 (T12)	17:10	40	16:46 (T13)	17:04	
19	06:14			06:44		19:29 (T10a)	07:15			07:47		17:09 (T13)	07:24		16:08 (T13)	07:53	
	21:02			20:27	34	20:03 (T10a)	19:35			18:46	47	18:22 (T12)	17:10	38	16:46 (T13)	17:04	
20	06:15			06:45		19:29 (T10a)	07:16			07:48		17:08 (T13)	07:25		16:09 (T13)	07:53	
	21:01			20:26	33	20:02 (T10a)	19:34			18:44	48	18:22 (T12)	17:09	36	16:45 (T13)	17:05	
21	06:16			06:46		19:28 (T10a)	07:17			07:49		17:06 (T13)	07:26		16:10 (T13)	07:54	
	21:00			20:24	33	20:01 (T10a)	19:32			18:43	46	18:20 (T12)	17:08	34	16:44 (T13)	17:05	
22	06:17			06:47		19:28 (T10a)	07:18			07:50		17:05 (T13)	07:27		16:11 (T13)	07:54	
	21:00			20:23	31	19:59 (T10a)	19:30			18:41	42	17:47 (T13)	17:08	32	16:43 (T13)	17:06	
23	06:18			06:48		19:28 (T10a)	07:19			07:52		17:03 (T13)	07:28		16:13 (T13)	07:55	
	20:59			20:21	30	19:58 (T10a)	19:28			18:40	44	17:47 (T13)	17:07	30	16:43 (T13)	17:06	
24	06:18			06:49		19:28 (T10a)	07:20			07:53		17:03 (T13)	07:30		16:15 (T13)	07:55	
	20:58			20:20	28	19:56 (T10a)	19:27			18:38	46	17:49 (T13)	17:06	26	16:41 (T13)	17:07	
25	06:19			06:50		19:29 (T10a)	07:21			07:54		17:02 (T13)	07:31		16:17 (T13)	07:56	
	20:57			20:18	26	19:55 (T10a)	19:25			18:37	47	17:49 (T13)	17:06	23	16:40 (T13)	17:07	
26	06:20			06:51		19:29 (T10a)	07:22			07:55		17:01 (T13)	07:32		16:19 (T13)	07:56	
	20:56			20:17	24	19:53 (T10a)	19:23			18:36	49	17:50 (T13)	17:05	19	16:38 (T13)	17:08	
27	06:21			06:52		19:30 (T10a)	07:23			07:56		17:00 (T13)	07:33		16:21 (T13)	07:56	
	20:55			20:15	22	19:52 (T10a)	19:22			18:34	50	17:50 (T13)	17:05	15	16:36 (T13)	17:09	
28	06:22			06:53		19:31 (T10a)	07:24			07:57		16:59 (T13)	07:34		16:25 (T13)	07:57	
	20:54			20:14	19	19:50 (T10a)	19:20			18:33	51	17:50 (T13)	17:04	7	16:32 (T13)	17:09	
29	06:23			06:54		19:32 (T10a)	07:25			07:59		16:59 (T13)	07:35			07:57	
	20:53			20:12	17	19:49 (T10a)	19:18			18:32	52	17:51 (T13)	17:04			17:10	
30	06:24			06:55		19:33 (T10a)	07:27			08:00		16:59 (T13)	07:36			07:57	
	20:52			20:11	14	19:47 (T10a)	19:16			18:30	52	17:51 (T13)	17:04			17:11	
31	06:25			06:56		19:35 (T10a)				08:01		16:58 (T13)				07:57	
	20:51			20:09	11	19:46 (T10a)				18:29	53	17:51 (T13)				17:12	
Potential sun hours	460			429			375			345			297			287	
Total, worst case		60			615			5			1143			1150			
Sun reduction		0.66			0.61			0.59			0.48			0.30			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.52			0.57			0.57			0.71			0.72			
Total reduction		0.35			0.36			0.35			0.35			0.22			
Total, real		21			220			2			396			256			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 614 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1687)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February	March			April			May			June
1	07:57		15:46 (T59a)	07:43	07:07			07:16		18:22 (T78a)	06:31		19:17 (T57a)	06:02
	17:13	44	16:30 (T59a)	17:48	18:22			19:56	61	19:23 (T78a)	20:27	40	19:57 (T57a)	20:57
2	07:57		15:47 (T59a)	07:42	07:06			07:15		18:22 (T78a)	06:29		19:17 (T57a)	06:01
	17:14	43	16:30 (T59a)	17:49	18:23			19:57	61	19:23 (T78a)	20:28	40	19:57 (T57a)	20:58
3	07:57		15:48 (T59a)	07:41	07:04			07:13		18:22 (T78a)	06:28		19:18 (T57a)	06:01
	17:15	43	16:31 (T59a)	17:50	18:24			19:58	60	19:22 (T78a)	20:29	38	19:56 (T57a)	20:58
4	07:57		15:48 (T59a)	07:40	07:03			07:11		18:21 (T78a)	06:27		19:19 (T57a)	06:01
	17:16	43	16:31 (T59a)	17:52	18:25			19:59	60	19:21 (T78a)	20:30	37	19:56 (T57a)	20:59
5	07:57		15:49 (T59a)	07:39	07:01			07:10		18:22 (T78a)	06:25		19:18 (T57a)	06:00
	17:17	42	16:31 (T59a)	17:53	18:27			20:00	59	19:21 (T78a)	20:31	36	19:54 (T57a)	21:00
6	07:57		15:50 (T59a)	07:38	06:59			07:08		18:22 (T78a)	06:24		19:19 (T57a)	06:00
	17:18	42	16:32 (T59a)	17:54	18:28			20:00	58	19:20 (T78a)	20:32	35	19:54 (T57a)	21:00
7	07:57		15:50 (T59a)	07:37	06:58			07:06		18:21 (T78a)	06:23		19:20 (T57a)	06:00
	17:19	41	16:31 (T59a)	17:55	18:29			20:01	58	19:19 (T78a)	20:33	33	19:53 (T57a)	21:01
8	07:57		15:51 (T59a)	07:36	07:56			07:05		18:22 (T78a)	06:22		19:21 (T57a)	05:59
	17:20	40	16:31 (T59a)	17:57	19:30			20:03	57	19:19 (T78a)	20:34	31	19:52 (T57a)	21:02
9	07:57		15:52 (T59a)	07:35	07:55			07:03		18:22 (T78a)	06:21		19:22 (T57a)	05:59
	17:21	40	16:32 (T59a)	17:58	19:31			20:04	56	19:18 (T78a)	20:35	29	19:51 (T57a)	21:02
10	07:57		15:53 (T59a)	07:34	07:53			07:02		18:23 (T78a)	06:20		19:23 (T57a)	05:59
	17:22	39	16:32 (T59a)	17:59	19:32			20:05	55	19:18 (T78a)	20:36	27	19:50 (T57a)	21:03
11	07:57		15:53 (T59a)	07:32	07:51			07:00		18:24 (T78a)	06:18		19:25 (T57a)	05:59
	17:23	38	16:31 (T59a)	18:00	19:33			20:06	52	19:16 (T78a)	20:37	24	19:49 (T57a)	21:03
12	07:56		15:54 (T59a)	07:31	07:50			06:58		18:24 (T78a)	06:17		19:26 (T57a)	05:59
	17:24	38	16:32 (T59a)	18:02	19:34			20:07	52	19:45 (T53)	20:38	21	19:47 (T57a)	21:04
13	07:56		15:55 (T59a)	07:30	07:48		18:52 (T78a)	06:57		18:25 (T78a)	06:16		19:28 (T57a)	05:59
	17:25	37	16:32 (T59a)	18:03	19:36	11	19:03 (T78a)	20:08	62	19:47 (T53)	20:40	17	19:45 (T57a)	21:05
14	07:56		15:56 (T59a)	07:29	07:46		18:47 (T78a)	06:55		18:26 (T78a)	06:15		19:31 (T57a)	05:59
	17:26	35	16:31 (T59a)	18:04	19:37	22	19:09 (T78a)	20:09	64	19:48 (T53)	20:41	11	19:42 (T57a)	21:05
15	07:55		15:57 (T59a)	07:27	07:45		18:43 (T78a)	06:54		18:27 (T78a)	06:14			05:59
	17:27	34	16:31 (T59a)	18:05	19:38	29	19:12 (T78a)	20:10	65	19:49 (T53)	20:42			21:05
16	07:55		15:58 (T59a)	07:26	07:43		18:40 (T78a)	06:52		18:28 (T78a)	06:13			05:59
	17:28	32	16:30 (T59a)	18:06	19:39	34	19:14 (T78a)	20:11	65	19:50 (T53)	20:43			21:06
17	07:54		16:00 (T59a)	07:25	07:41		18:38 (T78a)	06:51		18:30 (T78a)	06:12			05:59
	17:30	30	16:30 (T59a)	18:08	19:40	38	19:16 (T78a)	20:12	65	19:51 (T53)	20:43			21:06
18	07:54		16:01 (T59a)	07:23	07:40		18:35 (T78a)	06:49		18:31 (T78a)	06:11			05:59
	17:31	28	16:29 (T59a)	18:09	19:41	43	19:18 (T78a)	20:13	63	19:52 (T53)	20:44			21:07
19	07:53		16:03 (T59a)	07:22	07:38		18:33 (T78a)	06:48		18:34 (T78a)	06:11			05:59
	17:32	26	16:29 (T59a)	18:10	19:42	46	19:19 (T78a)	20:14	60	19:53 (T53)	20:45			21:07
20	07:53		16:04 (T59a)	07:21	07:36		18:31 (T78a)	06:46		18:35 (T78a)	06:10			05:59
	17:33	24	16:28 (T59a)	18:11	19:43	48	19:19 (T78a)	20:15	59	19:54 (T53)	20:46			21:07
21	07:52		16:06 (T59a)	07:19	07:35		18:31 (T78a)	06:45		18:39 (T78a)	06:09			05:59
	17:34	20	16:26 (T59a)	18:12	19:44	50	19:21 (T78a)	20:16	53	19:55 (T53)	20:47			21:07
22	07:52		16:09 (T59a)	07:18	07:33		18:29 (T78a)	06:43		18:46 (T78a)	06:08			05:59
	17:35	16	16:25 (T59a)	18:14	19:45	52	19:21 (T78a)	20:17	39	19:55 (T53)	20:48			21:08
23	07:51		16:12 (T59a)	07:16	07:31		18:27 (T78a)	06:42		19:18 (T57a)	06:07			06:00
	17:37	10	16:22 (T59a)	18:15	19:46	55	19:22 (T78a)	20:18	39	19:57 (T53)	20:49			21:08
24	07:50			07:15	07:30		18:27 (T78a)	06:40		19:18 (T57a)	06:07			06:00
	17:38			18:16	19:48	56	19:23 (T78a)	20:20	40	19:58 (T57a)	20:50			21:08
25	07:49			07:13	07:28		18:26 (T78a)	06:39		19:17 (T57a)	06:06			06:00
	17:39			18:17	19:49	57	19:23 (T78a)	20:21	41	19:58 (T57a)	20:51			21:08
26	07:49			07:12	07:26		18:25 (T78a)	06:37		19:17 (T57a)	06:05			06:00
	17:40			18:18	19:50	58	19:23 (T78a)	20:22	42	19:59 (T57a)	20:52			21:08
27	07:48			07:10	07:25		18:25 (T78a)	06:36		19:17 (T57a)	06:05			06:01
	17:42			18:20	19:51	59	19:24 (T78a)	20:23	41	19:58 (T57a)	20:53			21:08
28	07:47			07:09	07:23		18:24 (T78a)	06:35		19:17 (T57a)	06:04			06:01
	17:43			18:21	19:52	59	19:23 (T78a)	20:24	41	19:58 (T57a)	20:54			21:08
29	07:46				07:21		18:23 (T78a)	06:33		19:17 (T57a)	06:03			06:02
	17:44				19:53	60	19:23 (T78a)	20:25	41	19:58 (T57a)	20:54			21:08
30	07:45				07:20		18:23 (T78a)	06:32		19:17 (T57a)	06:03			06:02
	17:45				19:54	61	19:24 (T78a)	20:26	40	19:57 (T57a)	20:55			21:08
31	07:44				07:18		18:22 (T78a)				06:02			
	17:47				19:55	61	19:23 (T78a)				20:56			
Potential sun hours	297			297	370			399			448			452
Total, worst case		785				899			1609			419		
Sun reduction		0.31				0.44			0.52			0.57		
Oper. time red.		1.00				1.00			1.00			1.00		
Wind dir. red.		0.74				0.64			0.62			0.57		
Total reduction		0.24				0.29			0.33			0.34		
Total, real		186				261			529			141		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 614 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1687)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October		November			December		
1	06:03			06:27		19:36 (T57a)	06:58		18:23 (T78a)	07:28		07:02			07:37		15:35 (T59a)
	21:08			20:50	22	19:58 (T57a)	20:07	52	19:15 (T78a)	19:15		17:28			17:04	38	16:13 (T59a)
2	06:03			06:28		19:34 (T57a)	06:59		18:21 (T78a)	07:29		07:03			07:38		15:35 (T59a)
	21:08			20:49	25	19:59 (T57a)	20:06	55	19:16 (T78a)	19:13		17:27			17:04	39	16:14 (T59a)
3	06:04			06:29		19:33 (T57a)	07:00		18:20 (T78a)	07:30		07:04			07:39		15:35 (T59a)
	21:08			20:48	27	20:00 (T57a)	20:04	56	19:16 (T78a)	19:12		17:26			17:04	40	16:15 (T59a)
4	06:04			06:30		19:31 (T57a)	07:01		18:19 (T78a)	07:31		07:06			07:40		15:35 (T59a)
	21:08			20:47	30	20:01 (T57a)	20:02	57	19:16 (T78a)	19:10		17:25			17:03	40	16:15 (T59a)
5	06:05			06:31		19:30 (T57a)	07:02		18:19 (T78a)	07:32		07:07			07:41		15:35 (T59a)
	21:08			20:46	32	20:02 (T57a)	20:01	57	19:16 (T78a)	19:08		17:23			17:03	41	16:16 (T59a)
6	06:05			06:32		19:29 (T57a)	07:03		18:18 (T78a)	07:33		07:08			07:42		15:35 (T59a)
	21:08			20:44	34	20:03 (T57a)	19:57	59	19:17 (T78a)	19:07		17:22			17:03	42	16:17 (T59a)
7	06:06			06:33		19:29 (T57a)	07:04		18:17 (T78a)	07:34		07:09			07:43		15:35 (T59a)
	21:07			20:43	35	20:04 (T57a)	19:56	60	19:17 (T78a)	19:05		17:21			17:03	42	16:17 (T59a)
8	06:06			06:33		19:28 (T57a)	07:05		18:16 (T78a)	07:35		07:10			07:44		15:35 (T59a)
	21:07			20:42	36	20:04 (T57a)	19:54	60	19:16 (T78a)	19:03		17:20			17:03	43	16:18 (T59a)
9	06:07			06:34		19:27 (T57a)	07:06		18:16 (T78a)	07:36		07:12			07:45		15:36 (T59a)
	21:07			20:41	38	20:05 (T57a)	19:52	60	19:16 (T78a)	19:02		17:19			17:03	43	16:19 (T59a)
10	06:08			06:35		19:27 (T57a)	07:06		18:15 (T78a)	07:37		07:13			07:46		15:36 (T59a)
	21:06			20:40	38	20:05 (T57a)	19:51	61	19:16 (T78a)	19:00		17:18			17:03	43	16:19 (T59a)
11	06:09			06:36		19:26 (T57a)	07:07		18:15 (T78a)	07:38		07:14			07:46		15:37 (T59a)
	21:06			20:38	40	20:06 (T57a)	19:49	61	19:16 (T78a)	18:59		17:17			17:03	43	16:20 (T59a)
12	06:09			06:37		19:26 (T57a)	07:08		18:14 (T78a)	07:39		07:15			07:47		15:37 (T59a)
	21:05			20:37	40	20:06 (T57a)	19:47	61	19:15 (T78a)	18:57		17:16			17:03	44	16:21 (T59a)
13	06:10			06:38		19:25 (T57a)	07:09		18:14 (T78a)	07:40		07:16			07:48		15:38 (T59a)
	21:05			20:36	41	20:06 (T57a)	19:46	61	19:15 (T78a)	18:55		17:15			17:03	44	16:22 (T59a)
14	06:11			06:39		19:25 (T57a)	07:10		18:14 (T78a)	07:41		07:18			07:49		15:37 (T59a)
	21:05			20:34	41	20:06 (T57a)	19:44	60	19:14 (T78a)	18:54		17:14			17:04	44	16:21 (T59a)
15	06:12			06:40		19:25 (T57a)	07:11		18:13 (T78a)	07:43		07:19			07:50		15:38 (T59a)
	21:04			20:33	41	20:06 (T57a)	19:42	60	19:13 (T78a)	18:52		17:13			17:04	44	16:22 (T59a)
16	06:12			06:41		19:24 (T57a)	07:12		18:13 (T78a)	07:44		07:20			07:50		15:39 (T59a)
	21:03			20:32	42	20:06 (T57a)	19:40	59	19:12 (T78a)	18:51		17:13			17:04	44	16:23 (T59a)
17	06:13			06:42		19:24 (T57a)	07:13		18:13 (T78a)	07:45		07:21			07:51		15:38 (T59a)
	21:03			20:30	42	20:06 (T57a)	19:39	58	19:11 (T78a)	18:49		17:12			17:04	45	16:23 (T59a)
18	06:14			06:44		19:24 (T57a)	07:14		18:13 (T78a)	07:46		07:22			07:52		15:39 (T59a)
	21:02			20:29	41	20:05 (T57a)	19:37	57	19:10 (T78a)	18:48		17:11			17:05	45	16:24 (T59a)
19	06:15			06:45		19:24 (T57a)	07:15		18:13 (T78a)	07:47		07:24		15:46 (T59a)	07:52		15:40 (T59a)
	21:01			20:27	40	20:04 (T57a)	19:35	56	19:09 (T78a)	18:46		17:10	10	15:56 (T59a)	17:05	45	16:25 (T59a)
20	06:16			06:46		19:24 (T57a)	07:16		18:14 (T78a)	07:48		07:25		15:43 (T59a)	07:53		15:40 (T59a)
	21:01			20:26	38	20:02 (T53)	19:34	54	19:08 (T78a)	18:45		17:10	16	15:59 (T59a)	17:05	45	16:25 (T59a)
21	06:16			06:47		18:49 (T78a)	07:17		18:14 (T78a)	07:49		07:26		15:42 (T59a)	07:53		15:41 (T59a)
	21:00			20:24	45	20:01 (T53)	19:32	53	19:07 (T78a)	18:43		17:09	20	16:02 (T59a)	17:06	45	16:26 (T59a)
22	06:17			06:48		18:43 (T78a)	07:18		18:15 (T78a)	07:50		07:27		15:40 (T59a)	07:54		15:41 (T59a)
	20:59			20:23	54	20:00 (T53)	19:30	51	19:06 (T78a)	18:42		17:08	24	16:04 (T59a)	17:06	45	16:26 (T59a)
23	06:18			06:49		18:39 (T78a)	07:19		18:15 (T78a)	07:52		07:28		15:39 (T59a)	07:54		15:41 (T59a)
	20:59			20:21	58	19:57 (T53)	19:29	49	19:04 (T78a)	18:40		17:08	26	16:05 (T59a)	17:07	45	16:26 (T59a)
24	06:19			06:50		18:36 (T78a)	07:20		18:16 (T78a)	07:53		07:29		15:38 (T59a)	07:55		15:42 (T59a)
	20:58			20:20	62	19:56 (T53)	19:27	46	19:02 (T78a)	18:39		17:07	28	16:06 (T59a)	17:07	45	16:27 (T59a)
25	06:20			06:51		18:34 (T78a)	07:22		18:17 (T78a)	07:54		07:30		15:38 (T59a)	07:55		15:42 (T59a)
	20:57			20:18	62	19:54 (T53)	19:25	44	19:01 (T78a)	18:37		17:06	30	16:08 (T59a)	17:08	45	16:27 (T59a)
26	06:21			06:52		18:32 (T78a)	07:23		18:19 (T78a)	07:55		07:32		15:37 (T59a)	07:56		15:43 (T59a)
	20:56			20:17	65	19:53 (T53)	19:23	40	18:59 (T78a)	18:36		17:06	32	16:09 (T59a)	17:09	45	16:28 (T59a)
27	06:22			06:53		18:30 (T78a)	07:24		18:20 (T78a)	07:56		07:33		15:36 (T59a)	07:56		15:43 (T59a)
	20:55			20:15	64	19:51 (T53)	19:22	36	18:56 (T78a)	18:35		17:06	34	16:10 (T59a)	17:09	45	16:28 (T59a)
28	06:23			06:54		18:28 (T78a)	07:25		18:22 (T78a)	07:57		07:34		15:36 (T59a)	07:56		15:44 (T59a)
	20:54			20:14	65	19:50 (T53)	19:20	32	18:54 (T78a)	18:33		17:05	35	16:11 (T59a)	17:10	44	16:28 (T59a)
29	06:24		19:44 (T57a)	06:55		18:27 (T78a)	07:26		18:25 (T78a)	07:58		07:35		15:35 (T59a)	07:57		15:44 (T59a)
	20:53	6	19:50 (T57a)	20:12	63	19:48 (T53)	19:18	25	18:50 (T78a)	18:32		17:05	37	16:12 (T59a)	17:11	44	16:28 (T59a)
30	06:25		19:40 (T57a)	06:56		18:25 (T78a)	07:27		18:29 (T78a)	08:00		07:36		15:35 (T59a)	07:57		15:44 (T59a)
	20:52	14	19:54 (T57a)	20:10	62	19:47 (T53)	19:17	16	18:45 (T78a)	18:31		17:04	38	16:13 (T59a)	17:12	44	16:28 (T59a)
31	06:26		19:38 (T57a)	06:57		18:24 (T78a)				08:01					07:57		15:46 (T59a)
	20:51	19	19:57 (T57a)	20:09	52	19:45 (T53)				18:30					17:12	44	16:30 (T59a)
Potential sun hours	459			428			375			345		297			287		
Total, worst case		39			1375			1556					330			1345	
Sun reduction		0.66			0.61			0.59					0.30			0.22	
Oper. time red.		1.00			1.00			1.00					1.00			1.00	
Wind dir. red.		0.57			0.59			0.64					0.74			0.74	
Total reduction		0.39			0.37			0.39					0.23			0.17	
Total, real		15			509			607					76			226	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 688 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1692)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June
1	07:58			07:44		16:27 (T13)	07:07		16:33 (T13)	07:16			06:30		19:31 (T10a)	06:01
	17:13			17:47	52	17:19 (T13)	18:22	64	18:00 (T12)	19:56			20:27	34	20:05 (T10a)	20:57
2	07:58			07:43		16:26 (T13)	07:06		16:34 (T13)	07:14			06:29		19:30 (T10a)	06:01
	17:14			17:48	54	17:20 (T13)	18:23	64	18:01 (T12)	19:57			20:28	35	20:05 (T10a)	20:58
3	07:58			07:42		16:26 (T13)	07:04		16:37 (T13)	07:13			06:27		19:30 (T10a)	06:00
	17:14			17:50	55	17:21 (T13)	18:24	61	18:03 (T12)	19:58			20:29	37	20:07 (T10a)	20:59
4	07:58			07:41		16:25 (T13)	07:03		16:39 (T13)	07:11			06:26		19:31 (T10a)	06:00
	17:15			17:51	57	17:22 (T13)	18:25	57	18:03 (T12)	19:59			20:30	36	20:07 (T10a)	20:59
5	07:58			07:40		16:25 (T13)	07:01		16:41 (T13)	07:09			06:25		19:31 (T10a)	05:59
	17:16			17:52	58	17:23 (T13)	18:26	54	18:04 (T12)	20:00			20:31	36	20:07 (T10a)	21:00
6	07:58			07:38		16:25 (T13)	06:59		16:46 (T13)	07:08			06:24		19:31 (T10a)	05:59
	17:17			17:54	58	17:23 (T13)	18:27	47	18:06 (T12)	20:00			20:33	36	20:07 (T10a)	21:01
7	07:58			07:37		16:24 (T13)	06:58		17:33 (T12)	07:06			06:22		19:31 (T10a)	05:59
	17:18			17:55	59	17:23 (T13)	18:29	34	18:07 (T12)	20:01			20:34	36	20:07 (T10a)	21:01
8	07:58			07:36		16:24 (T13)	07:56		18:33 (T12)	07:05			06:21		19:31 (T10a)	05:59
	17:19			17:56	60	17:24 (T13)	19:30	34	19:07 (T12)	20:03			20:35	35	20:06 (T10a)	21:02
9	07:57			07:35		16:24 (T13)	07:55		18:33 (T12)	07:03			06:20		19:31 (T10a)	05:58
	17:20			17:57	60	17:24 (T13)	19:31	34	19:07 (T12)	20:04			20:36	34	20:05 (T10a)	21:03
10	07:57			07:34		16:24 (T13)	07:53		18:33 (T12)	07:01			06:19		19:32 (T10a)	05:58
	17:21			17:59	61	17:25 (T13)	19:32	33	19:06 (T12)	20:05			20:37	33	20:05 (T10a)	21:03
11	07:57			07:33		16:24 (T13)	07:51		18:34 (T12)	07:00			06:18		19:32 (T10a)	05:58
	17:22			18:00	61	17:25 (T13)	19:33	32	19:06 (T12)	20:06			20:38	32	20:04 (T10a)	21:04
12	07:57			07:31		16:23 (T13)	07:50		18:34 (T12)	06:58			06:17		19:33 (T10a)	05:58
	17:23			18:01	62	17:25 (T13)	19:34	31	19:05 (T12)	20:07			20:39	31	20:04 (T10a)	21:04
13	07:56			07:30		16:23 (T13)	07:48		18:34 (T12)	06:56			06:16		19:33 (T10a)	05:58
	17:24			18:02	62	17:25 (T13)	19:35	30	19:04 (T12)	20:08			20:40	30	20:03 (T10a)	21:05
14	07:56			07:29		16:24 (T13)	07:46		18:36 (T12)	06:55			06:15		19:34 (T10a)	05:58
	17:26			18:04	62	17:26 (T13)	19:36	27	19:03 (T12)	20:09			20:41	28	20:02 (T10a)	21:05
15	07:56			07:27		16:23 (T13)	07:45		18:36 (T12)	06:53			06:14		19:35 (T10a)	05:58
	17:27			18:05	62	17:25 (T13)	19:38	25	19:01 (T12)	20:10			20:42	26	20:01 (T10a)	21:06
16	07:55			07:26		16:24 (T13)	07:43		18:37 (T12)	06:52			06:13		19:36 (T10a)	05:58
	17:28			18:06	61	17:25 (T13)	19:39	22	18:59 (T12)	20:11			20:43	24	20:00 (T10a)	21:06
17	07:55			07:25		16:24 (T13)	07:41		18:39 (T12)	06:50			06:12		19:37 (T10a)	05:58
	17:29			18:07	61	17:25 (T13)	19:40	17	18:56 (T12)	20:12			20:44	22	19:59 (T10a)	21:07
18	07:54			07:23		16:24 (T13)	07:40		18:43 (T12)	06:49			06:11		19:39 (T10a)	05:58
	17:30			18:08	60	17:24 (T13)	19:41	10	18:53 (T12)	20:13			20:45	19	19:58 (T10a)	21:07
19	07:54		16:44 (T13)	07:22		16:25 (T13)	07:38			06:47			06:10		19:41 (T10a)	05:58
	17:31	12	16:56 (T13)	18:10	60	17:25 (T13)	19:42			20:14			20:46	15	19:56 (T10a)	21:07
20	07:53		16:40 (T13)	07:21		16:25 (T13)	07:36			06:46		19:46 (T10a)	06:09		19:43 (T10a)	05:58
	17:32	20	17:00 (T13)	18:11	59	17:24 (T13)	19:43			20:15	8	19:54 (T10a)	20:47	11	19:54 (T10a)	21:08
21	07:53		16:39 (T13)	07:19		16:25 (T13)	07:35			06:44		19:42 (T10a)	06:08			05:58
	17:34	24	17:03 (T13)	18:12	58	17:23 (T13)	19:44			20:16	12	19:54 (T10a)	20:48			21:08
22	07:52		16:37 (T13)	07:18		16:26 (T13)	07:33			06:43		19:40 (T10a)	06:07			05:59
	17:35	28	17:05 (T13)	18:13	56	17:22 (T13)	19:45			20:18	16	19:56 (T10a)	20:49			21:08
23	07:51		16:35 (T13)	07:16		16:27 (T13)	07:31			06:41		19:39 (T10a)	06:07			05:59
	17:36	32	17:07 (T13)	18:15	55	17:22 (T13)	19:46			20:19	18	19:57 (T10a)	20:50			21:08
24	07:50		16:33 (T13)	07:15		16:27 (T13)	07:30			06:40		19:36 (T10a)	06:06			05:59
	17:37	35	17:08 (T13)	18:16	54	17:21 (T13)	19:47			20:20	22	19:58 (T10a)	20:50			21:09
25	07:50		16:33 (T13)	07:13		16:28 (T13)	07:28			06:38		19:36 (T10a)	06:05			05:59
	17:38	38	17:11 (T13)	18:17	61	17:55 (T12)	19:48			20:21	23	19:59 (T10a)	20:51			21:09
26	07:49		16:32 (T13)	07:12		16:29 (T13)	07:26			06:37		19:34 (T10a)	06:05			06:00
	17:40	40	17:12 (T13)	18:18	63	17:56 (T12)	19:50			20:22	26	20:00 (T10a)	20:52			21:09
27	07:48		16:31 (T13)	07:10		16:30 (T13)	07:24			06:35		19:33 (T10a)	06:04			06:00
	17:41	43	17:14 (T13)	18:19	64	17:57 (T12)	19:51			20:23	28	20:01 (T10a)	20:53			21:09
28	07:47		16:30 (T13)	07:09		16:31 (T13)	07:23			06:34		19:33 (T10a)	06:03			06:00
	17:42	45	17:15 (T13)	18:20	64	17:58 (T12)	19:52			20:24	29	20:02 (T10a)	20:54			21:09
29	07:46		16:29 (T13)				07:21			06:33		19:32 (T10a)	06:03			06:01
	17:43	47	17:16 (T13)				19:53			20:25	31	20:03 (T10a)	20:55			21:09
30	07:46		16:28 (T13)				07:19			06:31		19:31 (T10a)	06:02			06:01
	17:45	49	17:17 (T13)				19:54			20:26	33	20:04 (T10a)	20:56			21:09
31	07:45		16:27 (T13)				07:18						06:02			
	17:46	51	17:18 (T13)				19:55						20:56			
Potential sun hours	297			297			370			399			449			453
Total, worst case		464			1659			676			246			590		
Sun reduction		0.31			0.40			0.44			0.52			0.57		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.72			0.72			0.68			0.57			0.57		
Total reduction		0.23			0.29			0.31			0.30			0.33		
Total, real		106			487			207			74			195		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 688 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1692)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December	
1	06:02			06:26		19:43 (T10a)	06:57			07:28		18:13 (T12)	07:02		15:54 (T13)	07:37	
	21:09			20:50	32	20:15 (T10a)	20:07			19:15	30	18:43 (T12)	17:28	61	16:55 (T13)	17:03	
2	06:02			06:27		19:43 (T10a)	06:58			07:29		18:12 (T12)	07:03		15:53 (T13)	07:38	
	21:09			20:49	32	20:15 (T10a)	20:06			19:13	32	18:44 (T12)	17:27	61	16:54 (T13)	17:03	
3	06:03			06:28		19:42 (T10a)	06:59			07:30		18:12 (T12)	07:05		15:53 (T13)	07:39	
	21:09			20:48	34	20:16 (T10a)	20:04			19:11	33	18:45 (T12)	17:25	60	16:53 (T13)	17:03	
4	06:03			06:29		19:42 (T10a)	07:00			07:31		18:11 (T12)	07:06		15:54 (T13)	07:40	
	21:08			20:47	34	20:16 (T10a)	20:02			19:10	34	18:45 (T12)	17:24	59	16:53 (T13)	17:03	
5	06:04			06:30		19:41 (T10a)	07:01			07:32		18:10 (T12)	07:07		15:55 (T13)	07:41	
	21:08			20:46	35	20:16 (T10a)	20:01			19:08	35	18:45 (T12)	17:23	58	16:53 (T13)	17:03	
6	06:05			06:31		19:41 (T10a)	07:02			07:33		18:10 (T12)	07:08		15:55 (T13)	07:42	
	21:08			20:45	36	20:17 (T10a)	19:57			19:06	34	18:44 (T12)	17:22	57	16:52 (T13)	17:02	
7	06:05			06:32		19:41 (T10a)	07:03			07:34		17:26 (T13)	07:09		15:55 (T13)	07:43	
	21:08			20:43	36	20:17 (T10a)	19:56			19:05	39	18:42 (T12)	17:21	57	16:52 (T13)	17:02	
8	06:06			06:33		19:40 (T10a)	07:04			07:35		17:19 (T13)	07:11		15:57 (T13)	07:44	
	21:07			20:42	37	20:17 (T10a)	19:54			19:03	52	18:41 (T12)	17:20	55	16:52 (T13)	17:02	
9	06:06			06:34		19:40 (T10a)	07:05			07:36		17:15 (T13)	07:12		15:57 (T13)	07:45	
	21:07			20:41	37	20:17 (T10a)	19:52			19:01	57	18:39 (T12)	17:19	54	16:51 (T13)	17:02	
10	06:07			06:35		19:40 (T10a)	07:06			07:37		17:12 (T13)	07:13		15:58 (T13)	07:46	
	21:07			20:40	36	20:16 (T10a)	19:51			19:00	60	18:37 (T12)	17:18	52	16:50 (T13)	17:02	
11	06:08			06:36		19:40 (T10a)	07:07			07:38		17:09 (T13)	07:14		15:58 (T13)	07:47	
	21:06			20:38	35	20:15 (T10a)	19:49			18:58	62	18:35 (T12)	17:17	51	16:49 (T13)	17:02	
12	06:09			06:37		19:39 (T10a)	07:08			07:39		17:07 (T13)	07:15		16:00 (T13)	07:48	
	21:06			20:37	34	20:13 (T10a)	19:47			18:57	64	18:34 (T12)	17:16	49	16:49 (T13)	17:02	
13	06:09			06:38		19:39 (T10a)	07:09			07:40		17:06 (T13)	07:17		16:01 (T13)	07:48	
	21:05			20:36	32	20:11 (T10a)	19:46			18:55	64	18:33 (T12)	17:15	47	16:48 (T13)	17:03	
14	06:10			06:39		19:39 (T10a)	07:10			07:41		17:04 (T13)	07:18		16:02 (T13)	07:49	
	21:05			20:34	31	20:10 (T10a)	19:44			18:53	64	18:31 (T12)	17:14	45	16:47 (T13)	17:03	
15	06:11			06:40		19:40 (T10a)	07:11			07:43		17:02 (T13)	07:19		16:04 (T13)	07:50	
	21:04			20:33	29	20:09 (T10a)	19:42			18:52	64	18:29 (T12)	17:13	42	16:46 (T13)	17:03	
16	06:12			06:41		19:40 (T10a)	07:12			07:44		17:01 (T13)	07:20		16:05 (T13)	07:51	
	21:04			20:32	27	20:07 (T10a)	19:40			18:50	63	18:28 (T12)	17:12	40	16:45 (T13)	17:03	
17	06:12			06:42		19:41 (T10a)	07:13			07:45		16:59 (T13)	07:21		16:06 (T13)	07:51	
	21:03			20:30	25	20:06 (T10a)	19:39			18:49	60	18:26 (T12)	17:11	38	16:44 (T13)	17:04	
18	06:13			06:43		19:42 (T10a)	07:14			07:46		16:58 (T13)	07:23		16:07 (T13)	07:52	
	21:03			20:29	23	20:05 (T10a)	19:37			18:47	54	17:52 (T13)	17:10	35	16:42 (T13)	17:04	
19	06:14			06:44		19:43 (T10a)	07:15			07:47		16:57 (T13)	07:24		16:10 (T13)	07:53	
	21:02			20:27	20	20:03 (T10a)	19:35			18:46	56	17:53 (T13)	17:10	32	16:42 (T13)	17:04	
20	06:15			06:45		19:44 (T10a)	07:16			07:48		16:57 (T13)	07:25		16:12 (T13)	07:53	
	21:01			20:26	18	20:02 (T10a)	19:34			18:44	57	17:54 (T13)	17:09	28	16:40 (T13)	17:05	
21	06:16			06:46		19:45 (T10a)	07:17			07:49		16:56 (T13)	07:26		16:14 (T13)	07:54	
	21:00			20:24	16	20:01 (T10a)	19:32			18:43	58	17:54 (T13)	17:08	24	16:38 (T13)	17:05	
22	06:17			06:47		19:47 (T10a)	07:18			07:50		16:55 (T13)	07:27		16:16 (T13)	07:54	
	21:00			20:23	12	19:59 (T10a)	19:30			18:41	59	17:54 (T13)	17:08	20	16:36 (T13)	17:06	
23	06:18		19:55 (T10a)	06:48		19:51 (T10a)	07:19			07:52		16:54 (T13)	07:28		16:21 (T13)	07:55	
	20:59	8	20:03 (T10a)	20:21	7	19:58 (T10a)	19:28			18:40	60	17:54 (T13)	17:07	12	16:33 (T13)	17:06	
24	06:18		19:53 (T10a)	06:49			07:20			07:53		16:54 (T13)	07:30			07:55	
	20:58	13	20:06 (T10a)	20:20			19:27			18:38	61	17:55 (T13)	17:06			17:07	
25	06:19		19:51 (T10a)	06:50			07:21		18:28 (T12)	07:54		16:54 (T13)	07:31			07:56	
	20:57	17	20:08 (T10a)	20:18			19:25	5	18:33 (T12)	18:37	61	17:55 (T13)	17:06			17:07	
26	06:20		19:48 (T10a)	06:51			07:22		18:23 (T12)	07:55		16:53 (T13)	07:32			07:56	
	20:56	21	20:09 (T10a)	20:17			19:23	15	18:38 (T12)	18:36	62	17:55 (T13)	17:05			17:08	
27	06:21		19:47 (T10a)	06:52			07:23		18:20 (T12)	07:56		16:53 (T13)	07:33			07:56	
	20:55	23	20:10 (T10a)	20:15			19:22	20	18:40 (T12)	18:34	62	17:55 (T13)	17:05			17:09	
28	06:22		19:46 (T10a)	06:53			07:24		18:17 (T12)	07:57		16:52 (T13)	07:34			07:57	
	20:54	25	20:11 (T10a)	20:14			19:20	24	18:41 (T12)	18:33	62	17:54 (T13)	17:04			17:09	
29	06:23		19:45 (T10a)	06:54			07:25		18:16 (T12)	07:59		16:53 (T13)	07:35			07:57	
	20:53	27	20:12 (T10a)	20:12			19:18	26	18:42 (T12)	18:32	62	17:55 (T13)	17:04			17:10	
30	06:24		19:45 (T10a)	06:55			07:27		18:14 (T12)	08:00		16:53 (T13)	07:36			07:57	
	20:52	28	20:13 (T10a)	20:11			19:16	29	18:43 (T12)	18:30	62	17:55 (T13)	17:04			17:11	
31	06:25		19:44 (T10a)	06:56						08:01		16:53 (T13)				07:57	
	20:51	30	20:14 (T10a)	20:09						18:29	61	17:54 (T13)				17:12	
Potential sun hours	460			429			375			345			297			287	
Total, worst case		192			658			119			1684			1037			
Sun reduction		0.66			0.61			0.59			0.48			0.30			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.57			0.57			0.67			0.71			0.72			
Total reduction		0.38			0.35			0.40			0.35			0.22			
Total, real		73			232			48			582			229			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 770 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1699)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May	June
1	07:57			07:43		08:14 (T68)	07:07		08:08 (T68)	07:16		07:49 (T67)	06:30	06:02
	17:13			17:48	114	17:13 (T69)	18:22	67	09:15 (T68)	19:56	29	08:18 (T67)	20:27	20:57
2	07:57		16:32 (T69)	07:42		08:13 (T68)	07:06		08:08 (T68)	07:15		07:50 (T67)	06:29	06:01
	17:14	3	16:35 (T69)	17:49	117	17:13 (T69)	18:23	65	09:13 (T68)	19:57	27	08:17 (T67)	20:28	20:57
3	07:57		16:29 (T69)	07:41		08:11 (T68)	07:04		08:08 (T68)	07:13		07:51 (T67)	06:28	06:01
	17:15	10	16:39 (T69)	17:50	120	17:13 (T69)	18:24	64	09:12 (T68)	19:58	24	08:15 (T67)	20:29	20:58
4	07:57		16:27 (T69)	07:40		08:11 (T68)	07:02		08:09 (T68)	07:11		07:52 (T67)	06:27	06:01
	17:16	15	16:42 (T69)	17:51	121	17:13 (T69)	18:25	62	09:11 (T68)	19:59	20	08:12 (T67)	20:30	20:59
5	07:57		16:26 (T69)	07:39		08:10 (T68)	07:01		08:09 (T68)	07:10		07:55 (T67)	06:25	06:00
	17:17	18	16:44 (T69)	17:53	123	17:13 (T69)	18:26	60	09:09 (T68)	20:00	15	08:10 (T67)	20:31	20:59
6	07:57		16:25 (T69)	07:38		08:10 (T68)	06:59		08:11 (T68)	07:08		08:01 (T67)	06:24	06:00
	17:18	21	16:46 (T69)	17:54	123	17:13 (T69)	18:28	57	09:08 (T68)	20:00	2	08:03 (T67)	20:32	21:00
7	07:57		16:24 (T69)	07:37		08:09 (T68)	06:58		08:12 (T68)	07:06			06:23	06:00
	17:19	24	16:48 (T69)	17:55	125	17:13 (T69)	18:29	54	09:06 (T68)	20:01			20:33	21:01
8	07:57		16:24 (T69)	07:36		08:09 (T68)	07:56		09:12 (T68)	07:05			06:22	05:59
	17:20	25	16:49 (T69)	17:56	125	17:14 (T69)	19:30	52	10:04 (T68)	20:02			20:34	21:01
9	07:57		16:23 (T69)	07:35		08:08 (T68)	07:54		09:14 (T68)	07:03			06:21	05:59
	17:21	28	16:51 (T69)	17:58	127	17:14 (T69)	19:31	48	10:02 (T68)	20:03			20:35	21:02
10	07:57		16:22 (T69)	07:33		08:07 (T68)	07:53		09:15 (T68)	07:02			06:20	05:59
	17:22	30	16:52 (T69)	17:59	127	17:13 (T69)	19:32	45	10:00 (T68)	20:04			20:36	21:03
11	07:56		16:22 (T69)	07:32		08:07 (T68)	07:51		09:17 (T68)	07:00			06:18	05:59
	17:23	32	16:54 (T69)	18:00	126	17:12 (T69)	19:33	40	09:57 (T68)	20:06			20:37	21:03
12	07:56		16:21 (T69)	07:31		08:07 (T68)	07:50		09:19 (T68)	06:58			06:17	05:59
	17:24	34	16:55 (T69)	18:01	125	17:12 (T69)	19:34	36	09:55 (T68)	20:07			20:38	21:04
13	07:56		16:20 (T69)	07:30		08:07 (T68)	07:48		09:22 (T68)	06:57			06:16	05:59
	17:25	36	16:56 (T69)	18:03	126	17:12 (T69)	19:35	29	09:51 (T68)	20:08			20:39	21:04
14	07:55		16:20 (T69)	07:28		08:06 (T68)	07:46		08:05 (T67)	06:55			06:15	05:59
	17:26	38	16:58 (T69)	18:04	125	17:11 (T69)	19:37	29	09:46 (T68)	20:09			20:40	21:05
15	07:55		16:19 (T69)	07:27		08:06 (T68)	07:45		08:04 (T67)	06:54			06:14	05:59
	17:27	39	16:58 (T69)	18:05	123	17:10 (T69)	19:38	21	09:39 (T68)	20:10			20:41	21:05
16	07:55		16:19 (T69)	07:26		08:06 (T68)	07:43		08:02 (T67)	06:52			06:13	05:59
	17:28	41	17:00 (T69)	18:06	122	17:10 (T69)	19:39	17	08:19 (T67)	20:11			20:42	21:06
17	07:54		16:18 (T69)	07:25		08:05 (T68)	07:41		08:00 (T67)	06:51			06:12	05:59
	17:30	43	17:01 (T69)	18:08	121	17:08 (T69)	19:40	21	08:21 (T67)	20:12			20:43	21:06
18	07:54		16:18 (T69)	07:23		08:06 (T68)	07:40		07:59 (T67)	06:49			06:11	05:59
	17:31	44	17:02 (T69)	18:09	118	17:08 (T69)	19:41	23	08:22 (T67)	20:13			20:44	21:06
19	07:53		16:17 (T69)	07:22		08:05 (T68)	07:38		07:57 (T67)	06:47			06:11	05:59
	17:32	46	17:03 (T69)	18:10	115	17:06 (T69)	19:42	26	08:23 (T67)	20:14			20:45	21:07
20	07:53		08:32 (T68)	07:20		08:05 (T68)	07:36		07:55 (T67)	06:46			06:10	05:59
	17:33	62	17:05 (T69)	18:11	113	17:05 (T69)	19:43	28	08:23 (T67)	20:15			20:46	21:07
21	07:52		08:28 (T68)	07:19		08:06 (T68)	07:35		07:54 (T67)	06:44			06:09	05:59
	17:34	71	17:05 (T69)	18:12	108	17:03 (T69)	19:44	30	08:24 (T67)	20:16			20:47	21:07
22	07:51		08:26 (T68)	07:18		08:05 (T68)	07:33		07:52 (T67)	06:43			06:08	05:59
	17:35	77	17:06 (T69)	18:14	105	17:01 (T69)	19:45	32	08:24 (T67)	20:17			20:48	21:07
23	07:51		08:24 (T68)	07:16		08:06 (T68)	07:31		07:50 (T67)	06:42			06:07	06:00
	17:37	84	17:08 (T69)	18:15	98	16:58 (T69)	19:46	34	08:24 (T67)	20:18			20:49	21:08
24	07:50		08:22 (T68)	07:15		08:05 (T68)	07:30		07:49 (T67)	06:40			06:07	06:00
	17:38	89	17:08 (T69)	18:16	91	16:54 (T69)	19:47	36	08:25 (T67)	20:19			20:50	21:08
25	07:49		08:21 (T68)	07:13		08:06 (T68)	07:28		07:48 (T67)	06:39			06:06	06:00
	17:39	93	17:09 (T69)	18:17	75	16:47 (T69)	19:48	36	08:24 (T67)	20:20			20:51	21:08
26	07:48		08:19 (T68)	07:12		08:06 (T68)	07:26		07:47 (T67)	06:37			06:05	06:00
	17:40	96	17:09 (T69)	18:18	71	09:17 (T68)	19:50	36	08:23 (T67)	20:21			20:52	21:08
27	07:48		08:18 (T68)	07:10		08:07 (T68)	07:25		07:48 (T67)	06:36			06:05	06:01
	17:42	101	17:10 (T69)	18:20	69	09:16 (T68)	19:51	36	08:24 (T67)	20:23			20:52	21:08
28	07:47		08:17 (T68)	07:09		08:07 (T68)	07:23		07:47 (T67)	06:34			06:04	06:01
	17:43	103	17:10 (T69)	18:21	68	09:15 (T68)	19:52	36	08:23 (T67)	20:24			20:53	21:08
29	07:46		08:17 (T68)				07:21		07:47 (T67)	06:33			06:03	06:02
	17:44	107	17:12 (T69)				19:53	34	08:21 (T67)	20:25			20:54	21:08
30	07:45		08:15 (T68)				07:20		07:48 (T67)	06:32			06:03	06:02
	17:45	110	17:12 (T69)				19:54	33	08:21 (T67)	20:26			20:55	21:08
31	07:44		08:15 (T68)				07:18		07:48 (T67)				06:02	
	17:46	112	17:13 (T69)				19:55	32	08:20 (T67)				20:56	
Potential sun hours	297			297			370			399			448	452
Total, worst case		1632			3121			1219			117			
Sun reduction		0.31			0.40			0.44			0.52			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.67			0.60			0.57			0.61			
Total reduction		0.21			0.24			0.25			0.32			
Total, real		343			763			307			38			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 770 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1699)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August	September			October			November			December		
1	06:03	06:27	06:57			07:28		08:59 (T68)	07:02		07:37 (T68)	07:37		16:04 (T69)
	21:08	20:50	20:07			19:15	33	09:32 (T68)	17:28	126	16:42 (T69)	17:04	32	16:36 (T69)
2	06:03	06:28	06:58			07:29		08:56 (T68)	07:03		07:37 (T68)	07:38		16:05 (T69)
	21:08	20:49	20:05			19:13	39	09:35 (T68)	17:27	126	16:42 (T69)	17:04	30	16:35 (T69)
3	06:04	06:29	06:59			07:30		08:54 (T68)	07:04		07:39 (T68)	07:39		16:06 (T69)
	21:08	20:48	20:04			19:11	43	09:37 (T68)	17:26	125	16:43 (T69)	17:04	28	16:34 (T69)
4	06:04	06:30	07:00			07:31		08:52 (T68)	07:05		07:39 (T68)	07:40		16:08 (T69)
	21:08	20:47	20:02			19:10	46	09:38 (T68)	17:25	124	16:43 (T69)	17:03	26	16:34 (T69)
5	06:05	06:30	07:01			07:32		08:51 (T68)	07:07		07:39 (T68)	07:41		16:09 (T69)
	21:08	20:45	20:01			19:08	50	09:41 (T68)	17:23	123	16:43 (T69)	17:03	24	16:33 (T69)
6	06:05	06:31	07:02			07:33		08:49 (T68)	07:08		07:40 (T68)	07:42		16:11 (T69)
	21:07	20:44	19:57			19:07	53	09:42 (T68)	17:22	122	16:43 (T69)	17:03	21	16:32 (T69)
7	06:06	06:32	07:03		07:51 (T67)	07:34		08:47 (T68)	07:09		07:42 (T68)	07:43		16:13 (T69)
	21:07	20:43	19:56	14	08:05 (T67)	19:05	56	09:43 (T68)	17:21	120	16:44 (T69)	17:03	18	16:31 (T69)
8	06:06	06:33	07:04		07:48 (T67)	07:35		08:46 (T68)	07:10		07:42 (T68)	07:44		16:15 (T69)
	21:07	20:42	19:54	19	08:07 (T67)	19:03	58	09:44 (T68)	17:20	118	16:43 (T69)	17:03	15	16:30 (T69)
9	06:07	06:34	07:05		07:45 (T67)	07:36		08:44 (T68)	07:11		07:43 (T68)	07:44		16:18 (T69)
	21:06	20:41	19:52	24	08:09 (T67)	19:02	61	09:45 (T68)	17:19	116	16:43 (T69)	17:03	10	16:28 (T69)
10	06:08	06:35	07:06		07:43 (T67)	07:37		08:43 (T68)	07:13		07:45 (T68)	07:45		16:21 (T69)
	21:06	20:39	19:51	27	08:10 (T67)	19:00	63	09:46 (T68)	17:18	114	16:44 (T69)	17:03	5	16:26 (T69)
11	06:09	06:36	07:07		07:42 (T67)	07:38		08:42 (T68)	07:14		07:46 (T68)	07:46		
	21:06	20:38	19:49	29	08:11 (T67)	18:58	64	09:46 (T68)	17:17	111	16:43 (T69)	17:03		
12	06:09	06:37	07:08		07:39 (T67)	07:39		08:41 (T68)	07:15		07:46 (T68)	07:47		
	21:05	20:37	19:47	32	08:11 (T67)	18:57	66	09:47 (T68)	17:16	110	16:43 (T69)	17:03		
13	06:10	06:38	07:09		07:38 (T67)	07:40		08:40 (T68)	07:16		07:48 (T68)	07:48		
	21:05	20:35	19:45	33	08:11 (T67)	18:55	67	09:47 (T68)	17:15	107	16:43 (T69)	17:03		
14	06:11	06:39	07:10		07:37 (T67)	07:41		08:39 (T68)	07:17		07:50 (T68)	07:49		
	21:04	20:34	19:44	35	08:12 (T67)	18:54	69	09:48 (T68)	17:14	103	16:43 (T69)	17:04		
15	06:12	06:40	07:11		07:37 (T67)	07:42		08:39 (T68)	07:19		07:51 (T68)	07:49		
	21:04	20:33	19:42	35	08:12 (T67)	18:52	70	09:49 (T68)	17:13	101	16:43 (T69)	17:04		
16	06:12	06:41	07:12		07:36 (T67)	07:43		08:38 (T68)	07:20		07:52 (T68)	07:50		
	21:03	20:31	19:40	36	08:12 (T67)	18:51	71	09:49 (T68)	17:13	96	16:42 (T69)	17:04		
17	06:13	06:42	07:13		07:35 (T67)	07:45		08:37 (T68)	07:21		07:54 (T68)	07:51		
	21:03	20:30	19:39	37	08:12 (T67)	18:49	83	17:23 (T69)	17:12	93	16:42 (T69)	17:04		
18	06:14	06:43	07:14		07:35 (T67)	07:46		08:37 (T68)	07:22		07:56 (T68)	07:51		
	21:02	20:28	19:37	36	08:11 (T67)	18:48	94	17:27 (T69)	17:11	89	16:42 (T69)	17:05		
19	06:15	06:44	07:15		07:35 (T67)	07:47		08:36 (T68)	07:23		07:58 (T68)	07:52		
	21:01	20:27	19:35	36	08:11 (T67)	18:46	101	17:30 (T69)	17:10	84	16:42 (T69)	17:05		
20	06:16	06:45	07:16		07:36 (T67)	07:48		08:36 (T68)	07:24		08:01 (T68)	07:53		
	21:01	20:26	19:34	34	08:10 (T67)	18:45	106	17:32 (T69)	17:10	77	16:41 (T69)	17:05		
21	06:16	06:46	07:17		07:37 (T67)	07:49		08:36 (T68)	07:26		08:03 (T68)	07:53		
	21:00	20:24	19:32	33	08:10 (T67)	18:43	109	17:34 (T69)	17:09	71	16:40 (T69)	17:06		
22	06:17	06:47	07:18		07:38 (T67)	07:50		08:36 (T68)	07:27		08:08 (T68)	07:54		
	20:59	20:23	19:30	31	08:09 (T67)	18:42	113	17:36 (T69)	17:08	62	16:41 (T69)	17:06		
23	06:18	06:48	07:19		07:39 (T67)	07:51		08:36 (T68)	07:28		15:54 (T69)	07:54		
	20:58	20:21	19:28	29	08:08 (T67)	18:40	116	17:37 (T69)	17:08	46	16:40 (T69)	17:07		
24	06:19	06:49	07:20		07:40 (T67)	07:52		08:35 (T68)	07:29		15:55 (T69)	07:55		
	20:57	20:20	19:27	27	08:07 (T67)	18:39	119	17:37 (T69)	17:07	45	16:40 (T69)	17:07		
25	06:20	06:50	07:21		07:41 (T67)	07:54		08:35 (T68)	07:30		15:56 (T69)	07:55		
	20:57	20:18	19:25	24	08:05 (T67)	18:37	120	17:38 (T69)	17:06	43	16:39 (T69)	17:08		
26	06:21	06:51	07:22		07:42 (T67)	07:55		08:36 (T68)	07:31		15:57 (T69)	07:55		
	20:56	20:17	19:23	22	08:04 (T67)	18:36	123	17:40 (T69)	17:06	41	16:38 (T69)	17:09		
27	06:22	06:52	07:23		07:43 (T67)	07:56		08:36 (T68)	07:32		15:59 (T69)	07:56		
	20:55	20:15	19:22	19	08:02 (T67)	18:35	124	17:40 (T69)	17:06	40	16:39 (T69)	17:09		
28	06:23	06:53	07:24		07:44 (T67)	07:57		08:36 (T68)	07:34		16:00 (T69)	07:56		
	20:54	20:13	19:20	15	07:59 (T67)	18:33	125	17:41 (T69)	17:05	38	16:38 (T69)	17:10		
29	06:24	06:54	07:25		07:45 (T67)	07:58		08:36 (T68)	07:35		16:01 (T69)	07:56		
	20:53	20:12	19:18	28	09:25 (T68)	18:32	126	17:41 (T69)	17:05	36	16:37 (T69)	17:11		
30	06:25	06:55	07:26		09:02 (T68)	07:59		08:37 (T68)	07:36		16:02 (T69)	07:56		
	20:52	20:10	19:17	27	09:29 (T68)	18:31	126	17:42 (T69)	17:04	34	16:36 (T69)	17:12		
31	06:26	06:56				08:01		08:37 (T68)				07:57		
	20:51	20:09				18:29	126	17:42 (T69)				17:12		
Potential sun hours	459	428	375			345			298			288		
Total, worst case				682			2620			2641			209	
Sun reduction				0.59			0.48			0.30			0.22	
Oper. time red.				1.00			1.00			1.00			1.00	
Wind dir. red.				0.61			0.58			0.64			0.73	
Total reduction				0.36			0.28			0.20			0.16	
Total, real				247			734			516			34	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 940 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1717)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June		
1	07:57		15:18 (T53)	07:44			07:07		16:45 (T52)	07:16		17:58 (T52)	06:31			06:02		06:25 (T51)
	17:13	50	16:08 (T53)	17:48			18:22	67	17:52 (T52)	19:56	27	18:25 (T52)	20:27			20:57	24	06:49 (T51)
2	07:57		15:18 (T53)	07:43			07:06		16:43 (T52)	07:15		18:03 (T52)	06:29			06:01		06:26 (T51)
	17:14	50	16:08 (T53)	17:49			18:23	69	17:52 (T52)	19:57	18	18:21 (T52)	20:28			20:58	24	06:50 (T51)
3	07:57		15:19 (T53)	07:42			07:04		16:43 (T52)	07:13			06:28			06:01		06:26 (T51)
	17:15	49	16:08 (T53)	17:50			18:24	70	17:53 (T52)	19:58			20:29			20:58	24	06:50 (T51)
4	07:57		15:20 (T53)	07:40			07:03		16:42 (T52)	07:11			06:27			06:01		06:26 (T51)
	17:16	48	16:08 (T53)	17:52			18:25	71	17:53 (T52)	19:59			20:30			20:59	23	06:49 (T51)
5	07:57		15:21 (T53)	07:39			07:01		16:41 (T52)	07:10			06:25			06:00		06:27 (T51)
	17:17	48	16:09 (T53)	17:53			18:27	71	17:52 (T52)	20:00			20:31			21:00	22	06:49 (T51)
6	07:57		15:22 (T53)	07:38			06:59		16:41 (T52)	07:08			06:24			06:00		06:28 (T51)
	17:18	47	16:09 (T53)	17:54			18:28	72	17:53 (T52)	20:00			20:32			21:01	21	06:49 (T51)
7	07:57		15:22 (T53)	07:37			06:58		16:41 (T52)	07:06			06:23			06:00		06:29 (T51)
	17:19	46	16:08 (T53)	17:55			18:29	72	17:53 (T52)	20:01			20:33			21:01	20	06:49 (T51)
8	07:57		15:23 (T53)	07:36			07:56		17:41 (T52)	07:05			06:22			05:59		06:28 (T51)
	17:20	45	16:08 (T53)	17:57			19:30	72	18:53 (T52)	20:03			20:34			21:02	20	06:48 (T51)
9	07:57		15:24 (T53)	07:35			07:55		17:40 (T52)	07:03			06:21			05:59		06:29 (T51)
	17:21	44	16:08 (T53)	17:58			19:31	73	18:53 (T52)	20:04			20:35			21:02	19	06:48 (T51)
10	07:57		15:25 (T53)	07:34			07:53		17:40 (T52)	07:02			06:20		06:40 (T51)	05:59		06:30 (T51)
	17:22	43	16:08 (T53)	17:59			19:32	72	18:52 (T52)	20:05			20:37	1	06:41 (T51)	21:03	18	06:48 (T51)
11	07:57		15:26 (T53)	07:33			07:51		17:40 (T52)	07:00			06:19		06:39 (T51)	05:59		06:30 (T51)
	17:23	42	16:08 (T53)	18:00			19:33	73	18:53 (T52)	20:06			20:38	5	06:44 (T51)	21:04	18	06:48 (T51)
12	07:56		15:27 (T53)	07:31			07:50		17:40 (T52)	06:58			06:17		06:38 (T51)	05:59		06:31 (T51)
	17:24	41	16:08 (T53)	18:02			19:34	72	18:52 (T52)	20:07			20:39	7	06:45 (T51)	21:04	17	06:48 (T51)
13	07:56		15:29 (T53)	07:30			07:48		17:39 (T52)	06:57			06:16		06:37 (T51)	05:59		06:32 (T51)
	17:25	39	16:08 (T53)	18:03			19:36	73	18:52 (T52)	20:08			20:40	9	06:46 (T51)	21:05	16	06:48 (T51)
14	07:56		15:29 (T53)	07:29			07:46		17:40 (T52)	06:55			06:15		06:36 (T51)	05:59		06:32 (T51)
	17:26	38	16:07 (T53)	18:04			19:37	72	18:52 (T52)	20:09			20:41	11	06:47 (T51)	21:05	16	06:48 (T51)
15	07:55		15:31 (T53)	07:27		17:11 (T52)	07:45		17:40 (T52)	06:54			06:14		06:35 (T51)	05:59		06:33 (T51)
	17:27	36	16:07 (T53)	18:05	16	17:27 (T52)	19:38	71	18:51 (T52)	20:10			20:42	13	06:48 (T51)	21:06	15	06:48 (T51)
16	07:55		15:32 (T53)	07:26		17:06 (T52)	07:43		17:40 (T52)	06:52			06:13		06:34 (T51)	05:59		06:33 (T51)
	17:28	33	16:05 (T53)	18:06	26	17:32 (T52)	19:39	70	18:50 (T52)	20:11			20:43	14	06:48 (T51)	21:06	15	06:48 (T51)
17	07:54		15:35 (T53)	07:25		17:03 (T52)	07:42		17:41 (T52)	06:51			06:12		06:33 (T51)	05:59		06:33 (T51)
	17:30	30	16:05 (T53)	18:08	33	17:36 (T52)	19:40	69	18:50 (T52)	20:12			20:44	16	06:49 (T51)	21:06	15	06:48 (T51)
18	07:54		15:36 (T53)	07:23		17:00 (T52)	07:40		17:41 (T52)	06:49			06:12		06:32 (T51)	05:59		06:34 (T51)
	17:31	27	16:03 (T53)	18:09	38	17:38 (T52)	19:41	68	18:49 (T52)	20:13			20:45	17	06:49 (T51)	21:07	14	06:48 (T51)
19	07:53		15:39 (T53)	07:22		16:58 (T52)	07:38		17:41 (T52)	06:48			06:11		06:31 (T51)	05:59		06:34 (T51)
	17:32	24	16:03 (T53)	18:10	42	17:40 (T52)	19:42	67	18:48 (T52)	20:14			20:46	18	06:49 (T51)	21:07	14	06:48 (T51)
20	07:53		15:41 (T53)	07:21		16:56 (T52)	07:36		17:42 (T52)	06:46			06:10		06:31 (T51)	05:59		06:34 (T51)
	17:33	19	16:00 (T53)	18:11	46	17:42 (T52)	19:43	65	18:47 (T52)	20:15			20:46	19	06:50 (T51)	21:07	14	06:48 (T51)
21	07:52		15:44 (T53)	07:19		16:54 (T52)	07:35		17:42 (T52)	06:45			06:09		06:30 (T51)	05:59		06:35 (T51)
	17:34	13	15:57 (T53)	18:13	50	17:44 (T52)	19:44	64	18:46 (T52)	20:16			20:47	20	06:50 (T51)	21:08	14	06:49 (T51)
22	07:52			07:18		16:52 (T52)	07:33		17:43 (T52)	06:43			06:08		06:29 (T51)	05:59		06:35 (T51)
	17:35			18:14	53	17:45 (T52)	19:45	62	18:45 (T52)	20:17			20:48	21	06:50 (T51)	21:08	14	06:49 (T51)
23	07:51			07:16		16:51 (T52)	07:31		17:43 (T52)	06:42			06:07		06:28 (T51)	06:00		06:35 (T51)
	17:37			18:15	55	17:46 (T52)	19:47	60	18:43 (T52)	20:19			20:49	22	06:50 (T51)	21:08	14	06:49 (T51)
24	07:50			07:15		16:49 (T52)	07:30		17:45 (T52)	06:40			06:07		06:28 (T51)	06:00		06:35 (T51)
	17:38			18:16	58	17:47 (T52)	19:48	58	18:43 (T52)	20:20			20:50	23	06:51 (T51)	21:08	14	06:49 (T51)
25	07:50			07:13		16:49 (T52)	07:28		17:46 (T52)	06:39			06:06		06:27 (T51)	06:00		06:35 (T51)
	17:39			18:17	60	17:49 (T52)	19:49	55	18:41 (T52)	20:21			20:51	23	06:50 (T51)	21:08	15	06:50 (T51)
26	07:49			07:12		16:47 (T52)	07:26		17:46 (T52)	06:37			06:05		06:26 (T51)	06:00		06:35 (T51)
	17:40			18:18	62	17:49 (T52)	19:50	53	18:39 (T52)	20:22			20:52	24	06:50 (T51)	21:08	15	06:50 (T51)
27	07:48			07:10		16:46 (T52)	07:25		17:48 (T52)	06:36			06:05		06:26 (T51)	06:01		06:35 (T51)
	17:42			18:20	64	17:50 (T52)	19:51	50	18:38 (T52)	20:23			20:53	24	06:50 (T51)	21:09	15	06:50 (T51)
28	07:47			07:09		16:45 (T52)	07:23		17:49 (T52)	06:35			06:04		06:25 (T51)	06:01		06:35 (T51)
	17:43			18:21	65	17:50 (T52)	19:52	47	18:36 (T52)	20:24			20:54	25	06:50 (T51)	21:09	16	06:51 (T51)
29	07:46						07:21		17:51 (T52)	06:33			06:03		06:25 (T51)	06:02		06:35 (T51)
	17:44						19:53	42	18:33 (T52)	20:25			20:54	25	06:50 (T51)	21:09	16	06:51 (T51)
30	07:45						07:20		17:53 (T52)	06:32			06:03		06:24 (T51)	06:02		06:35 (T51)
	17:45						19:54	39	18:32 (T52)	20:26			20:55	26	06:50 (T51)	21:09	17	06:52 (T51)
31	07:44						07:18		17:55 (T52)				06:02		06:25 (T51)			
	17:47						19:55	34	18:29 (T52)				20:56	25	06:50 (T51)			
Potential sun hours	297			297			370			399			448			452		
Total, worst case		812			668			1973			45			388			519	
Sun reduction		0.31			0.40			0.44			0.52			0.57			0.64	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.75			0.69			0.69			0.69			0.71			0.71	
Total reduction		0.23			0.28			0.31			0.36			0.41			0.46	
Total, real		189			186			604			16			159			238	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 940 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1717)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:03		06:35 (T51)	06:27		06:49 (T51)	06:58			07:28		17:19 (T52)	07:02			07:37		15:08 (T53)
	21:08	17	06:52 (T51)	20:50	6	06:55 (T51)	20:07			19:15	73	18:32 (T52)	17:28			17:04	42	15:50 (T53)
2	06:03		06:35 (T51)	06:28		06:49 (T51)	06:59			07:29		17:19 (T52)	07:03			07:38		15:07 (T53)
	21:08	18	06:53 (T51)	20:49	3	06:52 (T51)	20:06			19:13	72	18:31 (T52)	17:27			17:04	43	15:50 (T53)
3	06:04		06:34 (T51)	06:29			07:00			07:30		17:18 (T52)	07:04			07:39		15:08 (T53)
	21:08	19	06:53 (T51)	20:48			20:04			19:12	73	18:31 (T52)	17:26			17:04	44	15:52 (T53)
4	06:04		06:35 (T51)	06:30			07:01			07:31		17:18 (T52)	07:06			07:40		15:08 (T53)
	21:08	19	06:54 (T51)	20:47			20:02			19:10	73	18:31 (T52)	17:25			17:03	45	15:53 (T53)
5	06:05		06:34 (T51)	06:31			07:02			07:32		17:18 (T52)	07:07			07:41		15:08 (T53)
	21:08	20	06:54 (T51)	20:46			20:01			19:08	72	18:30 (T52)	17:24			17:03	46	15:54 (T53)
6	06:05		06:34 (T51)	06:32			07:03			07:33		17:17 (T52)	07:08			07:42		15:08 (T53)
	21:08	21	06:55 (T51)	20:45			19:57			19:07	73	18:30 (T52)	17:22			17:03	47	15:55 (T53)
7	06:06		06:33 (T51)	06:33			07:04			07:34		17:17 (T52)	07:09			07:43		15:07 (T53)
	21:07	22	06:55 (T51)	20:43			19:56			19:05	72	18:29 (T52)	17:21			17:03	48	15:55 (T53)
8	06:07		06:34 (T51)	06:34			07:05			07:35		17:17 (T52)	07:10			07:44		15:07 (T53)
	21:07	22	06:56 (T51)	20:42			19:54			19:03	71	18:28 (T52)	17:20			17:03	48	15:55 (T53)
9	06:07		06:34 (T51)	06:35			07:06			07:36		17:17 (T52)	07:12			07:45		15:07 (T53)
	21:07	23	06:57 (T51)	20:41			19:52			19:02	70	18:27 (T52)	17:19			17:03	49	15:56 (T53)
10	06:08		06:33 (T51)	06:36			07:07		17:56 (T52)	07:37		17:17 (T52)	07:13			07:46		15:07 (T53)
	21:06	24	06:57 (T51)	20:40			19:51	18	18:14 (T52)	19:00	70	18:27 (T52)	17:18			17:03	50	15:57 (T53)
11	06:09		06:33 (T51)	06:37			07:08		17:52 (T52)	07:38		17:17 (T52)	07:14			07:46		15:08 (T53)
	21:06	25	06:58 (T51)	20:38			19:49	26	18:18 (T52)	18:59	69	18:26 (T52)	17:17			17:03	50	15:58 (T53)
12	06:09		06:33 (T51)	06:38			07:09		17:48 (T52)	07:39		17:17 (T52)	07:15			07:47		15:08 (T53)
	21:06	25	06:58 (T51)	20:37			19:47	32	18:20 (T52)	18:57	68	18:25 (T52)	17:16			17:03	51	15:59 (T53)
13	06:10		06:32 (T51)	06:39			07:10		17:45 (T52)	07:40		17:18 (T52)	07:16			07:48		15:09 (T53)
	21:05	26	06:58 (T51)	20:36			19:46	38	18:23 (T52)	18:55	67	18:25 (T52)	17:15			17:03	50	15:59 (T53)
14	06:11		06:33 (T51)	06:40			07:11		17:42 (T52)	07:42		17:19 (T52)	07:18			07:49		15:08 (T53)
	21:05	26	06:59 (T51)	20:34			19:44	42	18:24 (T52)	18:54	65	18:24 (T52)	17:14			17:04	51	15:59 (T53)
15	06:12		06:34 (T51)	06:41			07:12		17:40 (T52)	07:43		17:19 (T52)	07:19			07:50		15:09 (T53)
	21:04	25	06:59 (T51)	20:33			19:42	46	18:26 (T52)	18:52	63	18:22 (T52)	17:13			17:04	51	16:00 (T53)
16	06:12		06:35 (T51)	06:42			07:13		17:38 (T52)	07:44		17:20 (T52)	07:20			07:50		15:09 (T53)
	21:03	25	07:00 (T51)	20:32			19:41	49	18:27 (T52)	18:51	61	18:21 (T52)	17:13			17:04	52	16:01 (T53)
17	06:13		06:35 (T51)	06:43			07:14		17:35 (T52)	07:45		17:20 (T52)	07:21			07:51		15:09 (T53)
	21:03	24	06:59 (T51)	20:30			19:39	52	18:27 (T52)	18:49	60	18:20 (T52)	17:12			17:04	52	16:01 (T53)
18	06:14		06:36 (T51)	06:44			07:15		17:33 (T52)	07:46		17:21 (T52)	07:22			07:52		15:10 (T53)
	21:02	24	07:00 (T51)	20:29			19:37	55	18:28 (T52)	18:48	57	18:18 (T52)	17:11			17:05	52	16:02 (T53)
19	06:15		06:37 (T51)	06:45			07:16		17:31 (T52)	07:47		17:22 (T52)	07:24			07:52		15:11 (T53)
	21:02	23	07:00 (T51)	20:27			19:35	58	18:29 (T52)	18:46	54	18:16 (T52)	17:10			17:05	52	16:03 (T53)
20	06:16		06:38 (T51)	06:46			07:17		17:30 (T52)	07:48		17:24 (T52)	07:25			07:53		15:11 (T53)
	21:01	22	07:00 (T51)	20:26			19:34	59	18:29 (T52)	18:45	52	18:16 (T52)	17:10			17:05	52	16:03 (T53)
21	06:17		06:39 (T51)	06:47			07:18		17:28 (T52)	07:49		17:25 (T52)	07:26		15:20 (T53)	07:53		15:11 (T53)
	21:00	21	07:00 (T51)	20:24			19:32	62	18:30 (T52)	18:43	49	18:14 (T52)	17:09	13	15:33 (T53)	17:06	53	16:04 (T53)
22	06:17		06:40 (T51)	06:48			07:19		17:27 (T52)	07:50		17:27 (T52)	07:27		15:17 (T53)	07:54		15:11 (T53)
	20:59	21	07:01 (T51)	20:23			19:30	63	18:30 (T52)	18:42	45	18:12 (T52)	17:08	19	15:36 (T53)	17:06	53	16:04 (T53)
23	06:18		06:40 (T51)	06:49			07:20		17:26 (T52)	07:52		17:28 (T52)	07:28		15:15 (T53)	07:54		15:12 (T53)
	20:59	20	07:00 (T51)	20:21			19:29	65	18:31 (T52)	18:40	41	18:09 (T52)	17:08	24	15:39 (T53)	17:07	53	16:05 (T53)
24	06:19		06:41 (T51)	06:50			07:21		17:25 (T52)	07:53		17:30 (T52)	07:29		15:13 (T53)	07:55		15:13 (T53)
	20:58	19	07:00 (T51)	20:20			19:27	66	18:31 (T52)	18:39	37	18:07 (T52)	17:07	27	15:40 (T53)	17:07	52	16:05 (T53)
25	06:20		06:42 (T51)	06:51			07:22		17:24 (T52)	07:54		17:34 (T52)	07:30		15:13 (T53)	07:55		15:13 (T53)
	20:57	18	07:00 (T51)	20:18			19:25	67	18:31 (T52)	18:38	31	18:05 (T52)	17:07	30	15:43 (T53)	17:08	52	16:05 (T53)
26	06:21		06:43 (T51)	06:52			07:23		17:22 (T52)	07:55		17:37 (T52)	07:32		15:11 (T53)	07:56		15:14 (T53)
	20:56	16	06:59 (T51)	20:17			19:23	69	18:31 (T52)	18:36	24	18:01 (T52)	17:06	33	15:44 (T53)	17:09	52	16:06 (T53)
27	06:22		06:44 (T51)	06:53			07:24		17:22 (T52)	07:56		17:42 (T52)	07:33		15:10 (T53)	07:56		15:14 (T53)
	20:55	15	06:59 (T51)	20:15			19:22	69	18:31 (T52)	18:35	13	17:55 (T52)	17:06	36	15:46 (T53)	17:09	52	16:06 (T53)
28	06:23		06:45 (T51)	06:54			07:25		17:21 (T52)	07:57			07:34		15:10 (T53)	07:56		15:15 (T53)
	20:54	14	06:59 (T51)	20:14			19:20	70	18:31 (T52)	18:33			17:05	37	15:47 (T53)	17:10	51	16:06 (T53)
29	06:24		06:46 (T51)	06:55			07:26		17:20 (T52)	07:59			07:35		15:09 (T53)	07:57		15:15 (T53)
	20:53	12	06:58 (T51)	20:12			19:18	71	18:31 (T52)	18:32			17:05	39	15:48 (T53)	17:11	51	16:06 (T53)
30	06:25		06:47 (T51)	06:56			07:27		17:19 (T52)	08:00			07:36		15:08 (T53)	07:57		15:16 (T53)
	20:52	10	06:57 (T51)	20:11			19:17	72	18:31 (T52)	18:31			17:04	41	15:49 (T53)	17:12	51	16:07 (T53)
31	06:26		06:48 (T51)	06:57						08:01						07:57		15:17 (T53)
	20:51	8	06:56 (T51)	20:09						18:30						17:12	51	16:08 (T53)
Potential sun hours	459			428			375			345			297			287		
Total, worst case		624			9			1149			1575			299			1546	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.71			0.71			0.69			0.69			0.75			0.75	
Total reduction		0.47			0.44			0.41			0.33			0.23			0.17	
Total, real		295			4			471			526			67			255	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 941 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1718)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April		May			June		
1	07:57		15:25 (T53)	07:44			07:07		16:49 (T52)	07:16		06:31			06:02		06:24 (T51)
	17:13	49	16:14 (T53)	17:48			18:22	64	17:53 (T52)	19:56		20:27			20:57	26	06:50 (T51)
2	07:57		15:25 (T53)	07:43			07:06		16:48 (T52)	07:15		06:29			06:01		06:25 (T51)
	17:14	49	16:14 (T53)	17:49			18:23	65	17:53 (T52)	19:57		20:28			20:58	25	06:50 (T51)
3	07:57		15:26 (T53)	07:42			07:04		16:48 (T52)	07:13		06:28			06:01		06:25 (T51)
	17:15	49	16:15 (T53)	17:50			18:24	65	17:53 (T52)	19:58		20:29			20:58	26	06:51 (T51)
4	07:57		15:27 (T53)	07:40			07:03		16:47 (T52)	07:11		06:27			06:01		06:25 (T51)
	17:16	48	16:15 (T53)	17:52			18:25	66	17:53 (T52)	19:59		20:30			20:59	25	06:50 (T51)
5	07:57		15:28 (T53)	07:39			07:01		16:46 (T52)	07:10		06:25			06:00		06:26 (T51)
	17:17	47	16:15 (T53)	17:53			18:27	67	17:53 (T52)	20:00		20:31			21:00	24	06:50 (T51)
6	07:57		15:28 (T53)	07:38			06:59		16:46 (T52)	07:08		06:24			06:00		06:27 (T51)
	17:18	47	16:15 (T53)	17:54			18:28	68	17:54 (T52)	20:00		20:32			21:01	23	06:50 (T51)
7	07:57		15:28 (T53)	07:37			06:58		16:46 (T52)	07:06		06:23			06:00		06:27 (T51)
	17:19	47	16:15 (T53)	17:55			18:29	67	17:53 (T52)	20:01		20:33			21:01	23	06:50 (T51)
8	07:57		15:29 (T53)	07:36			07:56		17:46 (T52)	07:05		06:22			05:59		06:27 (T51)
	17:20	46	16:15 (T53)	17:57			19:30	68	18:54 (T52)	20:03		20:34			21:02	23	06:50 (T51)
9	07:57		15:31 (T53)	07:35			07:55		17:45 (T52)	07:03		06:21			05:59		06:28 (T51)
	17:21	44	16:15 (T53)	17:58			19:31	68	18:53 (T52)	20:04		20:35			21:02	22	06:50 (T51)
10	07:57		15:32 (T53)	07:34			07:53		17:45 (T52)	07:02		06:20			05:59		06:28 (T51)
	17:22	43	16:15 (T53)	17:59			19:32	68	18:53 (T52)	20:05		20:37			21:03	22	06:50 (T51)
11	07:57		15:32 (T53)	07:33			07:51		17:46 (T52)	07:00		06:19		06:39 (T51)	05:59		06:29 (T51)
	17:23	42	16:14 (T53)	18:00			19:33	67	18:53 (T52)	20:06		20:38	4	06:43 (T51)	21:04	21	06:50 (T51)
12	07:56		15:33 (T53)	07:31			07:50		17:45 (T52)	06:58		06:17		06:38 (T51)	05:59		06:29 (T51)
	17:24	42	16:15 (T53)	18:02			19:34	67	18:52 (T52)	20:07		20:39	7	06:45 (T51)	21:04	21	06:50 (T51)
13	07:56		15:35 (T53)	07:30			07:48		17:45 (T52)	06:57		06:16		06:37 (T51)	05:59		06:30 (T51)
	17:25	40	16:15 (T53)	18:03			19:36	66	18:51 (T52)	20:08		20:40	9	06:46 (T51)	21:05	20	06:50 (T51)
14	07:56		15:35 (T53)	07:29			07:46		17:46 (T52)	06:55		06:15		06:36 (T51)	05:59		06:30 (T51)
	17:26	39	16:14 (T53)	18:04			19:37	65	18:51 (T52)	20:09		20:41	11	06:47 (T51)	21:05	20	06:50 (T51)
15	07:55		15:37 (T53)	07:27		17:13 (T52)	07:45		17:46 (T52)	06:54		06:14		06:35 (T51)	05:59		06:31 (T51)
	17:27	37	16:14 (T53)	18:05	17	17:30 (T52)	19:38	64	18:50 (T52)	20:10		20:42	13	06:48 (T51)	21:06	19	06:50 (T51)
16	07:55		15:38 (T53)	07:26		17:09 (T52)	07:43		17:46 (T52)	06:52		06:13		06:34 (T51)	05:59		06:31 (T51)
	17:28	35	16:13 (T53)	18:06	26	17:35 (T52)	19:39	63	18:49 (T52)	20:11		20:43	14	06:48 (T51)	21:06	19	06:50 (T51)
17	07:54		15:40 (T53)	07:25		17:05 (T52)	07:42		17:47 (T52)	06:51		06:12		06:33 (T51)	05:59		06:31 (T51)
	17:30	32	16:12 (T53)	18:08	32	17:37 (T52)	19:40	62	18:49 (T52)	20:12		20:44	16	06:49 (T51)	21:06	19	06:50 (T51)
18	07:54		15:41 (T53)	07:23		17:03 (T52)	07:40		17:47 (T52)	06:49		06:12		06:32 (T51)	05:59		06:32 (T51)
	17:31	30	16:11 (T53)	18:09	37	17:40 (T52)	19:41	61	18:48 (T52)	20:13		20:45	17	06:49 (T51)	21:07	18	06:50 (T51)
19	07:53		15:44 (T53)	07:22		17:01 (T52)	07:38		17:47 (T52)	06:48		06:11		06:31 (T51)	05:59		06:32 (T51)
	17:32	27	16:11 (T53)	18:10	42	17:43 (T52)	19:42	59	18:46 (T52)	20:14		20:45	18	06:49 (T51)	21:07	17	06:49 (T51)
20	07:53		15:46 (T53)	07:21		16:59 (T52)	07:36		17:49 (T52)	06:46		06:10		06:31 (T51)	05:59		06:32 (T51)
	17:33	23	16:09 (T53)	18:11	45	17:44 (T52)	19:43	57	18:46 (T52)	20:15		20:46	19	06:50 (T51)	21:07	17	06:49 (T51)
21	07:52		15:48 (T53)	07:19		16:58 (T52)	07:35		17:49 (T52)	06:45		06:09		06:30 (T51)	05:59		06:33 (T51)
	17:34	19	16:07 (T53)	18:13	48	17:46 (T52)	19:44	55	18:44 (T52)	20:16		20:47	20	06:50 (T51)	21:08	17	06:50 (T51)
22	07:52		15:52 (T53)	07:18		16:56 (T52)	07:33		17:50 (T52)	06:43		06:08		06:29 (T51)	05:59		06:33 (T51)
	17:35	13	16:05 (T53)	18:14	50	17:46 (T52)	19:45	53	18:43 (T52)	20:17		20:48	21	06:50 (T51)	21:08	17	06:50 (T51)
23	07:51			07:16		16:55 (T52)	07:31		17:51 (T52)	06:42		06:07		06:28 (T51)	06:00		06:33 (T51)
	17:37			18:15	53	17:48 (T52)	19:47	50	18:41 (T52)	20:19		20:49	22	06:50 (T51)	21:08	17	06:50 (T51)
24	07:50			07:15		16:53 (T52)	07:30		17:53 (T52)	06:40		06:07		06:28 (T51)	06:00		06:33 (T51)
	17:38			18:16	56	17:49 (T52)	19:48	47	18:40 (T52)	20:20		20:50	23	06:51 (T51)	21:08	17	06:50 (T51)
25	07:50			07:13		16:52 (T52)	07:28		17:54 (T52)	06:39		06:06		06:27 (T51)	06:00		06:34 (T51)
	17:39			18:17	58	17:50 (T52)	19:49	44	18:38 (T52)	20:21		20:51	24	06:51 (T51)	21:08	18	06:52 (T51)
26	07:49			07:12		16:51 (T52)	07:26		17:55 (T52)	06:37		06:05		06:26 (T51)	06:00		06:33 (T51)
	17:40			18:18	59	17:50 (T52)	19:50	40	18:35 (T52)	20:22		20:52	24	06:50 (T51)	21:08	19	06:52 (T51)
27	07:48			07:10		16:50 (T52)	07:25		17:58 (T52)	06:36		06:05		06:26 (T51)	06:01		06:33 (T51)
	17:42			18:20	61	17:51 (T52)	19:51	35	18:33 (T52)	20:23		20:53	25	06:51 (T51)	21:09	19	06:52 (T51)
28	07:47			07:09		16:49 (T52)	07:23		18:00 (T52)	06:35		06:04		06:25 (T51)	06:01		06:34 (T51)
	17:43			18:21	63	17:52 (T52)	19:52	30	18:30 (T52)	20:24		20:54	26	06:51 (T51)	21:09	19	06:53 (T51)
29	07:46						07:21		18:03 (T52)	06:33		06:03		06:25 (T51)	06:02		06:33 (T51)
	17:44						19:53	23	18:26 (T52)	20:25		20:54	26	06:51 (T51)	21:09	20	06:53 (T51)
30	07:45						07:20		18:08 (T52)	06:32		06:03		06:24 (T51)	06:02		06:34 (T51)
	17:45						19:54	14	18:22 (T52)	20:26		20:55	26	06:50 (T51)	21:09	20	06:54 (T51)
31	07:44						07:18					06:02		06:24 (T51)			
	17:47						19:55					20:56	27	06:51 (T51)			
Potential sun hours	297			297			370			399		448			452		
Total, worst case		848			647			1688					392			613	
Sun reduction		0.31			0.40			0.44					0.57			0.64	
Oper. time red.		1.00			1.00			1.00					1.00			1.00	
Wind dir. red.		0.75			0.69			0.69					0.71			0.71	
Total reduction		0.23			0.28			0.31					0.41			0.46	
Total, real		197			180			517					160			282	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 941 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1718)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:03		06:33 (T51)	06:27		06:49 (T51)	06:58			07:28		17:25 (T52)	07:02			07:37		15:14 (T53)
	21:08	21	06:54 (T51)	20:50	6	06:55 (T51)	20:07			19:15	67	18:32 (T52)	17:28			17:04	42	15:56 (T53)
2	06:03		06:34 (T51)	06:28		06:49 (T51)	06:59			07:29		17:24 (T52)	07:03			07:38		15:14 (T53)
	21:08	21	06:55 (T51)	20:49	2	06:51 (T51)	20:06			19:13	67	18:31 (T52)	17:27			17:04	43	15:57 (T53)
3	06:04		06:33 (T51)	06:29			07:00			07:30		17:24 (T52)	07:04			07:39		15:15 (T53)
	21:08	22	06:55 (T51)	20:48			20:04			19:12	67	18:31 (T52)	17:26			17:04	44	15:59 (T53)
4	06:04		06:33 (T51)	06:30			07:01			07:31		17:23 (T52)	07:06			07:40		15:14 (T53)
	21:08	23	06:56 (T51)	20:47			20:02			19:10	68	18:31 (T52)	17:25			17:03	46	16:00 (T53)
5	06:05		06:33 (T51)	06:31			07:02			07:32		17:23 (T52)	07:07			07:41		15:14 (T53)
	21:08	22	06:55 (T51)	20:46			20:01			19:08	67	18:30 (T52)	17:24			17:03	47	16:01 (T53)
6	06:05		06:33 (T51)	06:32			07:03			07:33		17:22 (T52)	07:08			07:42		15:14 (T53)
	21:08	23	06:56 (T51)	20:45			19:57			19:07	68	18:30 (T52)	17:22			17:03	47	16:01 (T53)
7	06:06		06:32 (T51)	06:33			07:04			07:34		17:22 (T52)	07:09			07:43		15:14 (T53)
	21:07	24	06:56 (T51)	20:43			19:56			19:05	67	18:29 (T52)	17:21			17:03	47	16:01 (T53)
8	06:07		06:32 (T51)	06:34			07:05			07:35		17:22 (T52)	07:10			07:44		15:14 (T53)
	21:07	25	06:57 (T51)	20:42			19:54			19:03	67	18:29 (T52)	17:20			17:03	48	16:02 (T53)
9	06:07		06:33 (T51)	06:35			07:06			07:36		17:21 (T52)	07:12			07:45		15:14 (T53)
	21:07	25	06:58 (T51)	20:41			19:52			19:02	67	18:28 (T52)	17:19			17:03	49	16:03 (T53)
10	06:08		06:32 (T51)	06:36			07:07			07:37		17:21 (T52)	07:13			07:46		15:14 (T53)
	21:06	26	06:58 (T51)	20:40			19:51			19:00	66	18:27 (T52)	17:18			17:03	49	16:03 (T53)
11	06:09		06:32 (T51)	06:37			07:08			07:38		17:21 (T52)	07:14			07:46		15:15 (T53)
	21:06	26	06:58 (T51)	20:38			19:49			18:59	66	18:27 (T52)	17:17			17:03	49	16:04 (T53)
12	06:09		06:32 (T51)	06:38			07:09			07:39		17:21 (T52)	07:15			07:47		15:15 (T53)
	21:06	27	06:59 (T51)	20:37			19:47			18:57	65	18:26 (T52)	17:16			17:03	50	16:05 (T53)
13	06:10		06:32 (T51)	06:39			07:10		18:00 (T52)	07:40		17:23 (T52)	07:16			07:48		15:16 (T53)
	21:05	27	06:59 (T51)	20:36			19:46	12	18:12 (T52)	18:55	63	18:26 (T52)	17:15			17:03	50	16:06 (T53)
14	06:11		06:33 (T51)	06:40			07:11		17:55 (T52)	07:42		17:23 (T52)	07:18			07:49		15:15 (T53)
	21:05	26	06:59 (T51)	20:34			19:44	22	18:17 (T52)	18:54	62	18:25 (T52)	17:14			17:04	51	16:06 (T53)
15	06:12		06:34 (T51)	06:41			07:12		17:51 (T52)	07:43		17:23 (T52)	07:19			07:50		15:16 (T53)
	21:04	26	07:00 (T51)	20:33			19:42	29	18:20 (T52)	18:52	61	18:24 (T52)	17:13			17:04	50	16:06 (T53)
16	06:12		06:35 (T51)	06:42			07:13		17:48 (T52)	07:44		17:24 (T52)	07:20			07:50		15:16 (T53)
	21:03	25	07:00 (T51)	20:32			19:41	34	18:22 (T52)	18:51	58	18:22 (T52)	17:13			17:04	51	16:07 (T53)
17	06:13		06:35 (T51)	06:43			07:13		17:44 (T52)	07:45		17:24 (T52)	07:21			07:51		15:16 (T53)
	21:03	25	07:00 (T51)	20:30			19:39	39	18:23 (T52)	18:49	57	18:21 (T52)	17:12			17:04	51	16:07 (T53)
18	06:14		06:36 (T51)	06:44			07:14		17:42 (T52)	07:46		17:25 (T52)	07:22			07:52		15:17 (T53)
	21:02	24	07:00 (T51)	20:29			19:37	42	18:24 (T52)	18:48	55	18:20 (T52)	17:11			17:05	51	16:08 (T53)
19	06:15		06:37 (T51)	06:45			07:15		17:40 (T52)	07:47		17:26 (T52)	07:24			07:52		15:18 (T53)
	21:02	23	07:00 (T51)	20:27			19:35	46	18:26 (T52)	18:46	52	18:18 (T52)	17:10			17:05	51	16:09 (T53)
20	06:16		06:38 (T51)	06:46			07:17		17:38 (T52)	07:48		17:28 (T52)	07:25		15:27 (T53)	07:53		15:18 (T53)
	21:01	23	07:01 (T51)	20:26			19:34	49	18:27 (T52)	18:45	49	18:17 (T52)	17:10	13	15:40 (T53)	17:05	51	16:09 (T53)
21	06:16		06:39 (T51)	06:47			07:18		17:36 (T52)	07:49		17:29 (T52)	07:26		15:24 (T53)	07:53		15:19 (T53)
	21:00	22	07:01 (T51)	20:24			19:32	52	18:28 (T52)	18:43	47	18:16 (T52)	17:09	19	15:43 (T53)	17:06	51	16:10 (T53)
22	06:17		06:40 (T51)	06:48			07:19		17:34 (T52)	07:50		17:30 (T52)	07:27		15:22 (T53)	07:54		15:19 (T53)
	20:59	21	07:01 (T51)	20:23			19:30	54	18:28 (T52)	18:42	44	18:14 (T52)	17:08	23	15:45 (T53)	17:06	51	16:10 (T53)
23	06:18		06:40 (T51)	06:49			07:20		17:33 (T52)	07:52		17:32 (T52)	07:28		15:20 (T53)	07:54		15:20 (T53)
	20:59	20	07:00 (T51)	20:21			19:29	56	18:29 (T52)	18:40	40	18:12 (T52)	17:08	27	15:47 (T53)	17:07	51	16:11 (T53)
24	06:19		06:41 (T51)	06:50			07:21		17:31 (T52)	07:53		17:33 (T52)	07:29		15:18 (T53)	07:55		15:20 (T53)
	20:58	19	07:00 (T51)	20:20			19:27	59	18:30 (T52)	18:39	36	18:09 (T52)	17:07	30	15:48 (T53)	17:07	51	16:11 (T53)
25	06:20		06:42 (T51)	06:51			07:22		17:30 (T52)	07:54		17:37 (T52)	07:30		15:18 (T53)	07:55		15:20 (T53)
	20:57	18	07:00 (T51)	20:18			19:25	60	18:30 (T52)	18:38	30	18:07 (T52)	17:07	32	15:50 (T53)	17:08	51	16:11 (T53)
26	06:21		06:43 (T51)	06:52			07:23		17:29 (T52)	07:55		17:39 (T52)	07:32		15:17 (T53)	07:56		15:21 (T53)
	20:56	16	06:59 (T51)	20:17			19:23	61	18:30 (T52)	18:36	25	18:04 (T52)	17:06	35	15:52 (T53)	17:09	51	16:12 (T53)
27	06:22		06:44 (T51)	06:53			07:24		17:28 (T52)	07:56		17:44 (T52)	07:33		15:16 (T53)	07:56		15:21 (T53)
	20:55	15	06:59 (T51)	20:15			19:22	62	18:30 (T52)	18:35	15	17:59 (T52)	17:06	37	15:53 (T53)	17:09	51	16:12 (T53)
28	06:23		06:45 (T51)	06:54			07:25		17:27 (T52)	07:57			07:34		15:16 (T53)	07:56		15:22 (T53)
	20:54	14	06:59 (T51)	20:14			19:20	64	18:31 (T52)	18:33			17:05	38	15:54 (T53)	17:10	50	16:12 (T53)
29	06:24		06:46 (T51)	06:55			07:26		17:26 (T52)	07:59			07:35		15:15 (T53)	07:57		15:22 (T53)
	20:53	12	06:58 (T51)	20:12			19:18	65	18:31 (T52)	18:32			17:05	40	15:55 (T53)	17:11	51	16:13 (T53)
30	06:25		06:47 (T51)	06:56			07:27		17:25 (T52)	08:00			07:36		15:14 (T53)	07:57		15:23 (T53)
	20:52	10	06:57 (T51)	20:11			19:17	66	18:31 (T52)	18:31			17:04	42	15:56 (T53)	17:12	51	16:14 (T53)
31	06:26		06:48 (T51)	06:57						08:01						07:57		15:24 (T53)
	20:51	8	06:56 (T51)	20:09						18:30						17:12	50	16:14 (T53)
Potential sun hours	459			428			375			345			297			287		
Total, worst case		659			8			872			1496			336			1526	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.71			0.71			0.69			0.69			0.75			0.75	
Total reduction		0.47			0.44			0.41			0.33			0.23			0.17	
Total, real		312			4			358			500			76			252	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1043 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1726)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February	March			April			May			June
1	07:57		08:30 (T71a)	07:43	07:07			07:16		17:50 (T69)	06:30		06:58 (T67)	06:02
	17:13	49	09:19 (T71a)	17:48	18:22			19:56	87	19:17 (T69)	20:27	130	18:58 (T69)	20:57
2	07:57		08:31 (T71a)	07:42	07:06			07:15		17:50 (T69)	06:29		06:59 (T67)	06:01
	17:14	48	09:19 (T71a)	17:49	18:23			19:57	88	19:18 (T69)	20:28	127	18:57 (T69)	20:57
3	07:57		08:31 (T71a)	07:41	07:04			07:13		17:49 (T69)	06:28		07:00 (T67)	06:01
	17:15	49	09:20 (T71a)	17:50	18:24			19:58	88	19:17 (T69)	20:29	122	18:56 (T69)	20:58
4	07:57		08:32 (T71a)	07:40	07:02			07:11		07:40 (T68)	06:27		07:01 (T67)	06:01
	17:16	48	09:20 (T71a)	17:51	18:25			19:59	103	19:17 (T69)	20:30	118	18:54 (T69)	20:59
5	07:57		08:32 (T71a)	07:39	07:01			07:10		07:35 (T68)	06:25		07:02 (T67)	06:00
	17:17	48	09:20 (T71a)	17:53	18:26			20:00	112	19:17 (T69)	20:31	112	18:52 (T69)	20:59
6	07:57		08:33 (T71a)	07:38	06:59			07:08		07:31 (T68)	06:24		07:05 (T67)	06:00
	17:18	48	09:21 (T71a)	17:54	18:28			20:00	120	19:17 (T69)	20:32	106	18:51 (T69)	21:00
7	07:57		08:34 (T71a)	07:37	06:58			07:06		07:28 (T68)	06:23		07:12 (T68)	06:00
	17:19	47	09:21 (T71a)	17:55	18:29			20:01	123	19:16 (T69)	20:33	94	18:49 (T69)	21:01
8	07:57		08:34 (T71a)	07:36	07:56			07:05		07:26 (T68)	06:22		07:13 (T68)	05:59
	17:20	48	09:22 (T71a)	17:57	19:30			20:02	129	19:17 (T69)	20:34	88	18:47 (T69)	21:01
9	07:57		08:35 (T71a)	07:35	07:54			07:03		07:24 (T68)	06:21		07:13 (T68)	05:59
	17:21	47	09:22 (T71a)	17:58	19:31			20:03	131	19:16 (T69)	20:35	83	18:45 (T69)	21:02
10	07:57		08:35 (T71a)	07:33	07:53			07:02		07:22 (T68)	06:20		07:14 (T68)	05:59
	17:22	47	09:22 (T71a)	17:59	19:32			20:04	134	19:15 (T69)	20:36	76	18:42 (T69)	21:03
11	07:56		08:36 (T71a)	07:32	07:51		18:28 (T69)	07:00		07:21 (T68)	06:18		07:15 (T68)	05:59
	17:23	46	09:22 (T71a)	18:00	19:33	22	18:50 (T69)	20:06	135	19:15 (T69)	20:37	66	18:38 (T69)	21:03
12	07:56		08:37 (T71a)	07:31	07:50		18:23 (T69)	06:58		07:19 (T68)	06:17		07:16 (T68)	05:59
	17:24	46	09:23 (T71a)	18:01	19:34	33	18:56 (T69)	20:07	138	19:14 (T69)	20:38	50	18:31 (T69)	21:04
13	07:56		08:37 (T71a)	07:30	07:48		18:19 (T69)	06:57		07:18 (T68)	06:16		07:17 (T68)	05:59
	17:25	45	09:22 (T71a)	18:03	19:35	40	18:59 (T69)	20:08	139	19:14 (T69)	20:39	44	08:01 (T68)	21:04
14	07:55		08:38 (T71a)	07:28	07:46		18:15 (T69)	06:55		07:14 (T67)	06:15		07:18 (T68)	05:59
	17:26	44	09:22 (T71a)	18:04	19:37	46	19:01 (T69)	20:09	143	19:14 (T69)	20:40	42	08:00 (T68)	21:05
15	07:55		08:38 (T71a)	07:27	07:45		18:13 (T69)	06:54		07:13 (T67)	06:14		07:18 (T68)	05:59
	17:27	44	09:22 (T71a)	18:05	19:38	51	19:04 (T69)	20:10	144	19:14 (T69)	20:41	41	07:59 (T68)	21:05
16	07:55		08:40 (T71a)	07:26	07:43		18:10 (T69)	06:52		07:11 (T67)	06:13		07:20 (T68)	05:59
	17:28	42	09:22 (T71a)	18:06	19:39	55	19:05 (T69)	20:11	145	19:12 (T69)	20:42	38	07:58 (T68)	21:06
17	07:54		08:40 (T71a)	07:25	07:41		18:08 (T69)	06:51		07:10 (T67)	06:12		07:21 (T68)	05:59
	17:30	42	09:22 (T71a)	18:08	19:40	59	19:07 (T69)	20:12	146	19:12 (T69)	20:43	35	07:56 (T68)	21:06
18	07:54		08:41 (T71a)	07:23	07:40		18:06 (T69)	06:49		07:08 (T67)	06:11		07:22 (T68)	05:59
	17:31	41	09:22 (T71a)	18:09	19:41	63	19:09 (T69)	20:13	147	19:11 (T69)	20:44	33	07:55 (T68)	21:06
19	07:53		08:42 (T71a)	07:22	07:38		18:04 (T69)	06:47		07:07 (T67)	06:11		07:23 (T68)	05:59
	17:32	39	09:21 (T71a)	18:10	19:42	66	19:10 (T69)	20:14	147	19:11 (T69)	20:45	30	07:53 (T68)	21:07
20	07:53		08:43 (T71a)	07:20	07:36		18:02 (T69)	06:46		07:05 (T67)	06:10		07:26 (T68)	05:59
	17:33	38	09:21 (T71a)	18:11	19:43	69	19:11 (T69)	20:15	148	19:10 (T69)	20:46	26	07:52 (T68)	21:07
21	07:52		08:44 (T71a)	07:19	07:35		18:01 (T69)	06:44		07:04 (T67)	06:09		07:27 (T68)	05:59
	17:34	37	09:21 (T71a)	18:12	19:44	71	19:12 (T69)	20:16	147	19:09 (T69)	20:47	23	07:50 (T68)	21:07
22	07:51		08:45 (T71a)	07:18	07:33		17:59 (T69)	06:43		07:02 (T67)	06:08		07:29 (T68)	05:59
	17:35	35	09:20 (T71a)	18:14	19:45	74	19:13 (T69)	20:17	148	19:08 (T69)	20:48	19	07:48 (T68)	21:07
23	07:51		08:47 (T71a)	07:16	07:31		17:58 (T69)	06:42		07:01 (T67)	06:07		07:32 (T68)	06:00
	17:37	33	09:20 (T71a)	18:15	19:46	75	19:13 (T69)	20:18	147	19:07 (T69)	20:49	12	07:44 (T68)	21:08
24	07:50		08:48 (T71a)	07:15	07:30		17:57 (T69)	06:40		06:59 (T67)	06:07			06:00
	17:38	30	09:18 (T71a)	18:16	19:47	78	19:15 (T69)	20:19	147	19:06 (T69)	20:50			21:08
25	07:49		08:50 (T71a)	07:13	07:28		17:56 (T69)	06:39		06:58 (T67)	06:06			06:00
	17:39	27	09:17 (T71a)	18:17	19:48	79	19:15 (T69)	20:20	145	19:05 (T69)	20:51			21:08
26	07:48		08:51 (T71a)	07:12	07:26		17:54 (T69)	06:37		06:57 (T67)	06:05			06:00
	17:40	24	09:15 (T71a)	18:18	19:50	81	19:15 (T69)	20:21	145	19:05 (T69)	20:52			21:08
27	07:48		08:53 (T71a)	07:10	07:25		17:54 (T69)	06:36		06:56 (T67)	06:05			06:01
	17:42	20	09:13 (T71a)	18:20	19:51	82	19:16 (T69)	20:23	143	19:03 (T69)	20:52			21:08
28	07:47		08:56 (T71a)	07:09	07:23		17:53 (T69)	06:35		06:57 (T67)	06:04			06:01
	17:43	15	09:11 (T71a)	18:21	19:52	83	19:16 (T69)	20:24	140	19:02 (T69)	20:53			21:08
29	07:46		09:04 (T71a)		07:21		17:52 (T69)	06:33		06:57 (T67)	06:03			06:02
	17:44	1	09:05 (T71a)		19:53	84	19:16 (T69)	20:25	137	19:01 (T69)	20:54			21:08
30	07:45				07:20		17:52 (T69)	06:32		06:57 (T67)	06:03			06:02
	17:45				19:54	85	19:17 (T69)	20:26	134	18:59 (T69)	20:55			21:08
31	07:44				07:18		17:51 (T69)				06:02			
	17:46				19:55	86	19:17 (T69)				20:56			
Potential sun hours	297			297	370			399			448			452
Total, worst case		1128				1382			3980			1515		
Sun reduction		0.31				0.44			0.52			0.57		
Oper. time red.		1.00				1.00			1.00			1.00		
Wind dir. red.		0.53				0.65			0.65			0.66		
Total reduction		0.16				0.28			0.33			0.37		
Total, real		181				387			1327			556		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1043 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1726)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:03			06:27		07:25 (T68)	06:57		07:20 (T68)	07:28		18:00 (T69)	07:02			07:37		08:18 (T71a)
	21:08			20:50	59	18:45 (T69)	20:07	135	19:14 (T69)	19:15	36	18:36 (T69)	17:28			17:04	46	09:04 (T71a)
2	06:03			06:28		07:24 (T68)	06:58		07:21 (T68)	07:29		18:04 (T69)	07:03			07:38		08:18 (T71a)
	21:08			20:49	71	18:50 (T69)	20:05	134	19:14 (T69)	19:13	27	18:31 (T69)	17:27			17:04	47	09:05 (T71a)
3	06:04			06:29		07:23 (T68)	06:59		07:22 (T68)	07:30		18:10 (T69)	07:04			07:39		08:18 (T71a)
	21:08			20:48	79	18:53 (T69)	20:04	131	19:14 (T69)	19:11	14	18:24 (T69)	17:26			17:04	47	09:05 (T71a)
4	06:04			06:30		07:23 (T68)	07:00		07:23 (T68)	07:31			07:05			07:40		08:19 (T71a)
	21:08			20:47	85	18:55 (T69)	20:02	129	19:14 (T69)	19:10			17:25			17:03	47	09:06 (T71a)
5	06:05			06:31		07:22 (T68)	07:01		07:25 (T68)	07:32			07:07			07:41		08:19 (T71a)
	21:08			20:45	90	18:57 (T69)	20:01	124	19:13 (T69)	19:08			17:23			17:03	47	09:06 (T71a)
6	06:05			06:31		07:18 (T67)	07:02		07:27 (T68)	07:33			07:08			07:42		08:19 (T71a)
	21:07			20:44	99	18:59 (T69)	19:57	120	19:13 (T69)	19:07			17:22			17:03	48	09:07 (T71a)
7	06:06			06:32		07:14 (T67)	07:03		07:30 (T68)	07:34			07:09			07:43		08:19 (T71a)
	21:07			20:43	108	19:01 (T69)	19:56	112	19:12 (T69)	19:05			17:21			17:03	48	09:07 (T71a)
8	06:07			06:33		07:11 (T67)	07:04		07:34 (T68)	07:35			07:10			07:44		08:20 (T71a)
	21:07			20:42	114	19:02 (T69)	19:54	104	19:12 (T69)	19:03			17:20			17:03	48	09:08 (T71a)
9	06:07			06:34		07:10 (T67)	07:05		17:43 (T69)	07:36			07:11			07:44		08:20 (T71a)
	21:06			20:41	120	19:04 (T69)	19:52	88	19:11 (T69)	19:02			17:19			17:03	49	09:09 (T71a)
10	06:08			06:35		07:08 (T67)	07:06		17:43 (T69)	07:37			07:13			07:45		08:21 (T71a)
	21:06			20:39	124	19:05 (T69)	19:51	88	19:11 (T69)	19:00			17:18			17:03	48	09:09 (T71a)
11	06:09			06:36		07:07 (T67)	07:07		17:43 (T69)	07:38			07:14			07:46		08:21 (T71a)
	21:06			20:38	128	19:06 (T69)	19:49	87	19:10 (T69)	18:58			17:17			17:03	49	09:10 (T71a)
12	06:09			06:37		07:06 (T67)	07:08		17:42 (T69)	07:39			07:15			07:47		08:21 (T71a)
	21:05			20:37	132	19:07 (T69)	19:47	86	19:08 (T69)	18:57			17:16			17:03	49	09:10 (T71a)
13	06:10			06:38		07:06 (T67)	07:09		17:42 (T69)	07:40			07:16		08:34 (T71a)	07:48		08:22 (T71a)
	21:05			20:35	134	19:08 (T69)	19:45	86	19:08 (T69)	18:55			17:15	3	08:37 (T71a)	17:03	48	09:10 (T71a)
14	06:11			06:39		07:05 (T67)	07:10		17:42 (T69)	07:41			07:17		08:29 (T71a)	07:49		08:22 (T71a)
	21:04			20:34	138	19:09 (T69)	19:44	85	19:07 (T69)	18:54			17:14	15	08:44 (T71a)	17:04	49	09:11 (T71a)
15	06:12			06:40		07:04 (T67)	07:11		17:42 (T69)	07:42			07:19		08:26 (T71a)	07:49		08:23 (T71a)
	21:04			20:33	141	19:10 (T69)	19:42	84	19:06 (T69)	18:52			17:13	20	08:46 (T71a)	17:04	49	09:12 (T71a)
16	06:12			06:41		07:04 (T67)	07:12		17:42 (T69)	07:44			07:20		08:24 (T71a)	07:50		08:23 (T71a)
	21:03			20:31	143	19:11 (T69)	19:40	83	19:05 (T69)	18:51			17:13	24	08:48 (T71a)	17:04	49	09:12 (T71a)
17	06:13			06:42		07:04 (T67)	07:13		17:43 (T69)	07:45			07:21		08:23 (T71a)	07:51		08:24 (T71a)
	21:03			20:30	146	19:12 (T69)	19:39	81	19:04 (T69)	18:49			17:12	27	08:50 (T71a)	17:04	48	09:12 (T71a)
18	06:14			06:43		07:05 (T67)	07:14		17:43 (T69)	07:46			07:22		08:22 (T71a)	07:51		08:24 (T71a)
	21:02			20:28	146	19:12 (T69)	19:37	80	19:03 (T69)	18:48			17:11	30	08:52 (T71a)	17:05	49	09:13 (T71a)
19	06:15			06:44		07:06 (T67)	07:15		17:43 (T69)	07:47			07:23		08:21 (T71a)	07:52		08:24 (T71a)
	21:01			20:27	147	19:13 (T69)	19:35	78	19:01 (T69)	18:46			17:10	33	08:54 (T71a)	17:05	49	09:13 (T71a)
20	06:16		07:45 (T68)	06:45		07:07 (T67)	07:16		17:44 (T69)	07:48			07:24		08:20 (T71a)	07:53		08:25 (T71a)
	21:01	7	07:52 (T68)	20:26	147	19:13 (T69)	19:34	76	19:00 (T69)	18:45			17:10	35	08:55 (T71a)	17:05	49	09:14 (T71a)
21	06:16		07:41 (T68)	06:46		07:08 (T67)	07:17		17:45 (T69)	07:49			07:26		08:19 (T71a)	07:53		08:25 (T71a)
	21:00	16	07:57 (T68)	20:24	147	19:14 (T69)	19:32	74	18:59 (T69)	18:43			17:09	37	08:56 (T71a)	17:06	49	09:14 (T71a)
22	06:17		07:39 (T68)	06:47		07:08 (T67)	07:18		17:45 (T69)	07:50			07:27		08:19 (T71a)	07:54		08:26 (T71a)
	20:59	20	07:59 (T68)	20:23	147	19:13 (T69)	19:30	72	18:57 (T69)	18:42			17:08	38	08:57 (T71a)	17:06	49	09:15 (T71a)
23	06:18		07:36 (T68)	06:48		07:09 (T67)	07:19		17:46 (T69)	07:51			07:28		08:19 (T71a)	07:54		08:26 (T71a)
	20:58	25	08:01 (T68)	20:21	147	19:13 (T69)	19:28	69	18:55 (T69)	18:40			17:08	39	08:58 (T71a)	17:07	49	09:15 (T71a)
24	06:19		07:34 (T68)	06:49		07:10 (T67)	07:20		17:47 (T69)	07:53			07:29		08:18 (T71a)	07:55		08:27 (T71a)
	20:57	29	08:03 (T68)	20:20	147	19:14 (T69)	19:27	67	18:54 (T69)	18:39			17:07	41	08:59 (T71a)	17:07	49	09:16 (T71a)
25	06:20		07:33 (T68)	06:50		07:11 (T67)	07:21		17:48 (T69)	07:54			07:30		08:18 (T71a)	07:55		08:27 (T71a)
	20:57	31	08:04 (T68)	20:18	146	19:14 (T69)	19:25	64	18:52 (T69)	18:37			17:06	42	09:00 (T71a)	17:08	49	09:16 (T71a)
26	06:21		07:32 (T68)	06:51		07:12 (T67)	07:22		17:50 (T69)	07:55			07:31		08:18 (T71a)	07:55		08:27 (T71a)
	20:56	34	08:06 (T68)	20:17	146	19:14 (T69)	19:23	60	18:50 (T69)	18:36			17:06	42	09:00 (T71a)	17:09	49	09:16 (T71a)
27	06:22		07:31 (T68)	06:52		07:13 (T67)	07:23		17:51 (T69)	07:56			07:32		08:18 (T71a)	07:56		08:29 (T71a)
	20:55	36	08:07 (T68)	20:15	145	19:14 (T69)	19:22	57	18:48 (T69)	18:35			17:06	44	09:02 (T71a)	17:09	48	09:17 (T71a)
28	06:23		07:30 (T68)	06:53		07:14 (T67)	07:24		17:53 (T69)	07:57			07:34		08:18 (T71a)	07:56		08:29 (T71a)
	20:54	39	08:09 (T68)	20:13	144	19:14 (T69)	19:20	52	18:45 (T69)	18:33			17:05	45	09:03 (T71a)	17:10	49	09:18 (T71a)
29	06:24		07:29 (T68)	06:54		07:15 (T67)	07:25		17:55 (T69)	07:58			07:35		08:18 (T71a)	07:56		08:29 (T71a)
	20:53	41	08:10 (T68)	20:12	142	19:14 (T69)	19:18	47	18:42 (T69)	18:32			17:05	45	09:03 (T71a)	17:11	49	09:18 (T71a)
30	06:25		07:28 (T68)	06:55		07:18 (T68)	07:26		17:57 (T69)	07:59			07:36		08:18 (T71a)	07:56		08:29 (T71a)
	20:52	43	08:11 (T68)	20:10	139	19:14 (T69)	19:17	42	18:39 (T69)	18:31			17:04	46	09:04 (T71a)	17:12	49	09:18 (T71a)
31	06:26		07:27 (T68)	06:56		07:19 (T68)				08:01						07:57		08:30 (T71a)
	20:51	45	08:12 (T68)	20:09	138	19:14 (T69)				18:29						17:12	48	09:18 (T71a)
Potential sun hours	459			428			375			345			298			288		
Total, worst case		366			3939			2595			77			606			1500	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.66			0.65			0.65			0.65			0.53			0.53	
Total reduction		0.43			0.39			0.38			0.31			0.16			0.11	
Total, real		156			1545			976			24			94			171	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1056 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1728)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June		
1	07:58		08:58 (T12)	07:44		08:04 (T13)	07:07			07:16		18:52 (T11)	06:30		07:06 (T10a)	06:01		07:06 (T10a)
	17:13	68	10:06 (T12)	17:47	44	09:44 (T12)	18:22			19:56	42	19:34 (T11)	20:27	112	19:21 (T11)	20:57	80	08:26 (T10a)
2	07:58		08:59 (T12)	07:43		08:03 (T13)	07:06			07:14		18:50 (T11)	06:29		07:05 (T10a)	06:01		07:06 (T10a)
	17:14	67	10:06 (T12)	17:49	38	08:41 (T13)	18:23			19:57	44	19:34 (T11)	20:28	109	19:19 (T11)	20:58	80	08:26 (T10a)
3	07:58		08:59 (T12)	07:42		08:04 (T13)	07:04			07:13		18:50 (T11)	06:27		07:04 (T10a)	06:00		07:07 (T10a)
	17:14	67	10:06 (T12)	17:50	37	08:41 (T13)	18:24			19:58	46	19:36 (T11)	20:29	104	19:16 (T11)	20:59	79	08:26 (T10a)
4	07:58		09:00 (T12)	07:41		08:04 (T13)	07:03			07:11		18:48 (T11)	06:26		07:04 (T10a)	06:00		07:07 (T10a)
	17:15	67	10:07 (T12)	17:51	38	08:42 (T13)	18:25			19:59	48	19:36 (T11)	20:30	96	19:11 (T11)	21:00	79	08:26 (T10a)
5	07:58		09:01 (T12)	07:40		08:04 (T13)	07:01			07:09		18:46 (T11)	06:25		07:04 (T10a)	06:00		07:07 (T10a)
	17:16	66	10:07 (T12)	17:52	38	08:42 (T13)	18:26			20:00	51	19:37 (T11)	20:32	86	08:30 (T10a)	21:00	78	08:25 (T10a)
6	07:58		09:01 (T12)	07:39		08:04 (T13)	06:59			07:08		18:46 (T11)	06:24		07:03 (T10a)	05:59		07:08 (T10a)
	17:17	66	10:07 (T12)	17:54	38	08:42 (T13)	18:27			20:00	52	19:38 (T11)	20:33	87	08:30 (T10a)	21:01	77	08:25 (T10a)
7	07:58		09:02 (T12)	07:37		08:05 (T13)	06:58			07:06		18:45 (T11)	06:23		07:03 (T10a)	05:59		07:08 (T10a)
	17:18	66	10:08 (T12)	17:55	37	08:42 (T13)	18:29			20:01	53	19:38 (T11)	20:34	87	08:30 (T10a)	21:02	78	08:26 (T10a)
8	07:58		09:03 (T12)	07:36		08:05 (T13)	07:56			07:05		18:45 (T11)	06:21		07:02 (T10a)	05:59		07:09 (T10a)
	17:19	65	10:08 (T12)	17:56	36	08:41 (T13)	19:30			20:03	53	19:38 (T11)	20:35	87	08:29 (T10a)	21:02	77	08:26 (T10a)
9	07:57		09:03 (T12)	07:35		08:05 (T13)	07:55			07:03		07:51 (T10a)	06:20		07:02 (T10a)	05:58		07:09 (T10a)
	17:20	64	10:07 (T12)	17:57	35	08:40 (T13)	19:31			20:04	58	19:38 (T11)	20:36	87	08:29 (T10a)	21:03	77	08:26 (T10a)
10	07:57		09:04 (T12)	07:34		08:06 (T13)	07:53			07:01		07:40 (T10a)	06:19		07:02 (T10a)	05:58		07:09 (T10a)
	17:21	64	10:08 (T12)	17:59	34	08:40 (T13)	19:32			20:05	79	19:38 (T11)	20:37	87	08:29 (T10a)	21:03	76	08:25 (T10a)
11	07:57		09:05 (T12)	07:33		08:07 (T13)	07:51			07:00		07:36 (T10a)	06:18		07:02 (T10a)	05:58		07:09 (T10a)
	17:22	63	10:08 (T12)	18:00	33	08:40 (T13)	19:33			20:06	88	19:38 (T11)	20:38	87	08:29 (T10a)	21:04	76	08:25 (T10a)
12	07:57		09:05 (T12)	07:31		08:07 (T13)	07:50			06:58		07:32 (T10a)	06:17		07:02 (T10a)	05:58		07:10 (T10a)
	17:23	62	10:07 (T12)	18:01	31	08:38 (T13)	19:34			20:07	95	19:38 (T11)	20:39	87	08:29 (T10a)	21:04	75	08:25 (T10a)
13	07:56		09:06 (T12)	07:30		08:09 (T13)	07:48			06:57		07:30 (T10a)	06:16		07:02 (T10a)	05:58		07:10 (T10a)
	17:24	62	10:08 (T12)	18:02	28	08:37 (T13)	19:35			20:08	101	19:38 (T11)	20:40	87	08:29 (T10a)	21:05	75	08:25 (T10a)
14	07:56		09:07 (T12)	07:29		08:10 (T13)	07:46			06:55		07:27 (T10a)	06:15		07:02 (T10a)	05:58		07:10 (T10a)
	17:26	61	10:08 (T12)	18:04	26	08:36 (T13)	19:37			20:09	104	19:37 (T11)	20:41	87	08:29 (T10a)	21:05	75	08:25 (T10a)
15	07:56		09:07 (T12)	07:28		08:11 (T13)	07:45			06:53		07:24 (T10a)	06:14		07:02 (T10a)	05:58		07:11 (T10a)
	17:27	60	10:07 (T12)	18:05	23	08:34 (T13)	19:38			20:10	109	19:37 (T11)	20:42	87	08:29 (T10a)	21:06	75	08:26 (T10a)
16	07:55		09:09 (T12)	07:26		08:14 (T13)	07:43			06:52		07:22 (T10a)	06:13		07:02 (T10a)	05:58		07:11 (T10a)
	17:28	59	10:08 (T12)	18:06	18	08:32 (T13)	19:39			20:11	113	19:37 (T11)	20:43	86	08:28 (T10a)	21:06	75	08:26 (T10a)
17	07:55		08:16 (T13)	07:25		08:17 (T13)	07:41			06:50		07:20 (T10a)	06:12		07:03 (T10a)	05:58		07:11 (T10a)
	17:29	62	10:07 (T12)	18:07	13	08:30 (T13)	19:40			20:12	115	19:36 (T11)	20:44	86	08:29 (T10a)	21:07	75	08:26 (T10a)
18	07:54		08:16 (T13)	07:24			07:40			06:49		07:19 (T10a)	06:11		07:03 (T10a)	05:58		07:11 (T10a)
	17:30	66	10:07 (T12)	18:09			19:41			20:13	117	19:36 (T11)	20:45	86	08:29 (T10a)	21:07	75	08:26 (T10a)
19	07:54		08:15 (T13)	07:22			07:38			06:47		07:17 (T10a)	06:10		07:03 (T10a)	05:58		07:13 (T10a)
	17:31	68	10:07 (T12)	18:10			19:42			20:14	119	19:35 (T11)	20:46	86	08:29 (T10a)	21:07	74	08:27 (T10a)
20	07:53		08:14 (T13)	07:21			07:36			06:46		07:16 (T10a)	06:09		07:03 (T10a)	05:58		07:13 (T10a)
	17:32	69	10:06 (T12)	18:11			19:43			20:15	121	19:35 (T11)	20:47	85	08:28 (T10a)	21:08	74	08:27 (T10a)
21	07:53		08:14 (T13)	07:19			07:35			06:44		07:14 (T10a)	06:08		07:03 (T10a)	05:58		07:13 (T10a)
	17:34	70	10:06 (T12)	18:12			19:44			20:17	122	19:33 (T11)	20:48	85	08:28 (T10a)	21:08	74	08:27 (T10a)
22	07:52		08:13 (T13)	07:18			07:33			06:43		07:13 (T10a)	06:08		07:03 (T10a)	05:59		07:13 (T10a)
	17:35	70	10:05 (T12)	18:13			19:45			20:18	123	19:33 (T11)	20:49	85	08:28 (T10a)	21:08	74	08:27 (T10a)
23	07:51		08:12 (T13)	07:16			07:31			06:41		07:12 (T10a)	06:07		07:03 (T10a)	05:59		07:13 (T10a)
	17:36	70	10:04 (T12)	18:15			19:46			20:19	123	19:32 (T11)	20:50	85	08:28 (T10a)	21:08	74	08:27 (T10a)
24	07:51		08:11 (T13)	07:15			07:30			06:40		07:11 (T10a)	06:06		07:03 (T10a)	05:59		07:13 (T10a)
	17:37	70	10:03 (T12)	18:16			19:47			20:20	123	19:31 (T11)	20:51	84	08:27 (T10a)	21:09	75	08:28 (T10a)
25	07:50		08:11 (T13)	07:13			07:28			06:38		07:10 (T10a)	06:05		07:04 (T10a)	05:59		07:13 (T10a)
	17:39	69	10:02 (T12)	18:17			19:49			20:21	123	19:30 (T11)	20:51	84	08:28 (T10a)	21:09	75	08:28 (T10a)
26	07:49		08:10 (T13)	07:12			07:26			06:37		07:08 (T10a)	06:05		07:04 (T10a)	06:00		07:13 (T10a)
	17:40	68	10:01 (T12)	18:18			19:50			20:22	122	19:28 (T11)	20:52	83	08:27 (T10a)	21:09	75	08:28 (T10a)
27	07:48		08:09 (T13)	07:10			07:25		19:06 (T11)	06:36		07:08 (T10a)	06:04		07:04 (T10a)	06:00		07:14 (T10a)
	17:41	67	09:59 (T12)	18:19			19:51	18	19:24 (T11)	20:23	121	19:28 (T11)	20:53	83	08:27 (T10a)	21:09	75	08:29 (T10a)
28	07:47		08:08 (T13)	07:09			07:23		19:02 (T11)	06:34		07:08 (T10a)	06:03		07:05 (T10a)	06:00		07:14 (T10a)
	17:42	66	09:58 (T12)	18:21			19:52	25	19:27 (T11)	20:24	119	19:26 (T11)	20:54	82	08:27 (T10a)	21:09	74	08:28 (T10a)
29	07:47		08:07 (T13)				07:21		18:59 (T11)	06:33		07:06 (T10a)	06:03		07:05 (T10a)	06:01		07:14 (T10a)
	17:44	63	09:56 (T12)				19:53	30	19:29 (T11)	20:25	118	19:24 (T11)	20:55	81	08:26 (T10a)	21:09	75	08:29 (T10a)
30	07:46		08:06 (T13)				07:19		18:56 (T11)	06:31		07:06 (T10a)	06:02		07:06 (T10a)	06:01		07:14 (T10a)
	17:45	60	09:53 (T12)				19:54	35	19:31 (T11)	20:26	115	19:23 (T11)	20:56	81	08:27 (T10a)	21:09	75	08:29 (T10a)
31	07:45		08:05 (T13)				07:18		18:54 (T11)				06:02		07:05 (T10a)			
	17:46	54	09:50 (T12)				19:55	39	19:33 (T11)				20:56	81	08:26 (T10a)			
Potential sun hours	297			297			370			399			449			453		
Total, worst case		2019			547			147			2817			2720			2276	
Sun reduction		0.31			0.40			0.44			0.52			0.57			0.64	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.53			0.53			0.61			0.64			0.66			0.66	
Total reduction		0.16			0.21			0.26			0.32			0.37			0.41	
Total, real		322			113			39			910			1001			943	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1056 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1728)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:02		07:14 (T10a)	06:26		07:13 (T10a)	06:57		07:35 (T10a)	07:28			07:02		07:36 (T13)	07:37		08:47 (T12)
	21:09	75	08:29 (T10a)	20:50	87	08:40 (T10a)	20:07	88	19:37 (T11)	19:15			17:28	34	08:10 (T13)	17:03	63	09:50 (T12)
2	06:02		07:14 (T10a)	06:27		07:13 (T10a)	06:58		07:39 (T10a)	07:29			07:03		07:35 (T13)	07:38		08:47 (T12)
	21:09	76	08:30 (T10a)	20:49	87	08:40 (T10a)	20:06	79	19:37 (T11)	19:13			17:27	35	08:10 (T13)	17:03	64	09:51 (T12)
3	06:03		07:14 (T10a)	06:28		07:13 (T10a)	06:59		07:48 (T10a)	07:30			07:05		07:34 (T13)	07:39		08:47 (T12)
	21:09	76	08:30 (T10a)	20:48	87	08:40 (T10a)	20:04	59	19:36 (T11)	19:11			17:25	37	08:11 (T13)	17:03	64	09:51 (T12)
4	06:03		07:14 (T10a)	06:29		07:13 (T10a)	07:00		18:42 (T11)	07:31			07:06		07:34 (T13)	07:40		08:47 (T12)
	21:09	77	08:31 (T10a)	20:47	87	08:40 (T10a)	20:02	53	19:35 (T11)	19:10			17:24	37	08:11 (T13)	17:03	65	09:52 (T12)
5	06:04		07:15 (T10a)	06:30		07:13 (T10a)	07:01		18:42 (T11)	07:32			07:07		07:34 (T13)	07:41		08:47 (T12)
	21:08	77	08:32 (T10a)	20:46	87	08:40 (T10a)	20:01	53	19:35 (T11)	19:08			17:23	38	08:12 (T13)	17:03	66	09:53 (T12)
6	06:05		07:14 (T10a)	06:31		07:13 (T10a)	07:02		18:42 (T11)	07:33			07:08		07:34 (T13)	07:42		08:47 (T12)
	21:08	78	08:32 (T10a)	20:45	87	08:40 (T10a)	19:57	52	19:34 (T11)	19:06			17:22	38	08:12 (T13)	17:02	66	09:53 (T12)
7	06:05		07:14 (T10a)	06:32		07:13 (T10a)	07:03		18:42 (T11)	07:34			07:09		07:34 (T13)	07:43		08:48 (T12)
	21:08	78	08:32 (T10a)	20:44	87	08:40 (T10a)	19:56	51	19:33 (T11)	19:05			17:21	37	08:11 (T13)	17:02	66	09:54 (T12)
8	06:06		07:14 (T10a)	06:33		07:13 (T10a)	07:04		18:43 (T11)	07:35			07:11		07:34 (T13)	07:44		08:48 (T12)
	21:08	78	08:32 (T10a)	20:42	87	08:40 (T10a)	19:54	48	19:31 (T11)	19:03			17:20	38	08:12 (T13)	17:02	67	09:55 (T12)
9	06:07		07:14 (T10a)	06:34		07:14 (T10a)	07:05		18:44 (T11)	07:36			07:12		07:34 (T13)	07:45		08:48 (T12)
	21:07	79	08:33 (T10a)	20:41	99	19:23 (T11)	19:52	46	19:30 (T11)	19:02			17:19	38	08:12 (T13)	17:02	67	09:55 (T12)
10	06:07		07:14 (T10a)	06:35		07:14 (T10a)	07:06		18:44 (T11)	07:37			07:13		07:35 (T13)	07:46		08:49 (T12)
	21:07	80	08:34 (T10a)	20:40	105	19:26 (T11)	19:51	45	19:29 (T11)	19:00			17:18	45	09:16 (T12)	17:02	67	09:56 (T12)
11	06:08		07:14 (T10a)	06:36		07:14 (T10a)	07:07		18:44 (T11)	07:38			07:14		07:36 (T13)	07:47		08:48 (T12)
	21:06	79	08:33 (T10a)	20:39	111	19:29 (T11)	19:49	42	19:26 (T11)	18:58			17:17	54	09:21 (T12)	17:02	68	09:56 (T12)
12	06:09		07:14 (T10a)	06:37		07:14 (T10a)	07:08		18:45 (T11)	07:39			07:15		07:38 (T13)	07:48		08:49 (T12)
	21:06	80	08:34 (T10a)	20:37	113	19:30 (T11)	19:47	39	19:24 (T11)	18:57			17:16	60	09:25 (T12)	17:03	67	09:56 (T12)
13	06:09		07:14 (T10a)	06:38		07:15 (T10a)	07:09		18:47 (T11)	07:40			07:17		07:39 (T13)	07:48		08:49 (T12)
	21:05	81	08:35 (T10a)	20:36	116	19:32 (T11)	19:46	35	19:22 (T11)	18:55			17:15	63	09:28 (T12)	17:03	68	09:57 (T12)
14	06:10		07:14 (T10a)	06:39		07:14 (T10a)	07:10		18:49 (T11)	07:42			07:18		07:40 (T13)	07:49		08:50 (T12)
	21:05	82	08:36 (T10a)	20:35	118	19:32 (T11)	19:44	31	19:20 (T11)	18:54			17:14	65	09:30 (T12)	17:03	68	09:58 (T12)
15	06:11		07:13 (T10a)	06:40		07:14 (T10a)	07:11		18:51 (T11)	07:43			07:19		07:42 (T13)	07:50		08:51 (T12)
	21:04	82	08:35 (T10a)	20:33	121	19:34 (T11)	19:42	26	19:17 (T11)	18:52			17:13	67	09:32 (T12)	17:03	68	09:59 (T12)
16	06:12		07:13 (T10a)	06:41		07:15 (T10a)	07:12		18:54 (T11)	07:44			07:20		07:43 (T13)	07:51		08:50 (T12)
	21:04	83	08:36 (T10a)	20:32	122	19:35 (T11)	19:40	19	19:13 (T11)	18:50			17:12	69	09:34 (T12)	17:03	69	09:59 (T12)
17	06:12		07:14 (T10a)	06:42		07:15 (T10a)	07:13		19:00 (T11)	07:45			07:21		07:44 (T13)	07:51		08:51 (T12)
	21:03	82	08:36 (T10a)	20:30	122	19:35 (T11)	19:39	6	19:06 (T11)	18:49			17:11	69	09:35 (T12)	17:04	68	09:59 (T12)
18	06:13		07:14 (T10a)	06:43		07:16 (T10a)	07:14			07:46			07:23		07:45 (T13)	07:52		08:52 (T12)
	21:03	83	08:37 (T10a)	20:29	122	19:36 (T11)	19:37			18:47			17:10	70	09:37 (T12)	17:04	68	10:00 (T12)
19	06:14		07:14 (T10a)	06:44		07:17 (T10a)	07:15			07:47			07:24		07:47 (T13)	07:53		08:52 (T12)
	21:02	84	08:38 (T10a)	20:27	122	19:37 (T11)	19:35			18:46			17:10	70	09:39 (T12)	17:04	68	10:00 (T12)
20	06:15		07:13 (T10a)	06:45		07:17 (T10a)	07:16			07:48			07:25		07:48 (T13)	07:53		08:53 (T12)
	21:01	84	08:37 (T10a)	20:26	122	19:37 (T11)	19:34			18:44			17:09	70	09:40 (T12)	17:05	68	10:01 (T12)
21	06:16		07:13 (T10a)	06:46		07:18 (T10a)	07:17			07:49			07:26		07:49 (T13)	07:54		08:53 (T12)
	21:00	85	08:38 (T10a)	20:25	122	19:38 (T11)	19:32			18:43			17:08	70	09:41 (T12)	17:05	68	10:01 (T12)
22	06:17		07:13 (T10a)	06:47		07:19 (T10a)	07:18			07:51			07:27		07:50 (T13)	07:54		08:54 (T12)
	21:00	85	08:38 (T10a)	20:23	121	19:38 (T11)	19:30			18:41			17:08	69	09:42 (T12)	17:06	68	10:02 (T12)
23	06:18		07:13 (T10a)	06:48		07:20 (T10a)	07:19			07:52			07:29		07:52 (T13)	07:55		08:54 (T12)
	20:59	85	08:38 (T10a)	20:22	120	19:38 (T11)	19:28			18:40			17:07	68	09:44 (T12)	17:06	68	10:02 (T12)
24	06:19		07:13 (T10a)	06:49		07:21 (T10a)	07:20			07:53		08:51 (T13)	07:30		07:53 (T13)	07:55		08:54 (T12)
	20:58	86	08:39 (T10a)	20:20	119	19:39 (T11)	19:27			18:39	4	08:55 (T13)	17:06	66	09:44 (T12)	17:07	68	10:02 (T12)
25	06:19		07:13 (T10a)	06:50		07:22 (T10a)	07:21			07:54		08:46 (T13)	07:31		07:54 (T13)	07:56		08:55 (T12)
	20:57	86	08:39 (T10a)	20:18	117	19:39 (T11)	19:25			18:37	14	09:00 (T13)	17:06	62	09:45 (T12)	17:07	68	10:03 (T12)
26	06:20		07:13 (T10a)	06:51		07:23 (T10a)	07:22			07:55		08:43 (T13)	07:32		08:47 (T12)	07:56		08:55 (T12)
	20:56	87	08:40 (T10a)	20:17	115	19:39 (T11)	19:23			18:36	20	09:03 (T13)	17:05	59	09:46 (T12)	17:08	68	10:03 (T12)
27	06:21		07:12 (T10a)	06:52		07:24 (T10a)	07:23			07:56		08:40 (T13)	07:33		08:46 (T12)	07:56		08:55 (T12)
	20:55	87	08:39 (T10a)	20:15	113	19:39 (T11)	19:22			18:34	24	09:04 (T13)	17:05	60	09:46 (T12)	17:09	69	10:04 (T12)
28	06:22		07:12 (T10a)	06:53		07:26 (T10a)	07:24			07:58		08:40 (T13)	07:34		08:47 (T12)	07:57		08:57 (T12)
	20:54	87	08:39 (T10a)	20:14	109	19:39 (T11)	19:20			18:33	26	09:06 (T13)	17:05	61	09:48 (T12)	17:09	68	10:05 (T12)
29	06:23		07:12 (T10a)	06:54		07:28 (T10a)	07:26			07:59		08:38 (T13)	07:35		08:47 (T12)	07:57		08:57 (T12)
	20:54	87	08:39 (T10a)	20:12	104	19:38 (T11)	19:18			18:32	29	09:07 (T13)	17:04	62	09:49 (T12)	17:10	68	10:05 (T12)
30	06:24		07:12 (T10a)	06:55		07:30 (T10a)	07:27			08:00		08:37 (T13)	07:36		08:47 (T12)	07:57		08:57 (T12)
	20:53	88	08:40 (T10a)	20:11	100	19:38 (T11)	19:16			18:30	31	09:08 (T13)	17:04	62	09:49 (T12)	17:11	68	10:05 (T12)
31	06:25		07:12 (T10a)	06:56		07:32 (T10a)				08:01		08:36 (T13)				07:57		08:58 (T12)
	20:51	88	08:40 (T10a)	20:09	95	19:38 (T11)				18:29	33	09:09 (T13)				17:12	67	10:05 (T12)
Potential sun hours	460			429			375			345			297			287		
Total, worst case		2545			3324			772			181			1673			2083	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.66			0.65			0.62			0.53			0.53			0.53	
Total reduction		0.43			0.39			0.35			0.25			0.15			0.11	
Total, real		1087			1281			274			45			259			236	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1179 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1737)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February	March			April			May			June		
1	07:57		08:35 (T71a)	07:43	07:07			07:16		18:19 (T69)	06:30		06:50 (T67)	06:02		07:01 (T68)
	17:13	53	09:28 (T71a)	17:48	18:22			19:56	68	19:27 (T69)	20:27	135	19:18 (T69)	20:57	59	08:00 (T68)
2	07:57		08:35 (T71a)	07:42	07:06			07:15		18:19 (T69)	06:29		06:49 (T67)	06:01		07:02 (T68)
	17:14	53	09:28 (T71a)	17:49	18:23			19:57	69	19:28 (T69)	20:28	135	19:17 (T69)	20:57	58	08:00 (T68)
3	07:57		08:36 (T71a)	07:41	07:04			07:13		18:18 (T69)	06:28		06:49 (T67)	06:01		07:03 (T68)
	17:15	53	09:29 (T71a)	17:50	18:24			19:58	71	19:29 (T69)	20:29	133	19:16 (T69)	20:58	57	08:00 (T68)
4	07:57		08:36 (T71a)	07:40	07:02			07:11		18:16 (T69)	06:27		06:48 (T67)	06:01		07:02 (T68)
	17:16	53	09:29 (T71a)	17:51	18:25			19:59	73	19:29 (T69)	20:30	131	19:14 (T69)	20:59	57	07:59 (T68)
5	07:57		08:37 (T71a)	07:39	07:01			07:10		18:16 (T69)	06:25		06:48 (T67)	06:00		07:03 (T68)
	17:17	52	09:29 (T71a)	17:53	18:26			20:00	73	19:29 (T69)	20:31	128	19:13 (T69)	20:59	56	07:59 (T68)
6	07:57		08:38 (T71a)	07:38	06:59			07:08		18:15 (T69)	06:24		06:49 (T67)	06:00		07:04 (T68)
	17:18	52	09:30 (T71a)	17:54	18:28			20:00	74	19:29 (T69)	20:32	126	19:12 (T69)	21:00	55	07:59 (T68)
7	07:57		08:38 (T71a)	07:37	06:58			07:06		18:14 (T69)	06:23		06:50 (T67)	06:00		07:05 (T68)
	17:19	52	09:30 (T71a)	17:55	18:29			20:01	75	19:29 (T69)	20:33	123	19:11 (T69)	21:01	54	07:59 (T68)
8	07:57		08:39 (T71a)	07:36	07:56			07:05		18:14 (T69)	06:22		06:50 (T67)	05:59		07:04 (T68)
	17:20	52	09:31 (T71a)	17:57	19:30			20:02	76	19:30 (T69)	20:34	120	19:10 (T69)	21:01	54	07:58 (T68)
9	07:57		08:40 (T71a)	07:35	07:54			07:03		18:13 (T69)	06:21		06:51 (T67)	05:59		07:05 (T68)
	17:21	51	09:31 (T71a)	17:58	19:31			20:03	76	19:29 (T69)	20:35	115	19:08 (T69)	21:02	53	07:58 (T68)
10	07:57		08:40 (T71a)	07:33	07:53			07:02		18:12 (T69)	06:20		06:52 (T67)	05:59		07:06 (T68)
	17:22	50	09:30 (T71a)	17:59	19:32			20:04	77	19:29 (T69)	20:36	112	19:07 (T69)	21:03	52	07:58 (T68)
11	07:56		08:41 (T71a)	07:32	07:51			07:00		18:12 (T69)	06:18		06:53 (T67)	05:59		07:06 (T68)
	17:23	50	09:31 (T71a)	18:00	19:33			20:06	78	19:30 (T69)	20:37	107	19:05 (T69)	21:03	52	07:58 (T68)
12	07:56		08:42 (T71a)	07:31	07:50			06:58		18:12 (T69)	06:17		06:54 (T67)	05:59		07:07 (T68)
	17:24	49	09:31 (T71a)	18:01	19:34			20:07	77	19:29 (T69)	20:38	102	19:03 (T69)	21:04	52	07:59 (T68)
13	07:56		08:42 (T71a)	07:30	07:48			06:57		07:32 (T68)	06:16		06:55 (T68)	05:59		07:07 (T68)
	17:25	49	09:31 (T71a)	18:03	19:35			20:08	85	19:29 (T69)	20:39	94	19:00 (T69)	21:04	52	07:59 (T68)
14	07:55		08:43 (T71a)	07:28	07:46			06:55		07:24 (T68)	06:15		06:55 (T68)	05:59		07:08 (T68)
	17:26	48	09:31 (T71a)	18:04	19:37			20:09	100	19:29 (T69)	20:40	88	18:57 (T69)	21:05	51	07:59 (T68)
15	07:55		08:43 (T71a)	07:27	07:45			06:54		07:21 (T68)	06:14		06:55 (T68)	05:59		07:08 (T68)
	17:27	48	09:31 (T71a)	18:05	19:38			20:10	106	19:29 (T69)	20:41	76	18:51 (T69)	21:05	51	07:59 (T68)
16	07:55		08:44 (T71a)	07:26	07:43			06:52		07:17 (T68)	06:13		06:55 (T68)	05:59		07:08 (T68)
	17:28	47	09:31 (T71a)	18:06	19:39			20:11	112	19:28 (T69)	20:42	70	08:05 (T68)	21:06	51	07:59 (T68)
17	07:54		08:45 (T71a)	07:25	07:41			06:51		07:15 (T68)	06:12		06:56 (T68)	05:59		07:09 (T68)
	17:30	45	09:30 (T71a)	18:08	19:40			20:12	116	19:28 (T69)	20:43	68	08:04 (T68)	21:06	50	07:59 (T68)
18	07:54		08:46 (T71a)	07:23	07:40			06:49		07:12 (T68)	06:11		06:56 (T68)	05:59		07:09 (T68)
	17:31	45	09:31 (T71a)	18:09	19:41			20:13	120	19:27 (T69)	20:44	68	08:04 (T68)	21:06	50	07:59 (T68)
19	07:53		08:47 (T71a)	07:22	07:38			06:47		07:07 (T67)	06:11		06:56 (T68)	05:59		07:09 (T68)
	17:32	43	09:30 (T71a)	18:10	19:42			20:14	126	19:27 (T69)	20:45	67	08:03 (T68)	21:07	50	07:59 (T68)
20	07:53		08:48 (T71a)	07:20	07:36		18:49 (T69)	06:46		07:05 (T67)	06:10		06:57 (T68)	05:59		07:09 (T68)
	17:33	42	09:30 (T71a)	18:11	19:43	15	19:04 (T69)	20:15	128	19:26 (T69)	20:46	67	08:04 (T68)	21:07	50	07:59 (T68)
21	07:52		08:49 (T71a)	07:19	07:35		18:44 (T69)	06:44		07:04 (T67)	06:09		06:57 (T68)	05:59		07:10 (T68)
	17:34	40	09:29 (T71a)	18:12	19:44	27	19:11 (T69)	20:16	130	19:26 (T69)	20:47	66	08:03 (T68)	21:07	50	08:00 (T68)
22	07:51		08:50 (T71a)	07:18	07:33		18:39 (T69)	06:43		07:02 (T67)	06:08		06:57 (T68)	05:59		07:10 (T68)
	17:35	38	09:28 (T71a)	18:14	19:45	35	19:14 (T69)	20:17	132	19:25 (T69)	20:48	66	08:03 (T68)	21:07	50	08:00 (T68)
23	07:51		08:52 (T71a)	07:16	07:31		18:36 (T69)	06:42		07:01 (T67)	06:07		06:57 (T68)	06:00		07:10 (T68)
	17:37	36	09:28 (T71a)	18:15	19:46	40	19:16 (T69)	20:18	133	19:25 (T69)	20:49	65	08:02 (T68)	21:08	50	08:00 (T68)
24	07:50		08:53 (T71a)	07:15	07:30		18:34 (T69)	06:40		06:59 (T67)	06:07		06:58 (T68)	06:00		07:10 (T68)
	17:38	34	09:27 (T71a)	18:16	19:47	45	19:19 (T69)	20:19	134	19:24 (T69)	20:50	65	08:03 (T68)	21:08	50	08:00 (T68)
25	07:49		08:54 (T71a)	07:13	07:28		18:31 (T69)	06:39		06:58 (T67)	06:06		06:58 (T68)	06:00		07:11 (T68)
	17:39	32	09:26 (T71a)	18:17	19:48	49	19:20 (T69)	20:20	134	19:23 (T69)	20:51	64	08:02 (T68)	21:08	50	08:01 (T68)
26	07:48		08:56 (T71a)	07:12	07:26		18:29 (T69)	06:37		06:57 (T67)	06:05		06:58 (T68)	06:00		07:10 (T68)
	17:40	28	09:24 (T71a)	18:18	19:50	52	19:21 (T69)	20:21	136	19:23 (T69)	20:52	63	08:01 (T68)	21:08	51	08:01 (T68)
27	07:48		08:57 (T71a)	07:10	07:25		18:27 (T69)	06:36		06:55 (T67)	06:05		06:59 (T68)	06:01		07:10 (T68)
	17:42	26	09:23 (T71a)	18:20	19:51	56	19:23 (T69)	20:23	137	19:22 (T69)	20:52	63	08:02 (T68)	21:08	51	08:01 (T68)
28	07:47		09:00 (T71a)	07:09	07:23		18:25 (T69)	06:35		06:54 (T67)	06:04		06:59 (T68)	06:01		07:11 (T68)
	17:43	20	09:20 (T71a)	18:21	19:52	59	19:24 (T69)	20:24	136	19:21 (T69)	20:53	62	08:01 (T68)	21:08	51	08:02 (T68)
29	07:46		09:03 (T71a)		07:21		18:23 (T69)	06:33		06:53 (T67)	06:03		07:00 (T68)	06:02		07:10 (T68)
	17:44	14	09:17 (T71a)		19:53	62	19:25 (T69)	20:25	136	19:20 (T69)	20:54	61	08:01 (T68)	21:08	52	08:02 (T68)
30	07:45				07:20		18:23 (T69)	06:32		06:51 (T67)	06:03		07:00 (T68)	06:02		07:11 (T68)
	17:45				19:54	63	19:26 (T69)	20:26	136	19:19 (T69)	20:55	60	08:00 (T68)	21:08	52	08:03 (T68)
31	07:44				07:18		18:21 (T69)				06:02		07:01 (T68)			
	17:46				19:55	66	19:27 (T69)				20:56	60	08:01 (T68)			
Potential sun hours	297			297	370			399			448			452		
Total, worst case		1255				569			3124			2760			1571	
Sun reduction		0.31				0.44			0.52			0.57			0.64	
Oper. time red.		1.00				1.00			1.00			1.00			1.00	
Wind dir. red.		0.53				0.63			0.64			0.66			0.67	
Total reduction		0.16				0.27			0.33			0.37			0.42	
Total, real		201				154			1023			1023			661	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1179 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1737)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October		November			December		
1	06:03		07:10 (T68)	06:27		07:03 (T67)	06:57		18:11 (T69)	07:28		07:02			07:37		08:23 (T71a)
	21:08	53	08:03 (T68)	20:50	103	19:13 (T69)	20:07	78	19:29 (T69)	19:15		17:28			17:04	50	09:13 (T71a)
2	06:03		07:11 (T68)	06:28		07:02 (T67)	06:58		18:11 (T69)	07:29		07:03			07:38		08:23 (T71a)
	21:08	52	08:03 (T68)	20:49	108	19:15 (T69)	20:05	77	19:28 (T69)	19:13		17:27			17:04	51	09:14 (T71a)
3	06:04		07:10 (T68)	06:29		07:01 (T67)	06:59		18:11 (T69)	07:30		07:04			07:39		08:23 (T71a)
	21:08	53	08:03 (T68)	20:48	113	19:17 (T69)	20:04	76	19:27 (T69)	19:11		17:26			17:04	51	09:14 (T71a)
4	06:04		07:11 (T68)	06:30		07:00 (T67)	07:00		18:11 (T69)	07:31		07:05			07:40		08:23 (T71a)
	21:08	53	08:04 (T68)	20:47	116	19:18 (T69)	20:02	76	19:27 (T69)	19:10		17:25			17:03	52	09:15 (T71a)
5	06:05		07:10 (T68)	06:31		07:00 (T67)	07:01		18:11 (T69)	07:32		07:07			07:41		08:23 (T71a)
	21:08	54	08:04 (T68)	20:45	120	19:20 (T69)	20:01	75	19:26 (T69)	19:08		17:23			17:03	52	09:15 (T71a)
6	06:05		07:10 (T68)	06:31		06:59 (T67)	07:02		18:11 (T69)	07:33		07:08			07:42		08:24 (T71a)
	21:07	55	08:05 (T68)	20:44	123	19:21 (T69)	19:57	74	19:25 (T69)	19:07		17:22			17:03	52	09:16 (T71a)
7	06:06		07:10 (T68)	06:32		06:58 (T67)	07:03		18:11 (T69)	07:34		07:09			07:43		08:24 (T71a)
	21:07	55	08:05 (T68)	20:43	127	19:22 (T69)	19:56	74	19:25 (T69)	19:05		17:21			17:03	52	09:16 (T71a)
8	06:07		07:10 (T68)	06:33		06:58 (T67)	07:04		18:11 (T69)	07:35		07:10			07:44		08:24 (T71a)
	21:07	56	08:06 (T68)	20:42	129	19:23 (T69)	19:54	73	19:24 (T69)	19:03		17:20			17:03	53	09:17 (T71a)
9	06:07		07:10 (T68)	06:34		06:58 (T67)	07:05		18:12 (T69)	07:36		07:11			07:44		08:25 (T71a)
	21:06	57	08:07 (T68)	20:41	131	19:24 (T69)	19:52	71	19:23 (T69)	19:02		17:19			17:03	53	09:18 (T71a)
10	06:08		07:09 (T68)	06:35		06:57 (T67)	07:06		18:12 (T69)	07:37		07:13			07:45		08:25 (T71a)
	21:06	58	08:07 (T68)	20:39	135	19:25 (T69)	19:51	70	19:22 (T69)	19:00		17:18			17:03	53	09:18 (T71a)
11	06:09		07:09 (T68)	06:36		06:58 (T67)	07:07		18:12 (T69)	07:38		07:14			07:46		08:26 (T71a)
	21:06	59	08:08 (T68)	20:38	135	19:26 (T69)	19:49	68	19:20 (T69)	18:58		17:17			17:03	53	09:19 (T71a)
12	06:09		07:09 (T68)	06:37		06:59 (T67)	07:08		18:12 (T69)	07:39		07:15			07:47		08:25 (T71a)
	21:05	60	08:09 (T68)	20:37	136	19:27 (T69)	19:47	66	19:18 (T69)	18:57		17:16			17:03	54	09:19 (T71a)
13	06:10		07:08 (T68)	06:38		07:00 (T67)	07:09		18:13 (T69)	07:40		07:16		08:35 (T71a)	07:48		08:26 (T71a)
	21:05	60	08:08 (T68)	20:35	136	19:28 (T69)	19:45	64	19:17 (T69)	18:55		17:15	14	08:49 (T71a)	17:03	53	09:19 (T71a)
14	06:11		07:08 (T68)	06:39		07:01 (T67)	07:10		18:13 (T69)	07:41		07:17		08:33 (T71a)	07:49		08:27 (T71a)
	21:04	61	08:09 (T68)	20:34	136	19:28 (T69)	19:44	62	19:15 (T69)	18:54		17:14	20	08:53 (T71a)	17:04	53	09:20 (T71a)
15	06:12		07:09 (T68)	06:40		07:02 (T67)	07:11		18:14 (T69)	07:42		07:19		08:30 (T71a)	07:49		08:27 (T71a)
	21:04	61	08:10 (T68)	20:33	136	19:29 (T69)	19:42	60	19:14 (T69)	18:52		17:13	26	08:56 (T71a)	17:04	54	09:21 (T71a)
16	06:12		07:09 (T68)	06:41		07:03 (T67)	07:12		18:15 (T69)	07:43		07:20		08:28 (T71a)	07:50		08:27 (T71a)
	21:03	62	08:11 (T68)	20:31	135	19:29 (T69)	19:40	57	19:12 (T69)	18:51		17:13	29	08:57 (T71a)	17:04	54	09:21 (T71a)
17	06:13		07:08 (T68)	06:42		07:04 (T67)	07:13		18:17 (T69)	07:45		07:21		08:27 (T71a)	07:51		08:28 (T71a)
	21:03	62	08:10 (T68)	20:30	135	19:30 (T69)	19:39	53	19:10 (T69)	18:49		17:12	32	08:59 (T71a)	17:04	53	09:21 (T71a)
18	06:14		07:08 (T68)	06:43		07:05 (T67)	07:14		18:18 (T69)	07:46		07:22		08:27 (T71a)	07:51		08:29 (T71a)
	21:02	63	08:11 (T68)	20:28	135	19:30 (T69)	19:37	50	19:08 (T69)	18:48		17:11	34	09:01 (T71a)	17:05	53	09:22 (T71a)
19	06:15		07:07 (T68)	06:44		07:06 (T67)	07:15		18:20 (T69)	07:47		07:23		08:26 (T71a)	07:52		08:29 (T71a)
	21:01	65	08:12 (T68)	20:27	135	19:31 (T69)	19:35	46	19:06 (T69)	18:46		17:10	36	09:02 (T71a)	17:05	53	09:22 (T71a)
20	06:16		07:07 (T68)	06:45		07:07 (T67)	07:16		18:22 (T69)	07:48		07:24		08:25 (T71a)	07:53		08:29 (T71a)
	21:01	65	08:12 (T68)	20:26	132	19:31 (T69)	19:34	41	19:03 (T69)	18:45		17:10	38	09:03 (T71a)	17:05	54	09:23 (T71a)
21	06:16		07:07 (T68)	06:46		07:08 (T67)	07:17		18:24 (T69)	07:49		07:26		08:24 (T71a)	07:53		08:29 (T71a)
	21:00	66	08:13 (T68)	20:24	131	19:31 (T69)	19:32	36	19:00 (T69)	18:43		17:09	40	09:04 (T71a)	17:06	54	09:23 (T71a)
22	06:17		07:07 (T68)	06:47		07:08 (T67)	07:18		18:27 (T69)	07:50		07:27		08:24 (T71a)	07:54		08:30 (T71a)
	20:59	67	08:14 (T68)	20:23	130	19:30 (T69)	19:30	29	18:56 (T69)	18:42		17:08	42	09:06 (T71a)	17:06	54	09:24 (T71a)
23	06:18		07:06 (T68)	06:48		07:09 (T67)	07:19		18:31 (T69)	07:51		07:28		08:24 (T71a)	07:54		08:30 (T71a)
	20:58	67	08:13 (T68)	20:21	128	19:30 (T69)	19:28	20	18:51 (T69)	18:40		17:08	43	09:07 (T71a)	17:07	54	09:24 (T71a)
24	06:19		07:06 (T68)	06:49		07:10 (T67)	07:20			07:52		07:29		08:23 (T71a)	07:55		08:32 (T71a)
	20:57	68	08:14 (T68)	20:20	125	19:30 (T69)	19:27			18:39		17:07	45	09:08 (T71a)	17:07	53	09:25 (T71a)
25	06:20		07:06 (T68)	06:50		07:15 (T68)	07:21			07:54		07:30		08:23 (T71a)	07:55		08:32 (T71a)
	20:57	68	08:14 (T68)	20:18	119	19:30 (T69)	19:25			18:37		17:06	45	09:08 (T71a)	17:08	53	09:25 (T71a)
26	06:21		07:06 (T68)	06:51		07:17 (T68)	07:22			07:55		07:31		08:22 (T71a)	07:55		08:32 (T71a)
	20:56	69	08:15 (T68)	20:17	115	19:30 (T69)	19:23			18:36		17:06	47	09:09 (T71a)	17:09	53	09:25 (T71a)
27	06:22		07:06 (T68)	06:52		07:19 (T68)	07:23			07:56		07:32		08:23 (T71a)	07:56		08:33 (T71a)
	20:55	69	08:15 (T68)	20:15	112	19:30 (T69)	19:22			18:35		17:06	48	09:11 (T71a)	17:09	54	09:27 (T71a)
28	06:23		07:06 (T68)	06:53		07:22 (T68)	07:24			07:57		07:34		08:23 (T71a)	07:56		08:33 (T71a)
	20:54	69	08:15 (T68)	20:13	106	19:30 (T69)	19:20			18:33		17:05	48	09:11 (T71a)	17:10	54	09:27 (T71a)
29	06:24		07:06 (T68)	06:54		07:25 (T68)	07:25			07:58		07:35		08:23 (T71a)	07:56		08:33 (T71a)
	20:53	82	19:05 (T69)	20:12	99	19:30 (T69)	19:18			18:32		17:05	49	09:12 (T71a)	17:11	54	09:27 (T71a)
30	06:25		07:06 (T68)	06:55		07:32 (T68)	07:26			07:59		07:36		08:23 (T71a)	07:56		08:34 (T71a)
	20:52	91	19:09 (T69)	20:10	84	19:29 (T69)	19:17			18:31		17:04	49	09:12 (T71a)	17:12	53	09:27 (T71a)
31	06:26		07:06 (T68)	06:56		18:12 (T69)				08:01					07:57		08:34 (T71a)
	20:51	96	19:12 (T69)	20:09	77	19:29 (T69)				18:29					17:12	53	09:27 (T71a)
Potential sun hours	459			428			375			345		298			288		
Total, worst case		1976			3782			1396					685			1642	
Sun reduction		0.66			0.61			0.59					0.30			0.22	
Oper. time red.		1.00			1.00			1.00					1.00			1.00	
Wind dir. red.		0.67			0.65			0.63					0.53			0.53	
Total reduction		0.43			0.39			0.36					0.16			0.11	
Total, real		856			1474			507					106			187	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:

2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1231 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1739)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March	April	May	June	July	August	September	October			November			December		
1	07:57		08:37 (T66a)	07:43		08:47 (T66a)	07:07	07:16	06:30	06:02	06:02	06:27	06:57	07:27			07:02		08:23 (T66a)	07:37		08:22 (T66a)
	17:13	112	16:40 (T68)	17:48	75	10:02 (T66a)	18:22	19:56	20:27	20:57	21:08	20:50	20:07	19:15			17:28	62	09:25 (T66a)	17:04	112	16:25 (T68)
2	07:57		08:37 (T66a)	07:42		08:48 (T66a)	07:06	07:15	06:29	06:01	06:03	06:27	06:58	07:28			07:03		08:22 (T66a)	07:38		08:22 (T66a)
	17:14	113	16:41 (T68)	17:49	73	10:01 (T66a)	18:23	19:57	20:28	20:57	21:08	20:49	20:05	19:13			17:27	63	09:25 (T66a)	17:04	113	16:26 (T68)
3	07:57		08:37 (T66a)	07:41		08:48 (T66a)	07:04	07:13	06:28	06:01	06:03	06:28	06:59	07:30			07:04		08:22 (T66a)	07:39		08:23 (T66a)
	17:15	113	16:41 (T68)	17:50	72	10:00 (T66a)	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:11			17:26	65	09:27 (T66a)	17:03	113	16:27 (T68)
4	07:57		08:38 (T66a)	07:40		08:48 (T66a)	07:02	07:11	06:27	06:00	06:04	06:29	07:00	07:31			07:05		08:21 (T66a)	07:40		08:23 (T66a)
	17:16	112	16:41 (T68)	17:51	72	10:00 (T66a)	18:25	19:59	20:30	20:59	21:08	20:47	20:02	19:10			17:25	67	09:28 (T66a)	17:03	113	16:27 (T68)
5	07:57		08:38 (T66a)	07:39		08:49 (T66a)	07:01	07:10	06:25	06:00	06:05	06:30	07:01	07:32			07:07		08:20 (T66a)	07:41		08:24 (T66a)
	17:17	113	16:42 (T68)	17:53	70	09:59 (T66a)	18:26	20:00	20:31	20:59	21:08	20:45	20:00	19:08			17:23	69	09:29 (T66a)	17:03	112	16:28 (T68)
6	07:57		08:39 (T66a)	07:38		08:50 (T66a)	06:59	07:08	06:24	06:00	06:05	06:31	07:02	07:33			07:08		08:19 (T66a)	07:42		08:25 (T66a)
	17:18	112	16:42 (T68)	17:54	69	09:59 (T66a)	18:28	20:00	20:32	21:00	21:07	20:44	19:57	19:06			17:22	70	09:29 (T66a)	17:03	112	16:28 (T68)
7	07:57		08:39 (T66a)	07:37		08:51 (T66a)	06:58	07:06	06:23	06:00	06:06	06:32	07:03	07:34			07:09		08:19 (T66a)	07:43		08:25 (T66a)
	17:19	112	16:43 (T68)	17:55	67	09:58 (T66a)	18:29	20:01	20:33	21:01	21:07	20:43	19:56	19:05			17:21	72	09:31 (T66a)	17:03	113	16:29 (T68)
8	07:57		08:39 (T66a)	07:36		08:52 (T66a)	07:56	07:05	06:22	05:59	06:06	06:33	07:04	07:35			07:10		08:18 (T66a)	07:44		08:26 (T66a)
	17:20	113	16:43 (T68)	17:56	65	09:57 (T66a)	19:30	20:02	20:34	21:01	21:07	20:42	19:54	19:03			17:20	73	09:31 (T66a)	17:03	111	16:29 (T68)
9	07:57		08:40 (T66a)	07:35		08:53 (T66a)	07:54	07:03	06:21	05:59	06:07	06:34	07:05	07:36			07:11		08:18 (T66a)	07:44		08:26 (T66a)
	17:21	113	16:44 (T68)	17:58	63	09:56 (T66a)	19:31	20:03	20:35	21:02	21:06	20:41	19:52	19:02			17:19	73	09:31 (T66a)	17:03	113	16:30 (T68)
10	07:57		08:39 (T66a)	07:33		08:53 (T66a)	07:53	07:01	06:19	05:59	06:08	06:35	07:06	07:37			07:13		08:18 (T66a)	07:45		08:27 (T66a)
	17:22	113	16:43 (T68)	17:59	62	09:55 (T66a)	19:32	20:04	20:36	21:03	21:06	20:39	19:50	19:00			17:18	75	09:33 (T66a)	17:03	113	16:31 (T68)
11	07:56		08:40 (T66a)	07:32		08:55 (T66a)	07:51	07:00	06:18	05:59	06:08	06:36	07:07	07:38			07:14		08:18 (T66a)	07:46		08:28 (T66a)
	17:23	112	16:43 (T68)	18:00	59	09:54 (T66a)	19:33	20:05	20:37	21:03	21:06	20:38	19:49	18:58			17:17	75	09:33 (T66a)	17:03	112	16:31 (T68)
12	07:56		08:41 (T66a)	07:31		08:56 (T66a)	07:50	06:58	06:17	05:59	06:09	06:37	07:08	07:39			07:15		08:17 (T66a)	07:47		08:28 (T66a)
	17:24	111	16:44 (T68)	18:01	57	09:53 (T66a)	19:34	20:07	20:38	21:04	21:05	20:37	19:47	18:57			17:16	76	09:33 (T66a)	17:03	111	16:31 (T68)
13	07:56		08:40 (T66a)	07:30		08:57 (T66a)	07:48	06:57	06:16	05:59	06:10	06:38	07:09	07:40			07:16		08:17 (T66a)	07:48		08:28 (T66a)
	17:25	111	16:43 (T68)	18:03	54	09:51 (T66a)	19:35	20:08	20:39	21:04	21:05	20:35	19:45	18:55			17:15	77	09:34 (T66a)	17:03	113	16:32 (T68)
14	07:55		08:41 (T66a)	07:28		08:58 (T66a)	07:46	06:55	06:15	05:58	06:11	06:39	07:10	07:41			07:17		08:18 (T66a)	07:48		08:29 (T66a)
	17:26	110	16:44 (T68)	18:04	51	09:49 (T66a)	19:36	20:09	20:40	21:05	21:04	20:34	19:44	18:54			17:14	77	09:35 (T66a)	17:03	111	16:32 (T68)
15	07:55		08:41 (T66a)	07:27		09:00 (T66a)	07:45	06:54	06:14	05:58	06:11	06:40	07:11	07:42			07:18		08:17 (T66a)	07:49		08:30 (T66a)
	17:27	109	16:43 (T68)	18:05	47	09:47 (T66a)	19:38	20:10	20:41	21:05	21:04	20:33	19:42	18:52			17:13	78	09:35 (T66a)	17:04	111	16:33 (T68)
16	07:55		08:41 (T66a)	07:26		09:02 (T66a)	07:43	06:52	06:13	05:58	06:12	06:41	07:12	07:43			07:20		08:17 (T66a)	07:50		08:30 (T66a)
	17:28	109	16:43 (T68)	18:06	44	09:46 (T66a)	19:39	20:11	20:42	21:06	21:03	20:31	19:40	18:51			17:12	78	09:35 (T66a)	17:04	112	16:33 (T68)
17	07:54		08:41 (T66a)	07:24		09:03 (T66a)	07:41	06:50	06:12	05:59	06:13	06:42	07:13	07:45			07:21		08:17 (T66a)	07:51		08:31 (T66a)
	17:29	107	16:42 (T68)	18:08	40	09:43 (T66a)	19:40	20:12	20:43	21:06	21:02	20:30	19:39	18:49			17:12	78	09:35 (T66a)	17:04	111	16:34 (T68)
18	07:54		08:42 (T66a)	07:23		09:06 (T66a)	07:40	06:49	06:11	05:59	06:14	06:43	07:14	07:46			07:22		08:18 (T66a)	07:51		08:32 (T66a)
	17:31	105	16:42 (T68)	18:09	34	09:40 (T66a)	19:41	20:13	20:44	21:06	21:02	20:28	19:37	18:47			17:11	78	09:36 (T66a)	17:05	111	16:35 (T68)
19	07:53		08:42 (T66a)	07:22		09:09 (T66a)	07:38	06:47	06:11	05:59	06:15	06:44	07:15	07:47			07:23		08:18 (T66a)	07:52		08:32 (T66a)
	17:32	103	16:41 (T68)	18:10	27	09:36 (T66a)	19:42	20:14	20:45	21:07	21:01	20:27	19:35	18:46			17:10	90	16:11 (T68)	17:05	111	16:35 (T68)
20	07:53		08:43 (T66a)	07:20		09:13 (T66a)	07:36	06:46	06:10	05:59	06:16	06:45	07:16	07:48			07:24		08:18 (T66a)	07:52		08:33 (T66a)
	17:33	101	16:41 (T68)	18:11	19	09:32 (T66a)	19:43	20:15	20:46	21:07	21:00	20:26	19:33	18:45			17:09	95	16:13 (T68)	17:05	110	16:35 (T68)
21	07:52		08:43 (T66a)	07:19			07:35	06:44	06:09	05:59	06:16	06:46	07:17	07:49		09:48 (T66a)	07:26		08:18 (T66a)	07:53		08:33 (T66a)
	17:34	99	16:40 (T68)	18:12			19:44	20:16	20:47	21:07	21:00	20:24	19:32	18:43	8	09:56 (T66a)	17:09	99	16:15 (T68)	17:06	110	16:35 (T68)
22	07:51		08:43 (T66a)	07:17			07:33	06:43	06:08	05:59	06:17	06:47	07:18	07:50		09:42 (T66a)	07:27		08:19 (T66a)	07:54		08:34 (T66a)
	17:35	94	16:38 (T68)	18:14			19:45	20:17	20:48	21:07	20:59	20:23	19:30	18:42	22	10:04 (T66a)	17:08	101	16:17 (T68)	17:06	110	16:36 (T68)
23	07:51		08:43 (T66a)	07:16			07:31	06:41	06:07	05:59	06:18	06:48	07:19	07:51		09:38 (T66a)	07:28		08:19 (T66a)	07:54		08:34 (T66a)
	17:37	90	16:36 (T68)	18:15			19:46	20:18	20:49	21:08	20:58	20:21	19:28	18:40	30	10:08 (T66a)	17:08	103	16:18 (T68)	17:07	110	16:36 (T68)
24	07:50		08:44 (T66a)	07:15			07:30	06:40	06:07	06:00	06:19	06:49	07:20	07:52		09:35 (T66a)	07:29		08:19 (T66a)	07:54		08:35 (T66a)
	17:38	78	10:02 (T66a)	18:16			19:47	20:19	20:50	21:08	20:57	20:20	19:27	18:39	36	10:11 (T66a)	17:07	105	16:19 (T68)	17:07	110	16:37 (T68)
25	07:49		08:44 (T66a)	07:13			07:28	06:39	06:06	06:00	06:20	06:50	07:21	07:54		09:33 (T66a)	07:30		08:19 (T66a)	07:55		08:35 (T66a)
	17:39	78	10:02 (T66a)	18:17			19:48	20:20	20:51	21:08	20:57	20:18	19:25	18:37	40	10:13 (T66a)	17:06	107	16:20 (T68)	17:08	111	16:38 (T68)
26	07:48		08:44 (T66a)	07:12			07:26	06:37	06:05	06:00	06:21	06:51	07:22	07:55		09:31 (T66a)	07:31		08:19 (T66a)	07:55		08:35 (T66a)
	17:40	78	10:02 (T66a)	18:18			19:49	20:21	20:52	21:08	20:56	20:17	19:23	18:36	45	10:16 (T66a)	17:06	109	16:21 (T68)	17:09	111	16:38 (T68)
27	07:48		08:44 (T66a)	07:10			07:25	06:36	06:04	06:01	06:22	06:52	07:23	07:56		09:29 (T66a)	07:32		08:21 (T66a)	07:56		08:36 (T66a)
	17:41	78	10:02 (T66a)	18:19			19:51	20:22	20:52	21:08	20:55	20:15	19:22	18:35	49	10:18 (T66a)	17:05	109	16:23 (T68)	17:09	112	16:39 (T68)
28	07:47		08:45 (T66a)	07:09			07:23	06:34	06:04	06:01	06:23	06:53	07:24	07:57		09:28 (T66a)	07:33		08:21 (T66a)	07:56		08:36 (T66a)
	17:43	77	10:02 (T66a)	18:21			19:52	20:24	20:53	21:08	20:54	20:13	19:20	18:33	51	10:19 (T66a)	17:05	110	16:24 (T68)	17:10	112	16:39 (T68)
29	07:46		08:45 (T66a)				07:21	06:33	06:03	06:02	06:24	06:54	07:25	07:58		09:26 (T66a)	07:35		08:21 (T66a)	07:56		08:36 (T66a)
	17:44	77	10:02 (T66a)				19:53	20:25	20:54	21:08	20:53	20:12	19:18	18:32	54	10:20 (T66a)	17:05	111	16:24 (T68)	17:11	111	16:39 (T68)
30	07:45		08:46 (T66a)				07:20	06:32	06:03	06:02	06:25	06:55	07:26	07:59		09:25 (T66a)	07:36		08:22 (T66a)	07:56		08:36 (T66a)
	17:45	76	10:02 (T66a)				19:54	20:26	20:55	21:08	20:52	20:10	19:16	18:31	58	10:23 (T66a)	17:04	111	16:25 (T68)	17:11	113	16:40 (T68)
31	07:44		08:47 (T66a)				07:18		06:02		06:26	06:56		08:01		09:24 (T66a)				07:57		08:37 (T66a)
	17:46	75	10:02 (T66a)				19:55		20:56		20:51	20:09		18:29	60	10:24 (T66a)				17:12	112	16:40 (T68)
Potential sun hours	297			297			370	399	448	452	459	428	375	345			298			288		
Total, worst case		3104			1120										453			2556			3460	
Sun reduction		0.31			0.40										0.48			0.30			0.22	
Oper. time red.		1.00			1.00										1.00			1.00			1.00	
Wind dir. red.		0.58			0.53										0.53			0.55			0.60	
Total reduction		0.18			0.21										0.26			0.17			0.13	
Total, real		559			239										116			428			459	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1237 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1740)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June
1	07:58			07:44		16:27 (T13)	07:07		16:33 (T13)	07:16			06:30		19:32 (T10a)	06:01
	17:13			17:47	52	17:19 (T13)	18:22	65	18:00 (T12)	19:56			20:27	33	20:05 (T10a)	20:57
2	07:58			07:43		16:27 (T13)	07:06		16:34 (T13)	07:14			06:29		19:31 (T10a)	06:01
	17:14			17:48	53	17:20 (T13)	18:23	64	18:01 (T12)	19:57			20:28	34	20:05 (T10a)	20:58
3	07:58			07:42		16:26 (T13)	07:04		16:36 (T13)	07:13			06:27		19:31 (T10a)	06:00
	17:14			17:50	55	17:21 (T13)	18:24	64	18:03 (T12)	19:58			20:29	36	20:07 (T10a)	20:59
4	07:58			07:41		16:26 (T13)	07:03		16:38 (T13)	07:11			06:26		19:31 (T10a)	06:00
	17:15			17:51	56	17:22 (T13)	18:25	60	18:03 (T12)	19:59			20:30	37	20:08 (T10a)	20:59
5	07:58			07:40		16:25 (T13)	07:01		16:40 (T13)	07:09			06:25		19:31 (T10a)	05:59
	17:16			17:52	58	17:23 (T13)	18:26	57	18:04 (T12)	20:00			20:31	37	20:08 (T10a)	21:00
6	07:58			07:38		16:25 (T13)	06:59		16:44 (T13)	07:08			06:24		19:31 (T10a)	05:59
	17:17			17:54	58	17:23 (T13)	18:27	52	18:06 (T12)	20:00			20:33	37	20:08 (T10a)	21:01
7	07:58			07:37		16:24 (T13)	06:58		16:51 (T13)	07:06			06:22		19:32 (T10a)	05:59
	17:18			17:55	59	17:23 (T13)	18:29	39	18:07 (T12)	20:01			20:34	36	20:08 (T10a)	21:01
8	07:58			07:36		16:24 (T13)	07:56		18:33 (T12)	07:05			06:21		19:31 (T10a)	05:59
	17:19			17:56	60	17:24 (T13)	19:30	34	19:07 (T12)	20:03			20:35	35	20:06 (T10a)	21:02
9	07:57			07:35		16:24 (T13)	07:55		18:33 (T12)	07:03			06:20		19:31 (T10a)	05:58
	17:20			17:57	61	17:25 (T13)	19:31	35	19:08 (T12)	20:04			20:36	35	20:06 (T10a)	21:03
10	07:57			07:34		16:24 (T13)	07:53		18:33 (T12)	07:01			06:19		19:32 (T10a)	05:58
	17:21			17:59	61	17:25 (T13)	19:32	34	19:07 (T12)	20:05			20:37	34	20:06 (T10a)	21:03
11	07:57			07:33		16:24 (T13)	07:51		18:34 (T12)	07:00			06:18		19:32 (T10a)	05:58
	17:22			18:00	62	17:26 (T13)	19:33	33	19:07 (T12)	20:06			20:38	33	20:05 (T10a)	21:04
12	07:57			07:31		16:23 (T13)	07:50		18:34 (T12)	06:58			06:17		19:33 (T10a)	05:58
	17:23			18:01	62	17:25 (T13)	19:34	32	19:06 (T12)	20:07			20:39	32	20:05 (T10a)	21:04
13	07:56			07:30		16:23 (T13)	07:48		18:34 (T12)	06:56			06:16		19:33 (T10a)	05:58
	17:24			18:02	63	17:26 (T13)	19:35	30	19:04 (T12)	20:08			20:40	31	20:04 (T10a)	21:05
14	07:56			07:29		16:24 (T13)	07:46		18:35 (T12)	06:55			06:15		19:34 (T10a)	05:58
	17:26			18:04	62	17:26 (T13)	19:36	29	19:04 (T12)	20:09			20:41	29	20:03 (T10a)	21:05
15	07:56			07:27		16:23 (T13)	07:45		18:36 (T12)	06:53			06:14		19:35 (T10a)	05:58
	17:27			18:05	62	17:25 (T13)	19:38	26	19:02 (T12)	20:10			20:42	27	20:02 (T10a)	21:06
16	07:55			07:26		16:24 (T13)	07:43		18:37 (T12)	06:52			06:13		19:36 (T10a)	05:58
	17:28			18:06	62	17:26 (T13)	19:39	23	19:00 (T12)	20:11			20:43	25	20:01 (T10a)	21:06
17	07:55			07:25		16:24 (T13)	07:41		18:39 (T12)	06:50			06:12		19:37 (T10a)	05:58
	17:29			18:07	62	17:26 (T13)	19:40	18	18:57 (T12)	20:12			20:44	23	20:00 (T10a)	21:07
18	07:54			07:23		16:24 (T13)	07:40		18:42 (T12)	06:49			06:11		19:39 (T10a)	05:58
	17:30			18:08	61	17:25 (T13)	19:41	13	18:55 (T12)	20:13			20:45	21	20:00 (T10a)	21:07
19	07:54		16:46 (T13)	07:22		16:25 (T13)	07:38			06:47			06:10		19:40 (T10a)	05:58
	17:31	8	16:54 (T13)	18:10	60	17:25 (T13)	19:42			20:14			20:46	18	19:58 (T10a)	21:07
20	07:53		16:42 (T13)	07:21		16:24 (T13)	07:36			06:46		19:51 (T10a)	06:09		19:42 (T10a)	05:58
	17:32	17	16:59 (T13)	18:11	60	17:24 (T13)	19:43			20:15	2	19:53 (T10a)	20:47	14	19:56 (T10a)	21:08
21	07:53		16:40 (T13)	07:19		16:25 (T13)	07:35			06:44		19:44 (T10a)	06:08		19:44 (T10a)	05:58
	17:34	22	17:02 (T13)	18:12	59	17:24 (T13)	19:44			20:16	10	19:54 (T10a)	20:48	10	19:54 (T10a)	21:08
22	07:52		16:38 (T13)	07:18		16:25 (T13)	07:33			06:43		19:42 (T10a)	06:07			05:59
	17:35	26	17:04 (T13)	18:13	58	17:23 (T13)	19:45			20:18	14	19:56 (T10a)	20:49			21:08
23	07:51		16:36 (T13)	07:16		16:26 (T13)	07:31			06:41		19:40 (T10a)	06:07			05:59
	17:36	30	17:06 (T13)	18:15	57	17:23 (T13)	19:46			20:19	17	19:57 (T10a)	20:50			21:08
24	07:50		16:34 (T13)	07:15		16:27 (T13)	07:30			06:40		19:38 (T10a)	06:06			05:59
	17:37	34	17:08 (T13)	18:16	54	17:21 (T13)	19:47			20:20	20	19:58 (T10a)	20:50			21:09
25	07:50		16:34 (T13)	07:13		16:28 (T13)	07:28			06:38		19:37 (T10a)	06:05			05:59
	17:38	37	17:11 (T13)	18:17	60	17:55 (T12)	19:48			20:21	22	19:59 (T10a)	20:51			21:09
26	07:49		16:32 (T13)	07:12		16:28 (T13)	07:26			06:37		19:35 (T10a)	06:05			06:00
	17:40	40	17:12 (T13)	18:18	64	17:56 (T12)	19:50			20:22	25	20:00 (T10a)	20:52			21:09
27	07:48		16:31 (T13)	07:10		16:30 (T13)	07:24			06:35		19:34 (T10a)	06:04			06:00
	17:41	42	17:13 (T13)	18:19	64	17:57 (T12)	19:51			20:23	27	20:01 (T10a)	20:53			21:09
28	07:47		16:30 (T13)	07:09		16:31 (T13)	07:23			06:34		19:34 (T10a)	06:03			06:00
	17:42	45	17:15 (T13)	18:20	65	17:58 (T12)	19:52			20:24	28	20:02 (T10a)	20:54			21:09
29	07:46		16:29 (T13)				07:21			06:33		19:32 (T10a)	06:03			06:01
	17:43	47	17:16 (T13)				19:53			20:25	31	20:03 (T10a)	20:55			21:09
30	07:46		16:28 (T13)				07:19			06:31		19:32 (T10a)	06:02			06:01
	17:45	49	17:17 (T13)				19:54			20:26	32	20:04 (T10a)	20:56			21:09
31	07:45		16:28 (T13)				07:18						06:02			
	17:46	50	17:18 (T13)				19:55						20:56			
Potential sun hours	297			297			370			399			449			453
Total, worst case		447			1670			708			228			617		
Sun reduction		0.31			0.40			0.44			0.52			0.57		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.72			0.72			0.68			0.57			0.57		
Total reduction		0.23			0.29			0.31			0.30			0.33		
Total, real		102			490			217			69			203		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1237 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1740)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December
1	06:02			06:26		19:43 (T10a)	06:57			07:28		18:13 (T12)	07:02		15:54 (T13)	07:37
	21:09			20:50	32	20:15 (T10a)	20:07			19:15	31	18:44 (T12)	17:28	61	16:55 (T13)	17:03
2	06:02			06:27		19:43 (T10a)	06:58			07:29		18:12 (T12)	07:03		15:54 (T13)	07:38
	21:09			20:49	33	20:16 (T10a)	20:06			19:13	32	18:44 (T12)	17:27	60	16:54 (T13)	17:03
3	06:03			06:28		19:42 (T10a)	06:59			07:30		18:12 (T12)	07:05		15:54 (T13)	07:39
	21:09			20:48	34	20:16 (T10a)	20:04			19:11	33	18:45 (T12)	17:25	60	16:54 (T13)	17:03
4	06:03			06:29		19:42 (T10a)	07:00			07:31		18:11 (T12)	07:06		15:54 (T13)	07:40
	21:08			20:47	35	20:17 (T10a)	20:02			19:10	34	18:45 (T12)	17:24	59	16:53 (T13)	17:03
5	06:04			06:30		19:41 (T10a)	07:01			07:32		18:10 (T12)	07:07		15:55 (T13)	07:41
	21:08			20:46	36	20:17 (T10a)	20:01			19:08	35	18:45 (T12)	17:23	58	16:53 (T13)	17:03
6	06:05			06:31		19:41 (T10a)	07:02			07:33		18:10 (T12)	07:08		15:55 (T13)	07:42
	21:08			20:45	36	20:17 (T10a)	19:57			19:06	34	18:44 (T12)	17:22	57	16:52 (T13)	17:02
7	06:05			06:32		19:41 (T10a)	07:03			07:34		17:22 (T13)	07:09		15:56 (T13)	07:43
	21:08			20:43	36	20:17 (T10a)	19:56			19:05	47	18:42 (T12)	17:21	56	16:52 (T13)	17:02
8	06:06			06:33		19:41 (T10a)	07:04			07:35		17:17 (T13)	07:11		15:57 (T13)	07:44
	21:07			20:42	36	20:17 (T10a)	19:54			19:03	55	18:41 (T12)	17:20	55	16:52 (T13)	17:02
9	06:06			06:34		19:41 (T10a)	07:05			07:36		17:14 (T13)	07:12		15:57 (T13)	07:45
	21:07			20:41	36	20:17 (T10a)	19:52			19:01	58	18:39 (T12)	17:19	54	16:51 (T13)	17:02
10	06:07			06:35		19:41 (T10a)	07:06			07:37		17:11 (T13)	07:13		15:58 (T13)	07:46
	21:07			20:40	35	20:16 (T10a)	19:51			19:00	61	18:37 (T12)	17:18	52	16:50 (T13)	17:02
11	06:08			06:36		19:41 (T10a)	07:07			07:38		17:08 (T13)	07:14		15:59 (T13)	07:47
	21:06			20:38	34	20:15 (T10a)	19:49			18:58	64	18:35 (T12)	17:17	50	16:49 (T13)	17:02
12	06:09			06:37		19:40 (T10a)	07:08			07:39		17:06 (T13)	07:15		16:00 (T13)	07:48
	21:06			20:37	33	20:13 (T10a)	19:47			18:57	65	18:34 (T12)	17:16	49	16:49 (T13)	17:02
13	06:09			06:38		19:40 (T10a)	07:09			07:40		17:05 (T13)	07:17		16:01 (T13)	07:48
	21:05			20:36	31	20:11 (T10a)	19:46			18:55	66	18:33 (T12)	17:15	47	16:48 (T13)	17:03
14	06:10			06:39		19:40 (T10a)	07:10			07:41		17:03 (T13)	07:18		16:02 (T13)	07:49
	21:05			20:34	30	20:10 (T10a)	19:44			18:53	66	18:31 (T12)	17:14	45	16:47 (T13)	17:03
15	06:11			06:40		19:41 (T10a)	07:11			07:43		17:02 (T13)	07:19		16:04 (T13)	07:50
	21:04			20:33	28	20:09 (T10a)	19:42			18:52	64	18:29 (T12)	17:13	42	16:46 (T13)	17:03
16	06:12			06:41		19:41 (T10a)	07:12			07:44		17:00 (T13)	07:20		16:05 (T13)	07:51
	21:04			20:32	26	20:07 (T10a)	19:40			18:50	63	18:28 (T12)	17:12	40	16:45 (T13)	17:03
17	06:12			06:42		19:42 (T10a)	07:13			07:45		16:59 (T13)	07:21		16:07 (T13)	07:51
	21:03			20:30	24	20:06 (T10a)	19:39			18:49	59	18:26 (T12)	17:11	37	16:44 (T13)	17:04
18	06:13			06:43		19:43 (T10a)	07:14			07:46		16:58 (T13)	07:23		16:08 (T13)	07:52
	21:03			20:29	22	20:05 (T10a)	19:37			18:47	55	17:53 (T13)	17:10	34	16:42 (T13)	17:04
19	06:14			06:44		19:44 (T10a)	07:15			07:47		16:57 (T13)	07:24		16:11 (T13)	07:53
	21:02			20:27	19	20:03 (T10a)	19:35			18:46	56	17:53 (T13)	17:10	30	16:41 (T13)	17:04
20	06:15			06:45		19:45 (T10a)	07:16			07:48		16:57 (T13)	07:25		16:13 (T13)	07:53
	21:01			20:26	17	20:02 (T10a)	19:34			18:44	58	17:55 (T13)	17:09	27	16:40 (T13)	17:05
21	06:16			06:46		19:47 (T10a)	07:17			07:49		16:56 (T13)	07:26		16:15 (T13)	07:54
	21:00			20:24	14	20:01 (T10a)	19:32			18:43	59	17:55 (T13)	17:08	22	16:37 (T13)	17:05
22	06:17		19:57 (T10a)	06:47		19:49 (T10a)	07:18			07:50		16:55 (T13)	07:27		16:18 (T13)	07:54
	21:00	5	20:02 (T10a)	20:23	10	19:59 (T10a)	19:30			18:41	60	17:55 (T13)	17:08	17	16:35 (T13)	17:06
23	06:18		19:53 (T10a)	06:48			07:19			07:52		16:54 (T13)	07:28		16:23 (T13)	07:55
	20:59	13	20:06 (T10a)	20:21			19:28			18:40	61	17:55 (T13)	17:07	8	16:31 (T13)	17:06
24	06:18		19:52 (T10a)	06:49			07:20			07:53		16:54 (T13)	07:30			07:55
	20:58	16	20:08 (T10a)	20:20			19:27			18:38	62	17:56 (T13)	17:06			17:07
25	06:19		19:50 (T10a)	06:50			07:21		18:26 (T12)	07:54		16:54 (T13)	07:31			07:56
	20:57	20	20:10 (T10a)	20:18			19:25	10	18:36 (T12)	18:37	61	17:55 (T13)	17:06			17:07
26	06:20		19:48 (T10a)	06:51			07:22		18:22 (T12)	07:55		16:53 (T13)	07:32			07:56
	20:56	22	20:10 (T10a)	20:17			19:23	17	18:39 (T12)	18:36	62	17:55 (T13)	17:05			17:08
27	06:21		19:47 (T10a)	06:52			07:23		18:19 (T12)	07:56		16:53 (T13)	07:33			07:56
	20:55	24	20:11 (T10a)	20:15			19:22	22	18:41 (T12)	18:34	62	17:55 (T13)	17:05			17:09
28	06:22		19:46 (T10a)	06:53			07:24		18:17 (T12)	07:57		16:52 (T13)	07:34			07:57
	20:54	26	20:12 (T10a)	20:14			19:20	25	18:42 (T12)	18:33	63	17:55 (T13)	17:04			17:09
29	06:23		19:45 (T10a)	06:54			07:25		18:15 (T12)	07:59		16:53 (T13)	07:35			07:57
	20:53	28	20:13 (T10a)	20:12			19:18	28	18:43 (T12)	18:32	62	17:55 (T13)	17:04			17:10
30	06:24		19:44 (T10a)	06:55			07:27		18:14 (T12)	08:00		16:53 (T13)	07:36			07:57
	20:52	30	20:14 (T10a)	20:11			19:16	30	18:44 (T12)	18:30	62	17:55 (T13)	17:04			17:11
31	06:25		19:44 (T10a)	06:56						08:01		16:53 (T13)				07:57
	20:51	31	20:15 (T10a)	20:09						18:29	61	17:54 (T13)				17:12
Potential sun hours	460			429			375			345			297			287
Total, worst case		215			637			132			1711			1020		
Sun reduction		0.66			0.61			0.59			0.48			0.30		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.57			0.57			0.67			0.71			0.72		
Total reduction		0.38			0.35			0.40			0.35			0.22		
Total, real		82			225			53			592			225		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1314 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1746)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June	
1	07:58			07:44		16:51 (T13)	07:07		16:43 (T13)	07:16			06:30		19:32 (T10a)	06:01	
	17:13			17:47	30	17:21 (T13)	18:22	61	18:00 (T12)	19:56			20:27	33	20:05 (T10a)	20:57	
2	07:58			07:43		16:49 (T13)	07:06		16:44 (T13)	07:14			06:29		19:31 (T10a)	06:01	
	17:14			17:48	34	17:23 (T13)	18:23	62	18:01 (T12)	19:57			20:28	34	20:05 (T10a)	20:58	
3	07:58			07:42		16:48 (T13)	07:04		16:45 (T13)	07:13			06:27		19:32 (T10a)	06:00	
	17:14			17:50	37	17:25 (T13)	18:24	63	18:03 (T12)	19:58			20:29	34	20:06 (T10a)	20:59	
4	07:58			07:41		16:47 (T13)	07:03		16:46 (T13)	07:11			06:26		19:32 (T10a)	06:00	
	17:15			17:51	39	17:26 (T13)	18:25	62	18:03 (T12)	19:59			20:30	34	20:06 (T10a)	20:59	
5	07:58			07:40		16:46 (T13)	07:01		16:47 (T13)	07:09			06:25		19:32 (T10a)	05:59	
	17:16			17:52	42	17:28 (T13)	18:26	61	18:04 (T12)	20:00			20:31	34	20:06 (T10a)	21:00	
6	07:58			07:38		16:45 (T13)	06:59		16:50 (T13)	07:08			06:24		19:33 (T10a)	05:59	
	17:17			17:54	44	17:29 (T13)	18:27	58	18:06 (T12)	20:00			20:33	32	20:05 (T10a)	21:01	
7	07:58			07:37		16:43 (T13)	06:58		16:52 (T13)	07:06			06:22		19:33 (T10a)	05:59	
	17:18			17:55	46	17:29 (T13)	18:29	55	18:07 (T12)	20:01			20:34	32	20:05 (T10a)	21:01	
8	07:58			07:36		16:43 (T13)	07:56		17:54 (T13)	07:05			06:21		19:33 (T10a)	05:59	
	17:19			17:56	47	17:30 (T13)	19:30	52	19:08 (T12)	20:02			20:35	30	20:03 (T10a)	21:02	
9	07:57			07:35		16:42 (T13)	07:55		17:59 (T13)	07:03			06:20		19:34 (T10a)	05:58	
	17:20			17:57	50	17:32 (T13)	19:31	44	19:09 (T12)	20:04			20:36	29	20:03 (T10a)	21:03	
10	07:57			07:34		16:42 (T13)	07:53		18:38 (T12)	07:01			06:19		19:34 (T10a)	05:58	
	17:21			17:59	51	17:33 (T13)	19:32	32	19:10 (T12)	20:05			20:37	28	20:02 (T10a)	21:03	
11	07:57			07:33		16:41 (T13)	07:51		18:38 (T12)	07:00			06:18		19:35 (T10a)	05:58	
	17:22			18:00	52	17:33 (T13)	19:33	32	19:10 (T12)	20:06			20:38	26	20:01 (T10a)	21:04	
12	07:57			07:31		16:40 (T13)	07:50		18:38 (T12)	06:58			06:17		19:36 (T10a)	05:58	
	17:23			18:01	53	17:33 (T13)	19:34	31	19:09 (T12)	20:07			20:39	24	20:00 (T10a)	21:04	
13	07:56			07:30		16:40 (T13)	07:48		18:38 (T12)	06:56			06:16		19:37 (T10a)	05:58	
	17:24			18:02	54	17:34 (T13)	19:35	30	19:08 (T12)	20:08			20:40	22	19:59 (T10a)	21:05	
14	07:56			07:29		16:40 (T13)	07:46		18:39 (T12)	06:55			06:15		19:39 (T10a)	05:58	
	17:25			18:04	55	17:35 (T13)	19:36	29	19:08 (T12)	20:09			20:41	19	19:58 (T10a)	21:05	
15	07:56			07:27		16:39 (T13)	07:45		18:40 (T12)	06:53			06:14		19:40 (T10a)	05:58	
	17:27			18:05	56	17:35 (T13)	19:38	26	19:06 (T12)	20:10			20:42	16	19:56 (T10a)	21:06	
16	07:55			07:26		16:39 (T13)	07:43		18:40 (T12)	06:52			06:13		19:42 (T10a)	05:58	
	17:28			18:06	56	17:35 (T13)	19:39	25	19:05 (T12)	20:11			20:43	12	19:54 (T10a)	21:06	
17	07:55			07:25		16:39 (T13)	07:41		18:41 (T12)	06:50			06:12		19:47 (T10a)	05:58	
	17:29			18:07	57	17:36 (T13)	19:40	21	19:02 (T12)	20:12			20:44	2	19:49 (T10a)	21:07	
18	07:54			07:23		16:39 (T13)	07:40		18:44 (T12)	06:49			06:11			05:58	
	17:30			18:08	56	17:35 (T13)	19:41	17	19:01 (T12)	20:13			20:45			21:07	
19	07:54			07:22		16:39 (T13)	07:38		18:47 (T12)	06:47		19:47 (T10a)	06:10			05:58	
	17:31			18:10	57	17:36 (T13)	19:42	10	18:57 (T12)	20:14	6	19:53 (T10a)	20:46			21:07	
20	07:53			07:21		16:39 (T13)	07:36			06:46		19:43 (T10a)	06:09			05:58	
	17:32			18:11	56	17:35 (T13)	19:43			20:15	11	19:54 (T10a)	20:47			21:08	
21	07:53			07:19		16:39 (T13)	07:35			06:44		19:40 (T10a)	06:08			05:58	
	17:34			18:12	56	17:35 (T13)	19:44			20:16	14	19:54 (T10a)	20:48			21:08	
22	07:52			07:18		16:39 (T13)	07:33			06:43		19:39 (T10a)	06:07			05:59	
	17:35			18:13	55	17:34 (T13)	19:45			20:18	17	19:56 (T10a)	20:49			21:08	
23	07:51			07:16		16:39 (T13)	07:31			06:41		19:38 (T10a)	06:07			05:59	
	17:36			18:15	55	17:34 (T13)	19:46			20:19	19	19:57 (T10a)	20:50			21:08	
24	07:50			07:15		16:39 (T13)	07:30			06:40		19:36 (T10a)	06:06			05:59	
	17:37			18:16	54	17:33 (T13)	19:47			20:20	22	19:58 (T10a)	20:50			21:09	
25	07:50			07:13		16:40 (T13)	07:28			06:38		19:35 (T10a)	06:05			05:59	
	17:38			18:17	53	17:33 (T13)	19:48			20:21	24	19:59 (T10a)	20:51			21:09	
26	07:49			07:12		16:40 (T13)	07:26			06:37		19:34 (T10a)	06:05			06:00	
	17:40			18:18	52	17:32 (T13)	19:50			20:22	26	20:00 (T10a)	20:52			21:09	
27	07:48			07:10		16:41 (T13)	07:24			06:35		19:34 (T10a)	06:04			06:00	
	17:41			18:19	56	17:57 (T12)	19:51			20:23	27	20:01 (T10a)	20:53			21:09	
28	07:47			07:09		16:42 (T13)	07:23			06:34		19:33 (T10a)	06:03			06:00	
	17:42			18:20	59	17:58 (T12)	19:52			20:24	29	20:02 (T10a)	20:54			21:09	
29	07:46		16:58 (T13)				07:21			06:33		19:32 (T10a)	06:03			06:01	
	17:43	14	17:12 (T13)				19:53			20:25	31	20:03 (T10a)	20:55			21:09	
30	07:46		16:55 (T13)				07:19			06:31		19:32 (T10a)	06:02			06:01	
	17:45	21	17:16 (T13)				19:54			20:26	32	20:04 (T10a)	20:56			21:09	
31	07:45		16:53 (T13)				07:18						06:02				
	17:46	26	17:19 (T13)				19:55						20:56				
Potential sun hours	297			297			370			399			449			453	
Total, worst case		61			1412			771			258			441			
Sun reduction		0.31			0.40			0.44			0.52			0.57			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.72			0.71			0.69			0.57			0.57			
Total reduction		0.22			0.29			0.31			0.30			0.33			
Total, real		14			409			236			77			145			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1314 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1746)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December
1	06:02			06:26		19:46 (T10a)	06:57			07:28		18:17 (T12)	07:02		16:12 (T13)	07:37
	21:09			20:50	25	20:11 (T10a)	20:07			19:15	31	18:48 (T12)	17:28	50	17:02 (T13)	17:03
2	06:02			06:27		19:45 (T10a)	06:58			07:29		18:16 (T12)	07:03		16:12 (T13)	07:38
	21:09			20:49	27	20:12 (T10a)	20:06			19:13	32	18:48 (T12)	17:27	49	17:01 (T13)	17:03
3	06:03			06:28		19:45 (T10a)	06:59			07:30		18:16 (T12)	07:05		16:12 (T13)	07:39
	21:09			20:48	28	20:13 (T10a)	20:04			19:11	33	18:49 (T12)	17:25	48	17:00 (T13)	17:03
4	06:03			06:29		19:44 (T10a)	07:00			07:31		17:42 (T13)	07:06		16:13 (T13)	07:40
	21:08			20:47	30	20:14 (T10a)	20:02			19:10	34	18:48 (T12)	17:24	46	16:59 (T13)	17:03
5	06:04			06:30		19:43 (T10a)	07:01			07:32		17:34 (T13)	07:07		16:15 (T13)	07:41
	21:08			20:46	31	20:14 (T10a)	20:01			19:08	49	18:46 (T12)	17:23	44	16:59 (T13)	17:03
6	06:05			06:31		19:43 (T10a)	07:02			07:33		17:30 (T13)	07:08		16:16 (T13)	07:42
	21:08			20:45	32	20:15 (T10a)	19:57			19:06	54	18:44 (T12)	17:22	41	16:57 (T13)	17:02
7	06:05			06:32		19:42 (T10a)	07:03			07:34		17:27 (T13)	07:09		16:17 (T13)	07:43
	21:08			20:43	33	20:15 (T10a)	19:56			19:05	57	18:42 (T12)	17:21	39	16:56 (T13)	17:02
8	06:06			06:33		19:42 (T10a)	07:04			07:35		17:24 (T13)	07:11		16:19 (T13)	07:44
	21:07			20:42	33	20:15 (T10a)	19:54			19:03	60	18:41 (T12)	17:20	36	16:55 (T13)	17:02
9	06:06			06:34		19:42 (T10a)	07:05			07:36		17:22 (T13)	07:12		16:20 (T13)	07:45
	21:07			20:41	33	20:15 (T10a)	19:52			19:01	61	18:39 (T12)	17:19	34	16:54 (T13)	17:02
10	06:07			06:35		19:41 (T10a)	07:06			07:37		17:20 (T13)	07:13		16:22 (T13)	07:46
	21:07			20:40	34	20:15 (T10a)	19:51			19:00	62	18:37 (T12)	17:18	30	16:52 (T13)	17:02
11	06:08			06:36		19:41 (T10a)	07:07			07:38		17:18 (T13)	07:14		16:24 (T13)	07:47
	21:06			20:38	34	20:15 (T10a)	19:49			18:58	62	18:35 (T12)	17:17	25	16:49 (T13)	17:02
12	06:09			06:37		19:40 (T10a)	07:08			07:39		17:16 (T13)	07:15		16:27 (T13)	07:48
	21:06			20:37	33	20:13 (T10a)	19:47			18:57	62	18:34 (T12)	17:16	21	16:48 (T13)	17:02
13	06:09			06:38		19:40 (T10a)	07:09			07:40		17:16 (T13)	07:17		16:30 (T13)	07:48
	21:05			20:36	31	20:11 (T10a)	19:46			18:55	61	18:33 (T12)	17:15	14	16:44 (T13)	17:03
14	06:10			06:39		19:40 (T10a)	07:10			07:41		17:15 (T13)	07:18			07:49
	21:05			20:34	30	20:10 (T10a)	19:44			18:53	58	18:31 (T12)	17:14			17:03
15	06:11			06:40		19:40 (T10a)	07:11			07:43		17:14 (T13)	07:19			07:50
	21:04			20:33	29	20:09 (T10a)	19:42			18:52	51	18:05 (T13)	17:13			17:03
16	06:12			06:41		19:40 (T10a)	07:12			07:44		17:12 (T13)	07:20			07:51
	21:04			20:32	27	20:07 (T10a)	19:40			18:50	53	18:05 (T13)	17:12			17:03
17	06:12			06:42		19:41 (T10a)	07:13			07:45		17:12 (T13)	07:21			07:51
	21:03			20:30	25	20:06 (T10a)	19:39			18:49	53	18:05 (T13)	17:11			17:04
18	06:13			06:43		19:41 (T10a)	07:14			07:46		17:11 (T13)	07:23			07:52
	21:03			20:29	24	20:05 (T10a)	19:37			18:47	54	18:05 (T13)	17:10			17:04
19	06:14			06:44		19:42 (T10a)	07:15			07:47		17:10 (T13)	07:24			07:53
	21:02			20:27	21	20:03 (T10a)	19:35			18:46	55	18:05 (T13)	17:10			17:04
20	06:15			06:45		19:43 (T10a)	07:16			07:48		17:10 (T13)	07:25			07:53
	21:01			20:26	19	20:02 (T10a)	19:34			18:44	56	18:06 (T13)	17:09			17:05
21	06:16			06:46		19:44 (T10a)	07:17			07:49		17:10 (T13)	07:26			07:54
	21:00			20:24	17	20:01 (T10a)	19:32			18:43	56	18:06 (T13)	17:08			17:05
22	06:17			06:47		19:45 (T10a)	07:18			07:50		17:09 (T13)	07:27			07:54
	21:00			20:23	14	19:59 (T10a)	19:30			18:41	56	18:05 (T13)	17:08			17:06
23	06:18			06:48		19:48 (T10a)	07:19			07:52		17:09 (T13)	07:28			07:55
	20:59			20:21	10	19:58 (T10a)	19:28			18:40	56	18:05 (T13)	17:07			17:06
24	06:18			06:49		19:51 (T10a)	07:20		18:32 (T12)	07:53		17:09 (T13)	07:30			07:55
	20:58			20:20	5	19:56 (T10a)	19:27	6	18:38 (T12)	18:38	57	18:06 (T13)	17:06			17:07
25	06:19			06:50			07:21		18:27 (T12)	07:54		17:09 (T13)	07:31			07:56
	20:57			20:18			19:25	15	18:42 (T12)	18:37	56	18:05 (T13)	17:06			17:07
26	06:20			06:51			07:22		18:24 (T12)	07:55		17:09 (T13)	07:32			07:56
	20:56			20:17			19:23	20	18:44 (T12)	18:36	56	18:05 (T13)	17:05			17:08
27	06:21		19:55 (T10a)	06:52			07:23		18:22 (T12)	07:56		17:09 (T13)	07:33			07:56
	20:55	7	20:02 (T10a)	20:15			19:22	24	18:46 (T12)	18:34	55	18:04 (T13)	17:05			17:09
28	06:22		19:52 (T10a)	06:53			07:24		18:21 (T12)	07:57		17:09 (T13)	07:34			07:57
	20:54	13	20:05 (T10a)	20:14			19:20	25	18:46 (T12)	18:33	54	18:03 (T13)	17:04			17:09
29	06:23		19:50 (T10a)	06:54			07:25		18:19 (T12)	07:59		17:10 (T13)	07:35			07:57
	20:53	17	20:07 (T10a)	20:12			19:18	28	18:47 (T12)	18:32	54	18:04 (T13)	17:04			17:10
30	06:24		19:49 (T10a)	06:55			07:27		18:18 (T12)	08:00		17:10 (T13)	07:36			07:57
	20:52	20	20:09 (T10a)	20:11			19:16	30	18:48 (T12)	18:30	53	18:03 (T13)	17:04			17:11
31	06:25		19:47 (T10a)	06:56						08:01		17:10 (T13)				07:57
	20:51	23	20:10 (T10a)	20:09						18:29	52	18:02 (T13)				17:12
Potential sun hours	460			429			375			345			297			287
Total, worst case		80			625			148			1643			477		
Sun reduction		0.66			0.61			0.59			0.48			0.30		
Oper. time red.		1.00			1.00			1.00			1.00			1.00		
Wind dir. red.		0.57			0.57			0.67			0.71			0.72		
Total reduction		0.38			0.35			0.40			0.34			0.22		
Total, real		30			220			59			563			104		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1375 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1748)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February	March			April			May			June		
1	07:57		08:43 (T71a)	07:43	07:07			07:16		18:14 (T69)	06:30		06:50 (T67)	06:02		07:07 (T68)
	17:13	51	09:34 (T71a)	17:48	18:22			19:56	71	19:25 (T69)	20:27	121	19:03 (T69)	20:57	58	08:05 (T68)
2	07:57		08:44 (T71a)	07:42	07:06			07:15		18:14 (T69)	06:29		06:50 (T67)	06:01		07:08 (T68)
	17:14	50	09:34 (T71a)	17:49	18:23			19:57	72	19:26 (T69)	20:28	118	19:02 (T69)	20:57	57	08:05 (T68)
3	07:57		08:45 (T71a)	07:41	07:04			07:13		18:13 (T69)	06:28		06:51 (T67)	06:01		07:09 (T68)
	17:15	50	09:35 (T71a)	17:50	18:24			19:58	72	19:25 (T69)	20:29	113	18:59 (T69)	20:58	56	08:05 (T68)
4	07:57		08:45 (T71a)	07:40	07:02			07:11		18:12 (T69)	06:27		06:50 (T67)	06:01		07:09 (T68)
	17:16	50	09:35 (T71a)	17:51	18:25			19:59	73	19:25 (T69)	20:30	108	18:56 (T69)	20:59	55	08:04 (T68)
5	07:57		08:46 (T71a)	07:39	07:01			07:10		18:12 (T69)	06:25		06:51 (T67)	06:00		07:10 (T68)
	17:17	49	09:35 (T71a)	17:53	18:26			20:00	74	19:26 (T69)	20:31	99	18:52 (T69)	20:59	54	08:04 (T68)
6	07:57		08:47 (T71a)	07:38	06:59			07:08		18:12 (T69)	06:24		06:52 (T67)	06:00		07:10 (T68)
	17:18	49	09:36 (T71a)	17:54	18:28			20:00	73	19:25 (T69)	20:32	81	08:13 (T68)	21:00	54	08:04 (T68)
7	07:57		08:48 (T71a)	07:37	06:58			07:06		18:11 (T69)	06:23		06:52 (T67)	06:00		07:11 (T68)
	17:19	48	09:36 (T71a)	17:55	18:29			20:01	74	19:25 (T69)	20:33	81	08:13 (T68)	21:01	53	08:04 (T68)
8	07:57		08:48 (T71a)	07:36	07:56			07:05		18:11 (T69)	06:22		06:53 (T67)	05:59		07:11 (T68)
	17:20	48	09:36 (T71a)	17:57	19:30			20:02	74	19:25 (T69)	20:34	80	08:13 (T68)	21:01	52	08:03 (T68)
9	07:57		08:49 (T71a)	07:35	07:54			07:03		18:11 (T69)	06:21		06:54 (T67)	05:59		07:12 (T68)
	17:21	47	09:36 (T71a)	17:58	19:31			20:03	73	19:24 (T69)	20:35	79	08:13 (T68)	21:02	51	08:03 (T68)
10	07:57		08:49 (T71a)	07:33	07:53			07:02		07:36 (T68)	06:20		06:55 (T67)	05:59		07:12 (T68)
	17:22	47	09:36 (T71a)	17:59	19:32			20:04	85	19:24 (T69)	20:36	78	08:13 (T68)	21:03	51	08:03 (T68)
11	07:56		08:51 (T71a)	07:32	07:51			07:00		07:30 (T68)	06:18		06:56 (T67)	05:59		07:13 (T68)
	17:23	45	09:36 (T71a)	18:00	19:33			20:06	97	19:24 (T69)	20:37	76	08:12 (T68)	21:03	50	08:03 (T68)
12	07:56		08:52 (T71a)	07:31	07:50			06:58		07:26 (T68)	06:17		06:58 (T67)	05:59		07:13 (T68)
	17:24	44	09:36 (T71a)	18:01	19:34			20:07	104	19:23 (T69)	20:38	74	08:12 (T68)	21:04	50	08:03 (T68)
13	07:56		08:52 (T71a)	07:30	07:48			06:57		07:23 (T68)	06:16		07:00 (T68)	05:59		07:14 (T68)
	17:25	43	09:35 (T71a)	18:03	19:35			20:08	109	19:23 (T69)	20:39	72	08:12 (T68)	21:04	49	08:03 (T68)
14	07:55		08:53 (T71a)	07:28	07:46			06:55		07:20 (T68)	06:15		07:00 (T68)	05:59		07:14 (T68)
	17:26	43	09:36 (T71a)	18:04	19:37			20:09	113	19:22 (T69)	20:40	72	08:12 (T68)	21:05	49	08:03 (T68)
15	07:55		08:54 (T71a)	07:27	07:45			06:54		07:18 (T68)	06:14		07:00 (T68)	05:59		07:15 (T68)
	17:27	41	09:35 (T71a)	18:05	19:38			20:10	117	19:22 (T69)	20:41	71	08:11 (T68)	21:05	48	08:03 (T68)
16	07:55		08:55 (T71a)	07:26	07:43		18:47 (T69)	06:52		07:16 (T68)	06:13		07:00 (T68)	05:59		07:15 (T68)
	17:28	40	09:35 (T71a)	18:06	19:39	15	19:02 (T69)	20:11	119	19:21 (T69)	20:42	71	08:11 (T68)	21:06	48	08:03 (T68)
17	07:54		08:56 (T71a)	07:25	07:41		18:41 (T69)	06:51		07:10 (T67)	06:12		07:01 (T68)	05:59		07:15 (T68)
	17:30	38	09:34 (T71a)	18:08	19:40	26	19:07 (T69)	20:12	125	19:21 (T69)	20:43	69	08:10 (T68)	21:06	48	08:03 (T68)
18	07:54		08:58 (T71a)	07:23	07:40		18:37 (T69)	06:49		07:08 (T67)	06:11		07:01 (T68)	05:59		07:16 (T68)
	17:31	36	09:34 (T71a)	18:09	19:41	34	19:11 (T69)	20:13	126	19:19 (T69)	20:44	69	08:10 (T68)	21:06	47	08:03 (T68)
19	07:53		08:59 (T71a)	07:22	07:38		18:34 (T69)	06:47		07:07 (T67)	06:11		07:01 (T68)	05:59		07:16 (T68)
	17:32	34	09:33 (T71a)	18:10	19:42	39	19:13 (T69)	20:14	128	19:19 (T69)	20:45	68	08:09 (T68)	21:07	47	08:03 (T68)
20	07:53		09:01 (T71a)	07:20	07:36		18:31 (T69)	06:46		07:05 (T67)	06:10		07:02 (T68)	05:59		07:16 (T68)
	17:33	31	09:32 (T71a)	18:11	19:43	44	19:15 (T69)	20:15	129	19:18 (T69)	20:46	68	08:10 (T68)	21:07	47	08:03 (T68)
21	07:52		09:02 (T71a)	07:19	07:35		18:29 (T69)	06:44		07:04 (T67)	06:09		07:02 (T68)	05:59		07:17 (T68)
	17:34	29	09:31 (T71a)	18:12	19:44	48	19:17 (T69)	20:16	129	19:17 (T69)	20:47	67	08:09 (T68)	21:07	47	08:04 (T68)
22	07:51		09:04 (T71a)	07:18	07:33		18:27 (T69)	06:43		07:02 (T67)	06:08		07:02 (T68)	05:59		07:17 (T68)
	17:35	25	09:29 (T71a)	18:14	19:45	51	19:18 (T69)	20:17	130	19:16 (T69)	20:48	67	08:09 (T68)	21:07	47	08:04 (T68)
23	07:51		09:07 (T71a)	07:16	07:31		18:25 (T69)	06:42		07:01 (T67)	06:07		07:02 (T68)	06:00		07:17 (T68)
	17:37	21	09:28 (T71a)	18:15	19:46	54	19:19 (T69)	20:18	130	19:15 (T69)	20:49	66	08:08 (T68)	21:08	47	08:04 (T68)
24	07:50		09:09 (T71a)	07:15	07:30		18:24 (T69)	06:40		06:59 (T67)	06:07		07:04 (T68)	06:00		07:17 (T68)
	17:38	16	09:25 (T71a)	18:16	19:47	57	19:21 (T69)	20:19	129	19:13 (T69)	20:50	64	08:08 (T68)	21:08	47	08:04 (T68)
25	07:49		09:14 (T71a)	07:13	07:28		18:22 (T69)	06:39		06:58 (T67)	06:06		07:04 (T68)	06:00		07:18 (T68)
	17:39	7	09:21 (T71a)	18:17	19:48	60	19:22 (T69)	20:20	130	19:13 (T69)	20:51	64	08:08 (T68)	21:08	47	08:05 (T68)
26	07:48			07:12	07:26		18:20 (T69)	06:37		06:57 (T67)	06:05		07:04 (T68)	06:00		07:17 (T68)
	17:40			18:18	19:50	62	19:22 (T69)	20:21	130	19:12 (T69)	20:52	63	08:07 (T68)	21:08	48	08:05 (T68)
27	07:48			07:10	07:25		18:20 (T69)	06:36		06:55 (T67)	06:05		07:05 (T68)	06:01		07:17 (T68)
	17:42			18:20	19:51	64	19:24 (T69)	20:23	128	19:10 (T69)	20:52	62	08:07 (T68)	21:08	48	08:05 (T68)
28	07:47			07:09	07:23		18:18 (T69)	06:35		06:54 (T67)	06:04		07:05 (T68)	06:01		07:18 (T68)
	17:43			18:21	19:52	66	19:24 (T69)	20:24	128	19:09 (T69)	20:53	61	08:06 (T68)	21:08	48	08:06 (T68)
29	07:46				07:21		18:17 (T69)	06:33		06:53 (T67)	06:03		07:06 (T68)	06:02		07:17 (T68)
	17:44				19:53	67	19:24 (T69)	20:25	125	19:07 (T69)	20:54	60	08:06 (T68)	21:08	49	08:06 (T68)
30	07:45				07:20		18:16 (T69)	06:32		06:51 (T67)	06:03		07:06 (T68)	06:02		07:18 (T68)
	17:45				19:54	69	19:25 (T69)	20:26	124	19:05 (T69)	20:55	60	08:06 (T68)	21:08	49	08:07 (T68)
31	07:44				07:18		18:15 (T69)				06:02		07:07 (T68)			
	17:46				19:55	70	19:25 (T69)				20:56	59	08:06 (T68)			
Potential sun hours	297			297	370			399			448			452		
Total, worst case		982				826			3191			2361			1501	
Sun reduction		0.31				0.44			0.52			0.57			0.64	
Oper. time red.		1.00				1.00			1.00			1.00			1.00	
Wind dir. red.		0.53				0.64			0.65			0.67			0.67	
Total reduction		0.16				0.28			0.33			0.37			0.42	
Total, real		158				227			1059			880			628	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1375 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1748)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October	November			December		
1	06:03		07:17 (T68)	06:27		07:07 (T67)	06:57		07:29 (T68)	07:28	07:02			07:37		08:33 (T71a)
	21:08	50	08:07 (T68)	20:50	75	08:22 (T68)	20:07	97	19:23 (T69)	19:15	17:28			17:04	45	09:18 (T71a)
2	06:03		07:18 (T68)	06:28		07:06 (T67)	06:58		07:35 (T68)	07:29	07:03			07:38		08:33 (T71a)
	21:08	50	08:08 (T68)	20:49	76	08:22 (T68)	20:05	85	19:23 (T69)	19:13	17:27			17:04	46	09:19 (T71a)
3	06:04		07:17 (T68)	06:29		07:04 (T67)	06:59		18:09 (T69)	07:30	07:04			07:39		08:32 (T71a)
	21:08	51	08:08 (T68)	20:48	78	08:22 (T68)	20:04	73	19:22 (T69)	19:11	17:26			17:04	47	09:19 (T71a)
4	06:04		07:17 (T68)	06:30		07:03 (T67)	07:00		18:08 (T69)	07:31	07:05			07:40		08:32 (T71a)
	21:08	52	08:09 (T68)	20:47	79	08:22 (T68)	20:02	74	19:22 (T69)	19:10	17:25			17:03	48	09:20 (T71a)
5	06:05		07:17 (T68)	06:31		07:02 (T67)	07:01		18:08 (T69)	07:32	07:07			07:41		08:33 (T71a)
	21:08	52	08:09 (T68)	20:45	81	08:23 (T68)	20:01	74	19:22 (T69)	19:08	17:23			17:03	48	09:21 (T71a)
6	06:05		07:17 (T68)	06:31		07:02 (T67)	07:02		18:08 (T69)	07:33	07:08			07:42		08:33 (T71a)
	21:07	53	08:10 (T68)	20:44	81	08:23 (T68)	19:57	73	19:21 (T69)	19:07	17:22			17:03	49	09:22 (T71a)
7	06:06		07:16 (T68)	06:32		07:01 (T67)	07:03		18:07 (T69)	07:34	07:09			07:43		08:33 (T71a)
	21:07	54	08:10 (T68)	20:43	91	18:58 (T69)	19:56	74	19:21 (T69)	19:05	17:21			17:03	49	09:22 (T71a)
8	06:07		07:16 (T68)	06:33		07:00 (T67)	07:04		18:07 (T69)	07:35	07:10			07:44		08:33 (T71a)
	21:07	55	08:11 (T68)	20:42	103	19:03 (T69)	19:54	73	19:20 (T69)	19:03	17:20			17:03	50	09:23 (T71a)
9	06:07		07:16 (T68)	06:34		07:00 (T67)	07:05		18:07 (T69)	07:36	07:11			07:44		08:34 (T71a)
	21:06	56	08:12 (T68)	20:41	108	19:06 (T69)	19:52	73	19:20 (T69)	19:02	17:19			17:03	50	09:24 (T71a)
10	06:08		07:15 (T68)	06:35		06:59 (T67)	07:06		18:07 (T69)	07:37	07:13			07:45		08:34 (T71a)
	21:06	57	08:12 (T68)	20:39	115	19:09 (T69)	19:51	72	19:19 (T69)	19:00	17:18			17:03	51	09:25 (T71a)
11	06:09		07:15 (T68)	06:36		06:59 (T67)	07:07		18:07 (T69)	07:38	07:14			07:46		08:34 (T71a)
	21:06	58	08:13 (T68)	20:38	119	19:11 (T69)	19:49	71	19:18 (T69)	18:58	17:17			17:03	51	09:25 (T71a)
12	06:09		07:15 (T68)	06:37		06:59 (T67)	07:08		18:06 (T69)	07:39	07:15			07:47		08:34 (T71a)
	21:05	59	08:14 (T68)	20:37	123	19:13 (T69)	19:47	70	19:16 (T69)	18:57	17:16			17:03	51	09:25 (T71a)
13	06:10		07:14 (T68)	06:38		07:00 (T67)	07:09		18:06 (T69)	07:40	07:16			07:48		08:34 (T71a)
	21:05	60	08:14 (T68)	20:35	124	19:14 (T69)	19:45	69	19:15 (T69)	18:55	17:15			17:03	52	09:26 (T71a)
14	06:11		07:14 (T68)	06:39		07:01 (T67)	07:10		18:07 (T69)	07:41	07:17			07:49		08:35 (T71a)
	21:04	60	08:14 (T68)	20:34	126	19:15 (T69)	19:44	67	19:14 (T69)	18:54	17:14			17:04	52	09:27 (T71a)
15	06:12		07:14 (T68)	06:40		07:02 (T67)	07:11		18:07 (T69)	07:42	07:19			07:49		08:36 (T71a)
	21:04	61	08:15 (T68)	20:33	128	19:17 (T69)	19:42	66	19:13 (T69)	18:52	17:13			17:04	51	09:27 (T71a)
16	06:12		07:14 (T68)	06:41		07:03 (T67)	07:12		18:08 (T69)	07:43	07:20			07:50		08:35 (T71a)
	21:03	62	08:16 (T68)	20:31	129	19:18 (T69)	19:40	64	19:12 (T69)	18:51	17:13			17:04	52	09:27 (T71a)
17	06:13		07:13 (T68)	06:42		07:04 (T67)	07:13		18:08 (T69)	07:45	07:21		08:47 (T71a)	07:51		08:36 (T71a)
	21:03	63	08:16 (T68)	20:30	129	19:19 (T69)	19:39	63	19:11 (T69)	18:49	17:12	7	08:54 (T71a)	17:04	52	09:28 (T71a)
18	06:14		07:13 (T68)	06:43		07:05 (T67)	07:14		18:09 (T69)	07:46	07:22		08:43 (T71a)	07:51		08:37 (T71a)
	21:02	64	08:17 (T68)	20:28	130	19:20 (T69)	19:37	60	19:09 (T69)	18:48	17:11	16	08:59 (T71a)	17:05	52	09:29 (T71a)
19	06:15		07:13 (T68)	06:44		07:06 (T67)	07:15		18:10 (T69)	07:47	07:23		08:41 (T71a)	07:52		08:37 (T71a)
	21:01	64	08:17 (T68)	20:27	130	19:20 (T69)	19:35	58	19:08 (T69)	18:46	17:10	21	09:02 (T71a)	17:05	52	09:29 (T71a)
20	06:16		07:13 (T68)	06:45		07:07 (T67)	07:16		18:11 (T69)	07:48	07:24		08:39 (T71a)	07:53		08:38 (T71a)
	21:01	65	08:18 (T68)	20:26	130	19:21 (T69)	19:34	55	19:06 (T69)	18:45	17:10	25	09:04 (T71a)	17:05	52	09:30 (T71a)
21	06:16		07:13 (T68)	06:46		07:08 (T67)	07:17		18:12 (T69)	07:49	07:26		08:37 (T71a)	07:53		08:38 (T71a)
	21:00	66	08:19 (T68)	20:24	130	19:22 (T69)	19:32	52	19:04 (T69)	18:43	17:09	29	09:06 (T71a)	17:06	52	09:30 (T71a)
22	06:17		07:13 (T68)	06:47		07:08 (T67)	07:18		18:13 (T69)	07:50	07:27		08:37 (T71a)	07:54		08:39 (T71a)
	20:59	66	08:19 (T68)	20:23	129	19:21 (T69)	19:30	49	19:02 (T69)	18:42	17:08	31	09:08 (T71a)	17:06	52	09:31 (T71a)
23	06:18		07:12 (T68)	06:48		07:09 (T67)	07:19		18:15 (T69)	07:51	07:28		08:36 (T71a)	07:54		08:39 (T71a)
	20:58	67	08:19 (T68)	20:21	129	19:22 (T69)	19:28	45	19:00 (T69)	18:40	17:08	34	09:10 (T71a)	17:07	52	09:31 (T71a)
24	06:19		07:12 (T68)	06:49		07:10 (T67)	07:20		18:17 (T69)	07:52	07:29		08:35 (T71a)	07:55		08:40 (T71a)
	20:57	68	08:20 (T68)	20:20	127	19:22 (T69)	19:27	40	18:57 (T69)	18:39	17:07	36	09:11 (T71a)	17:07	52	09:32 (T71a)
25	06:20		07:11 (T68)	06:50		07:11 (T67)	07:21		18:19 (T69)	07:54	07:30		08:34 (T71a)	07:55		08:40 (T71a)
	20:57	69	08:20 (T68)	20:18	126	19:22 (T69)	19:25	35	18:54 (T69)	18:37	17:06	38	09:12 (T71a)	17:08	52	09:32 (T71a)
26	06:21		07:11 (T68)	06:51		07:12 (T67)	07:22		18:22 (T69)	07:55	07:31		08:33 (T71a)	07:55		08:40 (T71a)
	20:56	70	08:21 (T68)	20:17	122	19:23 (T69)	19:23	28	18:50 (T69)	18:36	17:06	40	09:13 (T71a)	17:09	52	09:32 (T71a)
27	06:22		07:11 (T68)	06:52		07:18 (T68)	07:23		18:26 (T69)	07:56	07:32		08:34 (T71a)	07:56		08:41 (T71a)
	20:55	70	08:21 (T68)	20:15	119	19:23 (T69)	19:22	19	18:45 (T69)	18:35	17:06	41	09:15 (T71a)	17:09	52	09:33 (T71a)
28	06:23		07:11 (T68)	06:53		07:19 (T68)	07:24			07:57	07:34		08:33 (T71a)	07:56		08:42 (T71a)
	20:54	71	08:22 (T68)	20:13	117	19:23 (T69)	19:20			18:33	17:05	43	09:16 (T71a)	17:10	51	09:33 (T71a)
29	06:24		07:11 (T68)	06:54		07:21 (T68)	07:25			07:58	07:35		08:33 (T71a)	07:56		08:42 (T71a)
	20:53	71	08:22 (T68)	20:12	112	19:23 (T69)	19:18			18:32	17:05	43	09:16 (T71a)	17:11	52	09:34 (T71a)
30	06:25		07:11 (T68)	06:55		07:23 (T68)	07:26			07:59	07:36		08:33 (T71a)	07:56		08:42 (T71a)
	20:52	71	08:22 (T68)	20:10	109	19:23 (T69)	19:17			18:31	17:04	44	09:17 (T71a)	17:12	52	09:34 (T71a)
31	06:26		07:10 (T67)	06:56		07:26 (T68)				08:01				07:57		08:43 (T71a)
	20:51	73	08:23 (T68)	20:09	104	19:23 (T69)				18:29				17:12	51	09:34 (T71a)
Potential sun hours	459			428			375			345	298			288		
Total, worst case		1908			3479			1679				448			1570	
Sun reduction		0.66			0.61			0.59				0.30			0.22	
Oper. time red.		1.00			1.00			1.00				1.00			1.00	
Wind dir. red.		0.67			0.66			0.64				0.53			0.53	
Total reduction		0.43			0.39			0.37				0.16			0.11	
Total, real		824			1371			620				70			179	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1389 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1750)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June	
1	07:57			07:43		16:17 (T78a)	07:07			07:16		18:41 (T57a)	06:31		19:41 (T52)	06:02	
	17:13			17:48	59	17:16 (T78a)	18:22			19:56	50	19:34 (T53)	20:27	24	20:05 (T52)	20:57	
2	07:57			07:42		16:17 (T78a)	07:06			07:15		18:44 (T57a)	06:29		19:41 (T52)	06:01	
	17:14			17:49	59	17:16 (T78a)	18:23			19:57	44	19:34 (T53)	20:28	24	20:05 (T52)	20:58	
3	07:57			07:41		16:17 (T78a)	07:04			07:13		18:47 (T57a)	06:28		19:42 (T52)	06:01	
	17:15			17:50	60	17:17 (T78a)	18:24			19:58	35	19:32 (T53)	20:29	23	20:05 (T52)	20:58	
4	07:57			07:40		16:18 (T78a)	07:03			07:11		19:11 (T53)	06:27		19:43 (T52)	06:01	
	17:16			17:52	59	17:17 (T78a)	18:25			19:59	19	19:30 (T53)	20:30	21	20:04 (T52)	20:59	
5	07:57			07:39		16:18 (T78a)	07:01			07:10		19:13 (T53)	06:25		19:43 (T52)	06:00	
	17:17			17:53	59	17:17 (T78a)	18:27			20:00	16	19:29 (T53)	20:31	19	20:02 (T52)	21:00	
6	07:57			07:38		16:17 (T78a)	06:59			07:08		19:15 (T53)	06:24		19:44 (T52)	06:00	
	17:18			17:54	60	17:17 (T78a)	18:28			20:00	11	19:26 (T53)	20:32	17	20:01 (T52)	21:00	
7	07:57		16:33 (T78a)	07:37		16:17 (T78a)	06:58		17:59 (T57a)	07:06			06:23		19:46 (T52)	06:00	
	17:19	10	16:43 (T78a)	17:55	60	17:17 (T78a)	18:29	3	18:02 (T57a)	20:01			20:33	13	19:59 (T52)	21:01	
8	07:57		16:31 (T78a)	07:36		16:18 (T78a)	07:56		18:53 (T57a)	07:05			06:22		19:48 (T52)	05:59	
	17:20	16	16:47 (T78a)	17:57	59	17:17 (T78a)	19:30	16	19:09 (T57a)	20:03			20:34	9	19:57 (T52)	21:02	
9	07:57		16:30 (T78a)	07:35		16:18 (T78a)	07:55		18:49 (T57a)	07:03			06:21			05:59	
	17:21	19	16:49 (T78a)	17:58	59	17:17 (T78a)	19:31	21	19:10 (T57a)	20:04			20:35			21:02	
10	07:57		16:29 (T78a)	07:34		16:18 (T78a)	07:53		18:46 (T57a)	07:02			06:20			05:59	
	17:22	23	16:52 (T78a)	17:59	60	17:18 (T78a)	19:32	25	19:11 (T57a)	20:05			20:36			21:03	
11	07:57		16:27 (T78a)	07:32		16:18 (T78a)	07:51		18:45 (T57a)	07:00			06:18			05:59	
	17:23	26	16:53 (T78a)	18:00	59	17:17 (T78a)	19:33	27	19:12 (T57a)	20:06			20:37			21:03	
12	07:56		16:27 (T78a)	07:31		16:19 (T78a)	07:50		18:43 (T57a)	06:58			06:17			05:59	
	17:24	28	16:55 (T78a)	18:02	58	17:17 (T78a)	19:34	30	19:13 (T57a)	20:07			20:39			21:04	
13	07:56		16:26 (T78a)	07:30		16:19 (T78a)	07:48		18:41 (T57a)	06:57			06:16			05:59	
	17:25	31	16:57 (T78a)	18:03	58	17:17 (T78a)	19:36	33	19:14 (T57a)	20:08			20:40			21:05	
14	07:56		16:25 (T78a)	07:29		16:20 (T78a)	07:46		18:40 (T57a)	06:55			06:15			05:59	
	17:26	33	16:58 (T78a)	18:04	57	17:17 (T78a)	19:37	36	19:16 (T57a)	20:09			20:41			21:05	
15	07:55		16:24 (T78a)	07:27		16:20 (T78a)	07:45		18:39 (T57a)	06:54			06:14			05:59	
	17:27	36	17:00 (T78a)	18:05	55	17:15 (T78a)	19:38	38	19:17 (T57a)	20:10			20:42			21:05	
16	07:55		16:23 (T78a)	07:26		16:21 (T78a)	07:43		18:38 (T57a)	06:52			06:13			05:59	
	17:28	38	17:01 (T78a)	18:06	54	17:15 (T78a)	19:39	39	19:17 (T57a)	20:11			20:43			21:06	
17	07:54		16:23 (T78a)	07:25		16:21 (T78a)	07:41		18:38 (T57a)	06:51			06:12			05:59	
	17:30	40	17:03 (T78a)	18:08	53	17:14 (T78a)	19:40	41	19:19 (T57a)	20:12			20:44			21:06	
18	07:54		16:22 (T78a)	07:23		16:23 (T78a)	07:40		18:37 (T57a)	06:49			06:11			05:59	
	17:31	41	17:03 (T78a)	18:09	50	17:13 (T78a)	19:41	42	19:19 (T57a)	20:13			20:44			21:07	
19	07:53		16:22 (T78a)	07:22		16:24 (T78a)	07:38		18:36 (T57a)	06:48		19:52 (T52)	06:11			05:59	
	17:32	43	17:05 (T78a)	18:10	49	17:13 (T78a)	19:42	43	19:19 (T57a)	20:14	1	19:53 (T52)	20:45			21:07	
20	07:53		16:21 (T78a)	07:21		16:25 (T78a)	07:36		18:35 (T57a)	06:46		19:48 (T52)	06:10			05:59	
	17:33	45	17:06 (T78a)	18:11	46	17:11 (T78a)	19:43	43	19:18 (T57a)	20:15	6	19:54 (T52)	20:46			21:07	
21	07:52		16:20 (T78a)	07:19		16:26 (T78a)	07:35		18:35 (T57a)	06:45		19:47 (T52)	06:09			05:59	
	17:34	47	17:07 (T78a)	18:12	44	17:10 (T78a)	19:44	44	19:19 (T57a)	20:16	8	19:55 (T52)	20:47			21:08	
22	07:52		16:21 (T78a)	07:18		16:27 (T78a)	07:33		18:35 (T57a)	06:43		19:45 (T52)	06:08			05:59	
	17:35	48	17:09 (T78a)	18:14	41	17:08 (T78a)	19:45	48	19:24 (T53)	20:17	11	19:56 (T52)	20:48			21:08	
23	07:51		16:20 (T78a)	07:16		16:29 (T78a)	07:31		18:35 (T57a)	06:42		19:44 (T52)	06:07			06:00	
	17:37	49	17:09 (T78a)	18:15	38	17:07 (T78a)	19:46	50	19:25 (T53)	20:18	13	19:57 (T52)	20:49			21:08	
24	07:50		16:19 (T78a)	07:15		16:31 (T78a)	07:30		18:35 (T57a)	06:40		19:43 (T52)	06:07			06:00	
	17:38	51	17:10 (T78a)	18:16	34	17:05 (T78a)	19:48	51	19:26 (T53)	20:20	15	19:58 (T52)	20:50			21:08	
25	07:49		16:19 (T78a)	07:13		16:33 (T78a)	07:28		18:35 (T57a)	06:39		19:42 (T52)	06:06			06:00	
	17:39	52	17:11 (T78a)	18:17	30	17:03 (T78a)	19:49	52	19:27 (T53)	20:21	17	19:59 (T52)	20:51			21:08	
26	07:49		16:18 (T78a)	07:12		16:36 (T78a)	07:26		18:35 (T57a)	06:37		19:42 (T52)	06:05			06:00	
	17:40	53	17:11 (T78a)	18:18	23	16:59 (T78a)	19:50	53	19:28 (T53)	20:22	18	20:00 (T52)	20:52			21:08	
27	07:48		16:19 (T78a)	07:10		16:40 (T78a)	07:25		18:36 (T57a)	06:36		19:41 (T52)	06:05			06:01	
	17:42	54	17:13 (T78a)	18:20	16	16:56 (T78a)	19:51	54	19:30 (T53)	20:23	19	20:00 (T52)	20:53			21:08	
28	07:47		16:18 (T78a)	07:09			07:23		18:37 (T57a)	06:35		19:41 (T52)	06:04			06:01	
	17:43	56	17:14 (T78a)	18:21			19:52	53	19:30 (T53)	20:24	21	20:02 (T52)	20:54			21:08	
29	07:46		16:18 (T78a)				07:21		18:37 (T57a)	06:33		19:41 (T52)	06:03			06:02	
	17:44	56	17:14 (T78a)				19:53	54	19:31 (T53)	20:25	22	20:03 (T52)	20:54			21:09	
30	07:45		16:18 (T78a)				07:20		18:39 (T57a)	06:32		19:40 (T52)	06:03			06:02	
	17:45	57	17:15 (T78a)				19:54	54	19:33 (T53)	20:26	23	20:03 (T52)	20:55			21:08	
31	07:44		16:18 (T78a)				07:18		18:40 (T57a)				06:02				
	17:47	57	17:15 (T78a)				19:55	54	19:34 (T53)				20:56				
Potential sun hours	297			297			370			399			448			452	
Total, worst case		1009			1359			1004			349			150			
Sun reduction		0.31			0.40			0.44			0.52			0.57			
Oper. time red.		1.00			1.00			1.00			1.00			1.00			
Wind dir. red.		0.73			0.73			0.65			0.60			0.57			
Total reduction		0.23			0.29			0.29			0.32			0.33			
Total, real		231			401			291			111			49			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1389 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1750)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August			September			October			November			December		
1	06:03	06:27			06:58			07:28		18:21 (T57a)	07:02		15:47 (T78a)	07:37		16:09 (T78a)
	21:08	20:50			20:07			19:15	31	18:52 (T57a)	17:28	59	16:46 (T78a)	17:04	26	16:35 (T78a)
2	06:03	06:28			06:59			07:29		18:23 (T57a)	07:03		15:48 (T78a)	07:38		16:11 (T78a)
	21:08	20:49			20:06			19:13	29	18:52 (T57a)	17:27	59	16:47 (T78a)	17:04	23	16:34 (T78a)
3	06:04	06:29			07:00			07:30		18:24 (T57a)	07:04		15:47 (T78a)	07:39		16:13 (T78a)
	21:08	20:48			20:04			19:12	26	18:50 (T57a)	17:26	60	16:47 (T78a)	17:04	19	16:32 (T78a)
4	06:04	06:30		20:00 (T52)	07:01			07:31		18:26 (T57a)	07:06		15:47 (T78a)	07:40		16:15 (T78a)
	21:08	20:47	4	20:04 (T52)	20:02			19:10	22	18:48 (T57a)	17:25	60	16:47 (T78a)	17:03	16	16:31 (T78a)
5	06:05	06:31		19:57 (T52)	07:02			07:32		18:28 (T57a)	07:07		15:47 (T78a)	07:41		16:18 (T78a)
	21:08	20:46	11	20:08 (T52)	20:01			19:08	18	18:46 (T57a)	17:23	60	16:47 (T78a)	17:03	11	16:29 (T78a)
6	06:05	06:32		19:55 (T52)	07:03		19:11 (T53)	07:33		18:31 (T57a)	07:08		15:48 (T78a)	07:42		
	21:08	20:44	15	20:10 (T52)	19:57	11	19:22 (T53)	19:07	12	18:43 (T57a)	17:22	59	16:47 (T78a)	17:03		
7	06:06	06:33		19:53 (T52)	07:04		19:08 (T53)	07:34			07:09		15:47 (T78a)	07:43		
	21:07	20:43	18	20:11 (T52)	19:56	16	19:24 (T53)	19:05			17:21	60	16:47 (T78a)	17:03		
8	06:06	06:33		19:52 (T52)	07:05		19:06 (T53)	07:35			07:10		15:47 (T78a)	07:44		
	21:07	20:42	20	20:12 (T52)	19:54	19	19:25 (T53)	19:03			17:20	59	16:46 (T78a)	17:03		
9	06:07	06:34		19:51 (T52)	07:06		18:41 (T57a)	07:36			07:12		15:48 (T78a)	07:45		
	21:07	20:41	22	20:13 (T52)	19:52	34	19:26 (T53)	19:02			17:19	59	16:47 (T78a)	17:03		
10	06:08	06:35		19:50 (T52)	07:06		18:37 (T57a)	07:37			07:13		15:48 (T78a)	07:46		
	21:06	20:40	23	20:13 (T52)	19:51	44	19:27 (T53)	19:00			17:18	59	16:47 (T78a)	17:03		
11	06:09	06:36		19:50 (T52)	07:07		18:34 (T57a)	07:38			07:14		15:49 (T78a)	07:46		
	21:06	20:38	24	20:14 (T52)	19:49	50	19:27 (T53)	18:59			17:17	57	16:46 (T78a)	17:03		
12	06:09	06:37		19:49 (T52)	07:08		18:32 (T57a)	07:39			07:15		15:49 (T78a)	07:47		
	21:06	20:37	24	20:13 (T52)	19:47	53	19:26 (T53)	18:57			17:16	57	16:46 (T78a)	17:03		
13	06:10	06:38		19:49 (T52)	07:09		18:30 (T57a)	07:40			07:16		15:50 (T78a)	07:48		
	21:05	20:36	23	20:12 (T52)	19:46	54	19:24 (T53)	18:55			17:15	56	16:46 (T78a)	17:03		
14	06:11	06:39		19:49 (T52)	07:10		18:29 (T57a)	07:41		17:18 (T78a)	07:18		15:50 (T78a)	07:49		
	21:05	20:34	22	20:11 (T52)	19:44	54	19:23 (T53)	18:54	6	17:24 (T78a)	17:14	55	16:45 (T78a)	17:03		
15	06:12	06:40		19:48 (T52)	07:11		18:26 (T57a)	07:43		17:11 (T78a)	07:19		15:51 (T78a)	07:50		
	21:04	20:33	21	20:09 (T52)	19:42	54	19:20 (T53)	18:52	19	17:30 (T78a)	17:13	54	16:45 (T78a)	17:04		
16	06:12	06:41		19:48 (T52)	07:12		18:25 (T57a)	07:44		17:07 (T78a)	07:20		15:51 (T78a)	07:50		
	21:03	20:32	20	20:08 (T52)	19:40	53	19:18 (T53)	18:51	26	17:33 (T78a)	17:13	53	16:44 (T78a)	17:04		
17	06:13	06:42		19:48 (T52)	07:13		18:24 (T57a)	07:45		17:04 (T78a)	07:21		15:53 (T78a)	07:51		
	21:03	20:30	19	20:07 (T52)	19:39	53	19:17 (T53)	18:49	31	17:35 (T78a)	17:12	52	16:45 (T78a)	17:04		
18	06:14	06:43		19:49 (T52)	07:14		18:23 (T57a)	07:46		17:01 (T78a)	07:22		15:53 (T78a)	07:52		
	21:02	20:29	16	20:05 (T52)	19:37	52	19:15 (T53)	18:48	36	17:37 (T78a)	17:11	51	16:44 (T78a)	17:05		
19	06:15	06:45		19:49 (T52)	07:15		18:22 (T57a)	07:47		16:59 (T78a)	07:24		15:54 (T78a)	07:52		
	21:02	20:27	15	20:04 (T52)	19:35	51	19:13 (T53)	18:46	39	17:38 (T78a)	17:10	49	16:43 (T78a)	17:05		
20	06:16	06:46		19:50 (T52)	07:16		18:21 (T57a)	07:48		16:58 (T78a)	07:25		15:56 (T78a)	07:53		
	21:01	20:26	13	20:03 (T52)	19:34	50	19:11 (T53)	18:45	42	17:40 (T78a)	17:10	48	16:44 (T78a)	17:05		
21	06:16	06:47		19:51 (T52)	07:17		18:20 (T57a)	07:49		16:56 (T78a)	07:26		15:56 (T78a)	07:53		
	21:00	20:24	10	20:01 (T52)	19:32	49	19:10 (T53)	18:43	45	17:41 (T78a)	17:09	47	16:43 (T78a)	17:06		
22	06:17	06:48		19:52 (T52)	07:18		18:20 (T57a)	07:50		16:55 (T78a)	07:27		15:57 (T78a)	07:54		
	20:59	20:23	8	20:00 (T52)	19:30	44	19:08 (T53)	18:42	47	17:42 (T78a)	17:08	45	16:42 (T78a)	17:06		
23	06:18	06:49		19:52 (T52)	07:19		18:19 (T57a)	07:52		16:53 (T78a)	07:28		15:58 (T78a)	07:54		
	20:59	20:21	5	19:57 (T52)	19:29	44	19:03 (T57a)	18:40	50	17:43 (T78a)	17:08	43	16:41 (T78a)	17:07		
24	06:19	06:50			07:20		18:19 (T57a)	07:53		16:52 (T78a)	07:29		15:59 (T78a)	07:55		
	20:58	20:20			19:27	43	19:02 (T57a)	18:39	51	17:43 (T78a)	17:07	41	16:40 (T78a)	17:07		
25	06:20	06:51			07:22		18:19 (T57a)	07:54		16:52 (T78a)	07:30		16:01 (T78a)	07:55		
	20:57	20:18			19:25	43	19:02 (T57a)	18:37	53	17:45 (T78a)	17:06	40	16:41 (T78a)	17:08		
26	06:21	06:52			07:23		18:19 (T57a)	07:55		16:51 (T78a)	07:32		16:02 (T78a)	07:56		
	20:56	20:17			19:23	42	19:01 (T57a)	18:36	54	17:45 (T78a)	17:06	38	16:40 (T78a)	17:09		
27	06:22	06:53			07:24		18:19 (T57a)	07:56		16:50 (T78a)	07:33		16:03 (T78a)	07:56		
	20:55	20:15			19:22	40	18:59 (T57a)	18:35	55	17:45 (T78a)	17:06	36	16:39 (T78a)	17:09		
28	06:23	06:54			07:25		18:19 (T57a)	07:57		16:49 (T78a)	07:34		16:05 (T78a)	07:56		
	20:54	20:14			19:20	39	18:58 (T57a)	18:33	56	17:45 (T78a)	17:05	33	16:38 (T78a)	17:10		
29	06:24	06:55			07:26		18:20 (T57a)	07:59		16:49 (T78a)	07:35		16:06 (T78a)	07:57		
	20:53	20:12			19:18	36	18:56 (T57a)	18:32	57	17:46 (T78a)	17:05	31	16:37 (T78a)	17:11		
30	06:25	06:56			07:27		18:20 (T57a)	08:00		16:48 (T78a)	07:36		16:08 (T78a)	07:57		
	20:52	20:10			19:17	34	18:54 (T57a)	18:31	58	17:46 (T78a)	17:04	28	16:36 (T78a)	17:12		
31	06:26	06:57						08:01		16:48 (T78a)				07:57		
	20:51	20:09						18:30	58	17:46 (T78a)				17:12		
Potential sun hours	459	428			375			345			297			287		
Total, worst case			333			1062			921			1508			95	
Sun reduction			0.61			0.59			0.48			0.30			0.22	
Oper. time red.			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.			0.57			0.65			0.72			0.73			0.73	
Total reduction			0.35			0.39			0.35			0.22			0.16	
Total, real			117			411			321			333			15	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1468 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1761)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May		June		July			August	September	October	November	December
1	07:57	07:43	07:07	07:16	06:31		06:02		06:25 (T71a)	06:03		06:28 (T71a)	06:27	06:57	07:28	07:02	07:37
	17:13	17:48	18:22	19:56	20:27		20:57	57	07:22 (T71a)	21:08	63	07:31 (T71a)	20:50	20:07	19:15	17:28	17:04
2	07:57	07:42	07:06	07:15	06:29		06:01		06:25 (T71a)	06:03		06:29 (T71a)	06:28	06:58	07:29	07:03	07:38
	17:14	17:49	18:23	19:57	20:28		20:57	58	07:23 (T71a)	21:08	63	07:32 (T71a)	20:49	20:05	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13	06:28		06:01		06:25 (T71a)	06:04		06:29 (T71a)	06:29	06:59	07:30	07:04	07:39
	17:15	17:50	18:24	19:58	20:29		20:58	59	07:24 (T71a)	21:08	62	07:31 (T71a)	20:48	20:04	19:11	17:26	17:04
4	07:57	07:40	07:02	07:11	06:27		06:01		06:24 (T71a)	06:04		06:30 (T71a)	06:30	07:00	07:31	07:05	07:40
	17:16	17:52	18:25	19:59	20:30		20:59	60	07:24 (T71a)	21:08	62	07:32 (T71a)	20:47	20:02	19:10	17:25	17:03
5	07:57	07:39	07:01	07:10	06:25		06:00		06:24 (T71a)	06:05		06:30 (T71a)	06:31	07:01	07:32	07:07	07:41
	17:17	17:53	18:26	20:00	20:31		20:59	60	07:24 (T71a)	21:08	61	07:31 (T71a)	20:45	20:01	19:08	17:23	17:03
6	07:57	07:38	06:59	07:08	06:24		06:00		06:25 (T71a)	06:05		06:31 (T71a)	06:32	07:02	07:33	07:08	07:42
	17:18	17:54	18:28	20:00	20:32		21:00	60	07:25 (T71a)	21:07	60	07:31 (T71a)	20:44	19:57	19:07	17:22	17:03
7	07:57	07:37	06:58	07:06	06:23		06:00		06:25 (T71a)	06:06		06:31 (T71a)	06:32	07:03	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33		21:01	61	07:26 (T71a)	21:07	60	07:31 (T71a)	20:43	19:56	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05	06:22		05:59		06:24 (T71a)	06:07		06:31 (T71a)	06:33	07:04	07:35	07:10	07:44
	17:20	17:57	19:30	20:02	20:34		21:01	61	07:25 (T71a)	21:07	60	07:31 (T71a)	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:54	07:03	06:21		05:59		06:24 (T71a)	06:07		06:32 (T71a)	06:34	07:05	07:36	07:11	07:44
	17:21	17:58	19:31	20:03	20:35		21:02	62	07:26 (T71a)	21:06	59	07:31 (T71a)	20:41	19:52	19:02	17:19	17:03
10	07:57	07:33	07:53	07:02	06:20		05:59		06:24 (T71a)	06:08		06:32 (T71a)	06:35	07:06	07:37	07:13	07:45
	17:22	17:59	19:32	20:04	20:36		21:03	63	07:27 (T71a)	21:06	58	07:30 (T71a)	20:39	19:51	19:00	17:18	17:03
11	07:56	07:32	07:51	07:00	06:18		05:59		06:24 (T71a)	06:09		06:33 (T71a)	06:36	07:07	07:38	07:14	07:46
	17:23	18:00	19:33	20:06	20:37		21:03	63	07:27 (T71a)	21:06	57	07:30 (T71a)	20:38	19:49	18:58	17:17	17:03
12	07:56	07:31	07:50	06:58	06:17		05:59		06:24 (T71a)	06:09		06:34 (T71a)	06:37	07:08	07:39	07:15	07:47
	17:24	18:01	19:34	20:07	20:38		21:04	63	07:27 (T71a)	21:05	56	07:30 (T71a)	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57	06:16		05:59		06:24 (T71a)	06:10		06:34 (T71a)	06:38	07:09	07:40	07:16	07:48
	17:25	18:03	19:35	20:08	20:39		21:04	64	07:28 (T71a)	21:05	55	07:29 (T71a)	20:35	19:45	18:55	17:15	17:03
14	07:55	07:28	07:46	06:55	06:15		05:59		06:25 (T71a)	06:11		06:35 (T71a)	06:39	07:10	07:41	07:17	07:49
	17:26	18:04	19:37	20:09	20:40		21:05	63	07:28 (T71a)	21:04	54	07:29 (T71a)	20:34	19:44	18:54	17:14	17:04
15	07:55	07:27	07:45	06:54	06:14	06:47 (T71a)	05:59		06:25 (T71a)	06:12		06:36 (T71a)	06:40	07:11	07:42	07:19	07:49
	17:27	18:05	19:38	20:10	20:41	11 06:58 (T71a)	21:05	63	07:28 (T71a)	21:04	53	07:29 (T71a)	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52	06:13	06:42 (T71a)	05:59		06:25 (T71a)	06:12		06:37 (T71a)	06:41	07:12	07:43	07:20	07:50
	17:28	18:06	19:39	20:11	20:42	21 07:03 (T71a)	21:06	64	07:29 (T71a)	21:03	52	07:29 (T71a)	20:31	19:40	18:51	17:13	17:04
17	07:54	07:25	07:41	06:51	06:12	06:40 (T71a)	05:59		06:25 (T71a)	06:13		06:37 (T71a)	06:42	07:13	07:45	07:21	07:51
	17:30	18:08	19:40	20:12	20:43	25 07:05 (T71a)	21:06	64	07:29 (T71a)	21:03	50	07:27 (T71a)	20:30	19:39	18:49	17:12	17:04
18	07:54	07:23	07:40	06:49	06:12	06:37 (T71a)	05:59		06:25 (T71a)	06:14		06:38 (T71a)	06:43	07:14	07:46	07:22	07:51
	17:31	18:09	19:41	20:13	20:44	31 07:08 (T71a)	21:06	64	07:29 (T71a)	21:02	49	07:27 (T71a)	20:28	19:37	18:48	17:11	17:05
19	07:53	07:22	07:38	06:47	06:11	06:35 (T71a)	05:59		06:25 (T71a)	06:15		06:39 (T71a)	06:44	07:15	07:47	07:23	07:52
	17:32	18:10	19:42	20:14	20:45	34 07:09 (T71a)	21:07	64	07:29 (T71a)	21:01	47	07:26 (T71a)	20:27	19:35	18:46	17:10	17:05
20	07:53	07:20	07:36	06:46	06:10	06:34 (T71a)	05:59		06:25 (T71a)	06:16		06:40 (T71a)	06:45	07:16	07:48	07:24	07:52
	17:33	18:11	19:43	20:15	20:46	38 07:12 (T71a)	21:07	64	07:29 (T71a)	21:01	46	07:26 (T71a)	20:26	19:34	18:45	17:10	17:05
21	07:52	07:19	07:35	06:44	06:09	06:33 (T71a)	05:59		06:26 (T71a)	06:16		06:41 (T71a)	06:46	07:17	07:49	07:26	07:53
	17:34	18:12	19:44	20:16	20:47	40 07:13 (T71a)	21:07	64	07:30 (T71a)	21:00	44	07:25 (T71a)	20:24	19:32	18:43	17:09	17:06
22	07:51	07:18	07:33	06:43	06:08	06:32 (T71a)	05:59		06:26 (T71a)	06:17		06:43 (T71a)	06:47	07:18	07:50	07:27	07:54
	17:35	18:14	19:45	20:17	20:48	42 07:14 (T71a)	21:07	64	07:30 (T71a)	20:59	41	07:24 (T71a)	20:23	19:30	18:42	17:08	17:06
23	07:51	07:16	07:31	06:42	06:07	06:30 (T71a)	06:00		06:26 (T71a)	06:18		06:43 (T71a)	06:48	07:19	07:51	07:28	07:54
	17:37	18:15	19:46	20:18	20:49	45 07:15 (T71a)	21:08	64	07:30 (T71a)	20:58	39	07:22 (T71a)	20:21	19:28	18:40	17:08	17:07
24	07:50	07:15	07:30	06:40	06:07	06:30 (T71a)	06:00		06:26 (T71a)	06:19		06:45 (T71a)	06:49	07:20	07:52	07:29	07:55
	17:38	18:16	19:47	20:19	20:50	46 07:16 (T71a)	21:08	64	07:30 (T71a)	20:57	36	07:21 (T71a)	20:20	19:27	18:39	17:07	17:07
25	07:49	07:13	07:28	06:39	06:06	06:29 (T71a)	06:00		06:27 (T71a)	06:20		06:47 (T71a)	06:50	07:21	07:54	07:30	07:55
	17:39	18:17	19:48	20:20	20:51	48 07:17 (T71a)	21:08	64	07:31 (T71a)	20:57	32	07:19 (T71a)	20:18	19:25	18:37	17:07	17:08
26	07:48	07:12	07:26	06:37	06:05	06:28 (T71a)	06:00		06:27 (T71a)	06:21		06:49 (T71a)	06:51	07:22	07:55	07:31	07:55
	17:40	18:18	19:50	20:21	20:52	50 07:18 (T71a)	21:08	64	07:31 (T71a)	20:56	28	07:17 (T71a)	20:17	19:23	18:36	17:06	17:09
27	07:48	07:10	07:25	06:36	06:05	06:28 (T71a)	06:01		06:27 (T71a)	06:22		06:51 (T71a)	06:52	07:23	07:56	07:32	07:56
	17:42	18:20	19:51	20:23	20:52	51 07:19 (T71a)	21:08	64	07:31 (T71a)	20:55	24	07:15 (T71a)	20:15	19:22	18:35	17:06	17:09
28	07:47	07:09	07:23	06:35	06:04	06:27 (T71a)	06:01		06:28 (T71a)	06:23		06:55 (T71a)	06:53	07:24	07:57	07:33	07:56
	17:43	18:21	19:52	20:24	20:53	52 07:19 (T71a)	21:08	63	07:31 (T71a)	20:54	17	07:12 (T71a)	20:13	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33	06:03	06:27 (T71a)	06:02		06:28 (T71a)	06:24		07:01 (T71a)	06:54	07:25	07:58	07:35	07:56
	17:44		19:53	20:25	20:54	54 07:21 (T71a)	21:08	63	07:31 (T71a)	20:53	4	07:05 (T71a)	20:12	19:18	18:32	17:05	17:11
30	07:45		07:20	06:32	06:03	06:26 (T71a)	06:02		06:28 (T71a)	06:25			06:55	07:26	07:59	07:36	07:56
	17:45		19:54	20:26	20:55	55 07:21 (T71a)	21:08	64	07:32 (T71a)	20:52			20:10	19:17	18:31	17:04	17:12
31	07:44		07:18		06:02	06:26 (T71a)				06:26			06:56		08:01		07:57
	17:47		19:55		20:56	56 07:22 (T71a)				20:51			20:09		18:29		17:12
Potential sun hours	297	297	370	399	448		452			459			428	375	345	298	288
Total, worst case						699		1875			1392						
Sun reduction						0.57		0.64			0.66						
Oper. time red.						1.00		1.00			1.00						
Wind dir. red.						0.72		0.72			0.72						
Total reduction						0.41		0.46			0.47						
Total, real						286		861			659						

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1505 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1763)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February			March			April	May			June		
1	07:57	07:43			07:07		17:09 (T71a)	07:16	06:30			06:02		19:42 (T68)
	17:13	17:48			18:22	40	17:49 (T71a)	19:56	20:27			20:56	42	20:24 (T68)
2	07:57	07:42			07:06		17:10 (T71a)	07:15	06:29			06:01		19:43 (T68)
	17:14	17:49			18:23	39	17:49 (T71a)	19:57	20:28			20:57	41	20:24 (T68)
3	07:57	07:41			07:04		17:10 (T71a)	07:13	06:28			06:01		19:43 (T68)
	17:15	17:50			18:24	38	17:48 (T71a)	19:58	20:29			20:58	42	20:25 (T68)
4	07:57	07:40			07:02		17:11 (T71a)	07:11	06:27		19:58 (T68)	06:01		19:43 (T68)
	17:16	17:51			18:25	36	17:47 (T71a)	19:59	20:30	8	20:06 (T68)	20:59	41	20:24 (T68)
5	07:57	07:39			07:01		17:12 (T71a)	07:10	06:25		19:54 (T68)	06:00		19:44 (T68)
	17:17	17:53			18:26	34	17:46 (T71a)	20:00	20:31	14	20:08 (T68)	20:59	41	20:25 (T68)
6	07:57	07:38			06:59		17:13 (T71a)	07:08	06:24		19:52 (T68)	06:00		19:44 (T68)
	17:18	17:54			18:28	32	17:45 (T71a)	20:00	20:32	17	20:09 (T68)	21:00	41	20:25 (T68)
7	07:57	07:37			06:58		17:14 (T71a)	07:06	06:23		19:50 (T68)	06:00		19:44 (T68)
	17:19	17:55			18:29	29	17:43 (T71a)	20:01	20:33	21	20:11 (T68)	21:01	40	20:24 (T68)
8	07:57	07:36			07:56		18:16 (T71a)	07:05	06:22		19:48 (T68)	05:59		19:44 (T68)
	17:20	17:56			19:30	24	18:40 (T71a)	20:02	20:34	24	20:12 (T68)	21:01	40	20:24 (T68)
9	07:57	07:35			07:54		18:19 (T71a)	07:03	06:21		19:47 (T68)	05:59		19:45 (T68)
	17:21	17:58			19:31	19	18:38 (T71a)	20:03	20:35	26	20:13 (T68)	21:02	40	20:25 (T68)
10	07:57	07:33		17:26 (T71a)	07:53		18:22 (T71a)	07:01	06:20		19:46 (T68)	05:59		19:45 (T68)
	17:22	17:59	9	17:35 (T71a)	19:32	12	18:34 (T71a)	20:04	20:36	28	20:14 (T68)	21:03	40	20:25 (T68)
11	07:56	07:32		17:22 (T71a)	07:51			07:00	06:18		19:45 (T68)	05:59		19:46 (T68)
	17:23	18:00	15	17:37 (T71a)	19:33			20:05	20:37	30	20:15 (T68)	21:03	39	20:25 (T68)
12	07:56	07:31		17:20 (T71a)	07:50			06:58	06:17		19:44 (T68)	05:59		19:46 (T68)
	17:24	18:01	18	17:38 (T71a)	19:34			20:07	20:38	32	20:16 (T68)	21:04	39	20:25 (T68)
13	07:56	07:30		17:18 (T71a)	07:48			06:57	06:16		19:44 (T68)	05:59		19:47 (T68)
	17:25	18:03	22	17:40 (T71a)	19:35			20:08	20:39	33	20:17 (T68)	21:04	38	20:25 (T68)
14	07:55	07:28		17:16 (T71a)	07:46			06:55	06:15		19:43 (T68)	05:59		19:47 (T68)
	17:26	18:04	25	17:41 (T71a)	19:36			20:09	20:40	34	20:17 (T68)	21:05	38	20:25 (T68)
15	07:55	07:27		17:15 (T71a)	07:45			06:54	06:14		19:43 (T68)	05:58		19:47 (T68)
	17:27	18:05	27	17:42 (T71a)	19:38			20:10	20:41	35	20:18 (T68)	21:05	38	20:25 (T68)
16	07:55	07:26		17:14 (T71a)	07:43			06:52	06:13		19:42 (T68)	05:59		19:48 (T68)
	17:28	18:06	30	17:44 (T71a)	19:39			20:11	20:42	37	20:19 (T68)	21:06	37	20:25 (T68)
17	07:54	07:24		17:12 (T71a)	07:41			06:50	06:12		19:42 (T68)	05:59		19:48 (T68)
	17:29	18:08	33	17:45 (T71a)	19:40			20:12	20:43	38	20:20 (T68)	21:06	37	20:25 (T68)
18	07:54	07:23		17:12 (T71a)	07:40			06:49	06:11		19:41 (T68)	05:59		19:48 (T68)
	17:31	18:09	34	17:46 (T71a)	19:41			20:13	20:44	40	20:21 (T68)	21:06	38	20:26 (T68)
19	07:53	07:22		17:10 (T71a)	07:38			06:47	06:11		19:41 (T68)	05:59		19:48 (T68)
	17:32	18:10	37	17:47 (T71a)	19:42			20:14	20:45	40	20:21 (T68)	21:07	38	20:26 (T68)
20	07:53	07:20		17:10 (T71a)	07:36			06:46	06:10		19:41 (T68)	05:59		19:48 (T68)
	17:33	18:11	39	17:49 (T71a)	19:43			20:15	20:46	42	20:23 (T68)	21:07	38	20:26 (T68)
21	07:52	07:19		17:10 (T71a)	07:35			06:44	06:09		19:41 (T68)	05:59		19:48 (T68)
	17:34	18:12	41	17:51 (T71a)	19:44			20:16	20:47	43	20:24 (T68)	21:07	38	20:26 (T68)
22	07:51	07:17		17:09 (T71a)	07:33			06:43	06:08		19:41 (T68)	05:59		19:49 (T68)
	17:35	18:14	42	17:51 (T71a)	19:45			20:17	20:48	43	20:24 (T68)	21:07	38	20:27 (T68)
23	07:51	07:16		17:09 (T71a)	07:31			06:41	06:07		19:40 (T68)	06:00		19:49 (T68)
	17:37	18:15	43	17:52 (T71a)	19:46			20:18	20:49	43	20:23 (T68)	21:08	38	20:27 (T68)
24	07:50	07:15		17:09 (T71a)	07:30			06:40	06:07		19:41 (T68)	06:00		19:49 (T68)
	17:38	18:16	42	17:51 (T71a)	19:47			20:19	20:50	43	20:24 (T68)	21:08	38	20:27 (T68)
25	07:49	07:13		17:09 (T71a)	07:28			06:39	06:06		19:41 (T68)	06:00		19:50 (T68)
	17:39	18:17	43	17:52 (T71a)	19:48			20:20	20:51	43	20:24 (T68)	21:08	37	20:27 (T68)
26	07:48	07:12		17:08 (T71a)	07:26			06:37	06:05		19:41 (T68)	06:00		19:50 (T68)
	17:40	18:18	43	17:51 (T71a)	19:49			20:21	20:52	43	20:24 (T68)	21:08	37	20:27 (T68)
27	07:48	07:10		17:09 (T71a)	07:25			06:36	06:05		19:41 (T68)	06:01		19:49 (T68)
	17:41	18:19	42	17:51 (T71a)	19:51			20:22	20:52	43	20:24 (T68)	21:08	38	20:27 (T68)
28	07:47	07:09		17:09 (T71a)	07:23			06:34	06:04		19:41 (T68)	06:01		19:50 (T68)
	17:43	18:21	41	17:50 (T71a)	19:52			20:24	20:53	43	20:24 (T68)	21:08	38	20:28 (T68)
29	07:46				07:21			06:33	06:03		19:42 (T68)	06:02		19:50 (T68)
	17:44				19:53			20:25	20:54	43	20:25 (T68)	21:08	38	20:28 (T68)
30	07:45				07:20			06:32	06:03		19:42 (T68)	06:02		19:51 (T68)
	17:45				19:54			20:26	20:55	42	20:24 (T68)	21:08	38	20:29 (T68)
31	07:44				07:18				06:02		19:42 (T68)			
	17:46				19:55				20:56	43	20:25 (T68)			
Potential sun hours	297	297			370			399	448			452		
Total, worst case			626			303				971			1166	
Sun reduction			0.40			0.44				0.57			0.64	
Oper. time red.			1.00			1.00				1.00			1.00	
Wind dir. red.			0.70			0.70				0.56			0.56	
Total reduction			0.28			0.31				0.32			0.36	
Total, real			178			95				313			422	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1505 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1763)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September	October			November			December
1	06:02		19:50 (T68)	06:27		19:54 (T68)	06:57	07:27			07:02		16:57 (T71a)	07:37
	21:08	39	20:29 (T68)	20:50	31	20:25 (T68)	20:07	19:15			17:28	6	17:03 (T71a)	07:04
2	06:03		19:50 (T68)	06:28		19:55 (T68)	06:58	07:28			07:03			07:38
	21:08	39	20:29 (T68)	20:49	29	20:24 (T68)	20:05	19:13			17:27			07:04
3	06:03		19:50 (T68)	06:28		19:56 (T68)	06:59	07:30		18:03 (T71a)	07:04			07:39
	21:08	40	20:30 (T68)	20:48	27	20:23 (T68)	20:04	19:11	5	18:08 (T71a)	17:26			17:03
4	06:04		19:51 (T68)	06:29		19:57 (T68)	07:00	07:31		17:57 (T71a)	07:05			07:40
	21:08	39	20:30 (T68)	20:46	25	20:22 (T68)	20:02	19:10	16	18:13 (T71a)	17:25			17:03
5	06:05		19:50 (T68)	06:30		19:59 (T68)	07:01	07:32		17:53 (T71a)	07:07			07:41
	21:07	40	20:30 (T68)	20:45	22	20:21 (T68)	20:00	19:08	23	18:16 (T71a)	17:23			17:03
6	06:05		19:51 (T68)	06:31		20:00 (T68)	07:02	07:33		17:52 (T71a)	07:08			07:42
	21:07	40	20:31 (T68)	20:44	20	20:20 (T68)	19:57	19:06	27	18:19 (T71a)	17:22			17:03
7	06:06		19:50 (T68)	06:32		20:02 (T68)	07:03	07:34		17:50 (T71a)	07:09			07:43
	21:07	41	20:31 (T68)	20:43	17	20:19 (T68)	19:56	19:05	30	18:20 (T71a)	17:21			17:03
8	06:06		19:50 (T68)	06:33		20:05 (T68)	07:04	07:35		17:48 (T71a)	07:10			07:43
	21:07	41	20:31 (T68)	20:42	13	20:18 (T68)	19:54	19:03	33	18:21 (T71a)	17:20			17:03
9	06:07		19:51 (T68)	06:34		20:11 (T68)	07:05	07:36		17:46 (T71a)	07:11			07:44
	21:06	41	20:32 (T68)	20:41	1	20:12 (T68)	19:52	19:02	36	18:22 (T71a)	17:19			17:03
10	06:08		19:50 (T68)	06:35			07:06	07:37		17:45 (T71a)	07:13			07:45
	21:06	42	20:32 (T68)	20:39			19:50	19:00	37	18:22 (T71a)	17:18			17:03
11	06:08		19:50 (T68)	06:36			07:07	07:38		17:44 (T71a)	07:14			07:46
	21:06	42	20:32 (T68)	20:38			19:49	18:58	39	18:23 (T71a)	17:17			17:03
12	06:09		19:51 (T68)	06:37			07:08	07:39		17:43 (T71a)	07:15			07:47
	21:05	42	20:33 (T68)	20:37			19:47	18:57	40	18:23 (T71a)	17:16			17:03
13	06:10		19:50 (T68)	06:38			07:09	07:40		17:42 (T71a)	07:16			07:48
	21:05	42	20:32 (T68)	20:35			19:45	18:55	41	18:23 (T71a)	17:15			17:03
14	06:11		19:50 (T68)	06:39			07:10	07:41		17:41 (T71a)	07:17			07:48
	21:04	43	20:33 (T68)	20:34			19:44	18:54	42	18:23 (T71a)	17:14			17:03
15	06:11		19:50 (T68)	06:40			07:11	07:42		17:40 (T71a)	07:18			07:49
	21:04	43	20:33 (T68)	20:33			19:42	18:52	43	18:23 (T71a)	17:13			17:04
16	06:12		19:51 (T68)	06:41			07:12	07:43		17:41 (T71a)	07:20			07:50
	21:03	43	20:34 (T68)	20:31			19:40	18:51	43	18:24 (T71a)	17:12			17:04
17	06:13		19:50 (T68)	06:42			07:13	07:45		17:40 (T71a)	07:21			07:51
	21:02	43	20:33 (T68)	20:30			19:39	18:49	43	18:23 (T71a)	17:12			17:04
18	06:14		19:50 (T68)	06:43			07:14	07:46		17:40 (T71a)	07:22			07:51
	21:02	43	20:33 (T68)	20:28			19:37	18:47	43	18:23 (T71a)	17:11			17:05
19	06:15		19:51 (T68)	06:44			07:15	07:47		17:40 (T71a)	07:23			07:52
	21:01	43	20:34 (T68)	20:27			19:35	18:46	42	18:22 (T71a)	17:10			17:05
20	06:16		19:51 (T68)	06:45			07:16	07:48		17:40 (T71a)	07:24			07:52
	21:00	43	20:34 (T68)	20:26			19:33	18:45	41	18:21 (T71a)	17:09			17:05
21	06:16		19:51 (T68)	06:46			07:17	07:49		17:40 (T71a)	07:26			07:53
	21:00	43	20:34 (T68)	20:24			19:32	18:43	40	18:20 (T71a)	17:09			17:06
22	06:17		19:50 (T68)	06:47			07:18	07:50		17:41 (T71a)	07:27			07:54
	20:59	43	20:33 (T68)	20:23			19:30	18:42	38	18:19 (T71a)	17:08			17:06
23	06:18		19:51 (T68)	06:48			07:19	07:51		17:41 (T71a)	07:28			07:54
	20:58	42	20:33 (T68)	20:21			19:28	18:40	36	18:17 (T71a)	17:08			17:07
24	06:19		19:51 (T68)	06:49			07:20	07:52		17:41 (T71a)	07:29			07:54
	20:57	41	20:32 (T68)	20:20			19:27	18:39	35	18:16 (T71a)	17:07			17:07
25	06:20		19:51 (T68)	06:50			07:21	07:54		17:42 (T71a)	07:30			07:55
	20:57	41	20:32 (T68)	20:18			19:25	18:37	32	18:14 (T71a)	17:06			17:08
26	06:21		19:52 (T68)	06:51			07:22	07:55		17:44 (T71a)	07:31			07:55
	20:56	39	20:31 (T68)	20:17			19:23	18:36	29	18:13 (T71a)	17:06			17:09
27	06:22		19:52 (T68)	06:52			07:23	07:56		17:45 (T71a)	07:32			07:56
	20:55	38	20:30 (T68)	20:15			19:22	18:35	27	18:12 (T71a)	17:05			17:09
28	06:23		19:53 (T68)	06:53			07:24	07:57		17:46 (T71a)	07:33			07:56
	20:54	36	20:29 (T68)	20:13			19:20	18:33	24	18:10 (T71a)	17:05			17:10
29	06:24		19:53 (T68)	06:54			07:25	07:58		17:47 (T71a)	07:35			07:56
	20:53	36	20:29 (T68)	20:12			19:18	18:32	22	18:09 (T71a)	17:05			17:11
30	06:25		19:54 (T68)	06:55			07:26	07:59		17:50 (T71a)	07:36			07:56
	20:52	34	20:28 (T68)	20:10			19:16	18:31	18	18:08 (T71a)	17:04			17:11
31	06:26		19:54 (T68)	06:56				08:01		17:52 (T71a)				07:57
	20:51	32	20:26 (T68)	20:09				18:29	14	18:06 (T71a)				17:12
Potential sun hours	459			428			375	345			298			288
Total, worst case		1254			185				939			6		
Sun reduction		0.66			0.61				0.48			0.30		
Oper. time red.		1.00			1.00				1.00			1.00		
Wind dir. red.		0.56			0.56				0.70			0.70		
Total reduction		0.37			0.34				0.34			0.21		
Total, real		468			64				320			1		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1518 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1766)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April	May	June
1	07:57		08:22 (T68)	07:43		08:21 (T68)	07:07			07:16	06:30	06:02
	17:13	92	16:12 (T69)	17:48	58	09:19 (T68)	18:22			19:56	20:27	20:57
2	07:57		08:22 (T68)	07:42		08:21 (T68)	07:06		07:25 (T67)	07:15	06:29	06:01
	17:14	92	16:12 (T69)	17:49	58	09:19 (T68)	18:23	6	07:31 (T67)	19:57	20:28	20:57
3	07:57		08:22 (T68)	07:41		08:22 (T68)	07:04		07:23 (T67)	07:13	06:28	06:01
	17:15	93	16:12 (T69)	17:50	57	09:19 (T68)	18:24	11	07:34 (T67)	19:58	20:29	20:58
4	07:57		08:22 (T68)	07:40		08:21 (T68)	07:02		07:22 (T67)	07:11	06:27	06:01
	17:16	94	16:13 (T69)	17:51	57	09:18 (T68)	18:25	15	07:37 (T67)	19:59	20:30	20:59
5	07:57		08:22 (T68)	07:39		08:21 (T68)	07:01		07:20 (T67)	07:10	06:25	06:00
	17:17	94	16:13 (T69)	17:53	57	09:18 (T68)	18:26	18	07:38 (T67)	20:00	20:31	20:59
6	07:57		08:22 (T68)	07:38		08:22 (T68)	06:59		07:19 (T67)	07:08	06:24	06:00
	17:18	94	16:13 (T69)	17:54	56	09:18 (T68)	18:28	21	07:40 (T67)	20:00	20:32	21:00
7	07:57		08:22 (T68)	07:37		08:23 (T68)	06:58		07:17 (T67)	07:06	06:23	06:00
	17:19	96	16:14 (T69)	17:55	55	09:18 (T68)	18:29	23	07:40 (T67)	20:01	20:33	21:01
8	07:57		08:22 (T68)	07:36		08:23 (T68)	07:56		08:15 (T67)	07:05	06:22	05:59
	17:20	96	16:14 (T69)	17:56	55	09:18 (T68)	19:30	25	08:40 (T67)	20:02	20:34	21:01
9	07:57		08:22 (T68)	07:35		08:24 (T68)	07:54		08:14 (T67)	07:03	06:21	05:59
	17:21	97	16:14 (T69)	17:58	53	09:17 (T68)	19:31	27	08:41 (T67)	20:03	20:35	21:02
10	07:57		08:21 (T68)	07:33		08:24 (T68)	07:53		08:12 (T67)	07:02	06:20	05:59
	17:22	98	16:14 (T69)	17:59	52	09:16 (T68)	19:32	29	08:41 (T67)	20:04	20:36	21:03
11	07:56		08:21 (T68)	07:32		08:25 (T68)	07:51		08:10 (T67)	07:00	06:18	05:59
	17:23	97	16:14 (T69)	18:00	50	09:15 (T68)	19:33	30	08:40 (T67)	20:06	20:37	21:03
12	07:56		08:22 (T68)	07:31		08:26 (T68)	07:50		08:09 (T67)	06:58	06:17	05:59
	17:24	96	16:14 (T69)	18:01	49	09:15 (T68)	19:34	32	08:41 (T67)	20:07	20:38	21:04
13	07:56		08:21 (T68)	07:30		08:27 (T68)	07:48		08:08 (T67)	06:57	06:16	05:59
	17:25	98	16:14 (T69)	18:03	47	09:14 (T68)	19:35	32	08:40 (T67)	20:08	20:39	21:04
14	07:55		08:21 (T68)	07:28		08:27 (T68)	07:46		08:07 (T67)	06:55	06:15	05:59
	17:26	98	16:14 (T69)	18:04	45	09:12 (T68)	19:37	32	08:39 (T67)	20:09	20:40	21:05
15	07:55		08:20 (T68)	07:27		08:29 (T68)	07:45		08:08 (T67)	06:54	06:14	05:59
	17:27	97	16:13 (T69)	18:05	42	09:11 (T68)	19:38	31	08:39 (T67)	20:10	20:41	21:05
16	07:55		08:21 (T68)	07:26		08:31 (T68)	07:43		08:08 (T67)	06:52	06:13	05:59
	17:28	97	16:13 (T69)	18:06	39	09:10 (T68)	19:39	30	08:38 (T67)	20:11	20:42	21:06
17	07:54		08:20 (T68)	07:25		08:31 (T68)	07:41		08:08 (T67)	06:51	06:12	05:59
	17:30	97	16:13 (T69)	18:08	37	09:08 (T68)	19:40	29	08:37 (T67)	20:12	20:43	21:06
18	07:54		08:20 (T68)	07:23		08:33 (T68)	07:40		08:10 (T67)	06:49	06:11	05:59
	17:31	96	16:13 (T69)	18:09	33	09:06 (T68)	19:41	26	08:36 (T67)	20:13	20:44	21:06
19	07:53		08:20 (T68)	07:22		08:35 (T68)	07:38		08:10 (T67)	06:47	06:11	05:59
	17:32	95	16:12 (T69)	18:10	28	09:03 (T68)	19:42	24	08:34 (T67)	20:14	20:45	21:07
20	07:53		08:20 (T68)	07:20		08:38 (T68)	07:36		08:11 (T67)	06:46	06:10	05:59
	17:33	94	16:12 (T69)	18:11	23	09:01 (T68)	19:43	21	08:32 (T67)	20:15	20:46	21:07
21	07:52		08:20 (T68)	07:19		08:43 (T68)	07:35		08:14 (T67)	06:44	06:09	05:59
	17:34	92	16:11 (T69)	18:12	14	08:57 (T68)	19:44	16	08:30 (T67)	20:16	20:47	21:07
22	07:51		08:20 (T68)	07:18			07:33		08:17 (T67)	06:43	06:08	05:59
	17:35	91	16:10 (T69)	18:14			19:45	8	08:25 (T67)	20:17	20:48	21:07
23	07:51		08:20 (T68)	07:16			07:31			06:42	06:07	06:00
	17:37	88	16:09 (T69)	18:15			19:46			20:18	20:49	21:08
24	07:50		08:20 (T68)	07:15			07:30			06:40	06:07	06:00
	17:38	85	16:08 (T69)	18:16			19:47			20:19	20:50	21:08
25	07:49		08:20 (T68)	07:13			07:28			06:39	06:06	06:00
	17:39	82	16:06 (T69)	18:17			19:48			20:20	20:51	21:08
26	07:48		08:20 (T68)	07:12			07:26			06:37	06:05	06:00
	17:40	76	16:03 (T69)	18:18			19:50			20:21	20:52	21:08
27	07:48		08:20 (T68)	07:10			07:25			06:36	06:05	06:01
	17:42	68	15:59 (T69)	18:20			19:51			20:23	20:52	21:08
28	07:47		08:20 (T68)	07:09			07:23			06:34	06:04	06:01
	17:43	58	09:18 (T68)	18:21			19:52			20:24	20:53	21:08
29	07:46		08:21 (T68)				07:21			06:33	06:03	06:02
	17:44	58	09:19 (T68)				19:53			20:25	20:54	21:08
30	07:45		08:21 (T68)				07:20			06:32	06:03	06:02
	17:45	58	09:19 (T68)				19:54			20:26	20:55	21:08
31	07:44		08:21 (T68)				07:18				06:02	
	17:46	58	09:19 (T68)				19:55				20:56	
Potential sun hours	297			297			370			399	448	452
Total, worst case		2725			965			486				
Sun reduction		0.31			0.40			0.44				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.62			0.52			0.58				
Total reduction		0.20			0.21			0.26				
Total, real		533			203			126				

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1518 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1766)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August	September			October			November			December		
1	06:03	06:27	06:57			07:28		07:47 (T67)	07:02		07:53 (T68)	07:37		08:03 (T68)
	21:08	20:50	20:07			19:15	32	08:19 (T67)	17:28	53	08:46 (T68)	17:04	97	15:56 (T69)
2	06:03	06:28	06:58			07:29		07:48 (T67)	07:03		07:53 (T68)	07:38		08:04 (T68)
	21:08	20:49	20:05			19:13	31	08:19 (T67)	17:27	53	08:46 (T68)	17:04	98	15:57 (T69)
3	06:04	06:29	06:59			07:30		07:49 (T67)	07:04		07:53 (T68)	07:39		08:05 (T68)
	21:08	20:48	20:04			19:11	30	08:19 (T67)	17:26	55	08:48 (T68)	17:04	97	15:57 (T69)
4	06:04	06:30	07:00			07:31		07:50 (T67)	07:05		07:52 (T68)	07:40		08:06 (T68)
	21:08	20:47	20:02			19:10	28	08:18 (T67)	17:25	56	08:48 (T68)	17:03	96	15:58 (T69)
5	06:05	06:30	07:01			07:32		07:52 (T67)	07:07		07:52 (T68)	07:41		08:07 (T68)
	21:08	20:45	20:01			19:08	26	08:18 (T67)	17:23	56	08:48 (T68)	17:03	95	15:59 (T69)
6	06:05	06:31	07:02			07:33		07:53 (T67)	07:08		07:51 (T68)	07:42		08:08 (T68)
	21:07	20:44	19:57			19:07	24	08:17 (T67)	17:22	57	08:48 (T68)	17:03	94	15:59 (T69)
7	06:06	06:32	07:03			07:34		07:54 (T67)	07:09		07:52 (T68)	07:43		08:09 (T68)
	21:07	20:43	19:56			19:05	22	08:16 (T67)	17:21	57	08:49 (T68)	17:03	94	16:00 (T69)
8	06:07	06:33	07:04			07:35		07:55 (T67)	07:10		07:51 (T68)	07:44		08:10 (T68)
	21:07	20:42	19:54			19:03	19	08:14 (T67)	17:20	58	08:49 (T68)	17:03	94	16:01 (T69)
9	06:07	06:34	07:05			07:36		07:56 (T67)	07:11		07:51 (T68)	07:44		08:11 (T68)
	21:06	20:41	19:52			19:02	16	08:12 (T67)	17:19	58	08:49 (T68)	17:03	93	16:01 (T69)
10	06:08	06:35	07:06			07:37		07:57 (T67)	07:13		07:52 (T68)	07:45		08:12 (T68)
	21:06	20:39	19:51			19:00	13	08:10 (T67)	17:18	58	08:50 (T68)	17:03	92	16:02 (T69)
11	06:09	06:36	07:07			07:38		07:58 (T67)	07:14		07:52 (T68)	07:46		08:13 (T68)
	21:06	20:38	19:49			18:58	9	08:07 (T67)	17:17	58	08:50 (T68)	17:03	92	16:03 (T69)
12	06:09	06:37	07:08			07:39			07:15		07:52 (T68)	07:47		08:14 (T68)
	21:05	20:37	19:47			18:57			17:16	58	08:50 (T68)	17:03	90	16:03 (T69)
13	06:10	06:38	07:09			07:40			07:16		07:52 (T68)	07:48		08:15 (T68)
	21:05	20:35	19:45			18:55			17:15	58	08:50 (T68)	17:03	89	16:03 (T69)
14	06:11	06:39	07:10			07:41			07:17		07:53 (T68)	07:49		08:16 (T68)
	21:04	20:34	19:44			18:54			17:14	57	08:50 (T68)	17:04	89	16:04 (T69)
15	06:12	06:40	07:11			07:42			07:19		07:53 (T68)	07:49		08:17 (T68)
	21:04	20:33	19:42			18:52			17:13	70	15:33 (T69)	17:04	89	16:05 (T69)
16	06:12	06:41	07:12			07:44			07:20		07:53 (T68)	07:50		08:17 (T68)
	21:03	20:31	19:40			18:51			17:13	77	15:36 (T69)	17:04	88	16:05 (T69)
17	06:13	06:42	07:13			07:45			07:21		07:54 (T68)	07:51		08:18 (T68)
	21:03	20:30	19:39			18:49			17:12	82	15:40 (T69)	17:04	88	16:06 (T69)
18	06:14	06:43	07:14			07:46			07:22		07:54 (T68)	07:51		08:19 (T68)
	21:02	20:28	19:37			18:48			17:11	85	15:42 (T69)	17:05	86	16:06 (T69)
19	06:15	06:44	07:15			07:47			07:23		07:54 (T68)	07:52		08:19 (T68)
	21:01	20:27	19:35			18:46			17:10	88	15:43 (T69)	17:05	86	16:06 (T69)
20	06:16	06:45	07:16			07:48			07:24		07:55 (T68)	07:53		08:20 (T68)
	21:01	20:26	19:34			18:45			17:10	91	15:45 (T69)	17:05	87	16:07 (T69)
21	06:16	06:46	07:17		08:05 (T67)	07:49		09:12 (T68)	07:26		07:55 (T68)	07:53		08:21 (T68)
	21:00	20:24	19:32	3	08:08 (T67)	18:43	17	09:29 (T68)	17:09	93	15:46 (T69)	17:06	86	16:07 (T69)
22	06:17	06:47	07:18		07:59 (T67)	07:50		09:08 (T68)	07:27		07:56 (T68)	07:54		08:22 (T68)
	20:59	20:23	19:30	14	08:13 (T67)	18:42	24	09:32 (T68)	17:08	94	15:48 (T69)	17:06	86	16:08 (T69)
23	06:18	06:48	07:19		07:56 (T67)	07:51		09:05 (T68)	07:28		07:57 (T68)	07:54		08:21 (T68)
	20:58	20:21	19:28	20	08:16 (T67)	18:40	30	09:35 (T68)	17:08	95	15:49 (T69)	17:07	87	16:08 (T69)
24	06:19	06:49	07:20		07:54 (T67)	07:53		09:03 (T68)	07:29		07:57 (T68)	07:55		08:22 (T68)
	20:57	20:20	19:27	23	08:17 (T67)	18:39	33	09:36 (T68)	17:07	96	15:50 (T69)	17:07	86	16:09 (T69)
25	06:20	06:50	07:21		07:53 (T67)	07:54		09:01 (T68)	07:30		07:58 (T68)	07:55		08:22 (T68)
	20:57	20:18	19:25	25	08:18 (T67)	18:37	37	09:38 (T68)	17:06	97	15:51 (T69)	17:08	86	16:09 (T69)
26	06:21	06:51	07:22		07:51 (T67)	07:55		09:00 (T68)	07:31		07:59 (T68)	07:55		08:22 (T68)
	20:56	20:17	19:23	28	08:19 (T67)	18:36	40	09:40 (T68)	17:06	97	15:51 (T69)	17:09	88	16:10 (T69)
27	06:22	06:52	07:23		07:50 (T67)	07:56		08:58 (T68)	07:32		08:00 (T68)	07:56		08:23 (T68)
	20:55	20:15	19:22	29	08:19 (T67)	18:35	43	09:41 (T68)	17:06	97	15:53 (T69)	17:09	88	16:11 (T69)
28	06:23	06:53	07:24		07:49 (T67)	07:57		08:57 (T68)	07:34		08:01 (T68)	07:56		08:23 (T68)
	20:54	20:13	19:20	31	08:20 (T67)	18:33	45	09:42 (T68)	17:05	98	15:54 (T69)	17:10	89	16:11 (T69)
29	06:24	06:54	07:25		07:48 (T67)	07:58		08:56 (T68)	07:35		08:02 (T68)	07:56		08:23 (T68)
	20:53	20:12	19:18	32	08:20 (T67)	18:32	47	09:43 (T68)	17:05	98	15:55 (T69)	17:11	88	16:11 (T69)
30	06:25	06:55	07:26		07:47 (T67)	07:59		08:55 (T68)	07:36		08:03 (T68)	07:57		08:23 (T68)
	20:52	20:10	19:17	33	08:20 (T67)	18:31	50	09:45 (T68)	17:04	96	15:55 (T69)	17:12	89	16:11 (T69)
31	06:26	06:56				08:01		08:54 (T68)				07:57		08:23 (T68)
	20:51	20:09				18:29	51	09:45 (T68)				17:12	89	16:11 (T69)
Potential sun hours	459	428	375			345			298			288		
Total, worst case				238			667			2246			2796	
Sun reduction				0.59			0.48			0.30			0.22	
Oper. time red.				1.00			1.00			1.00			1.00	
Wind dir. red.				0.58			0.54			0.58			0.66	
Total reduction				0.35			0.26			0.18			0.15	
Total, real				83			176			397			415	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1549 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1769)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May	June
1	07:57		16:01 (T69)	07:43		15:46 (T69)	07:07		07:31 (T68)	07:16		07:35 (T67)	06:30	06:02
	17:13	27	16:28 (T69)	17:48	79	17:05 (T69)	18:22	97	17:01 (T69)	19:56	54	08:50 (T68)	20:27	20:57
2	07:57		16:00 (T69)	07:42		15:45 (T69)	07:06		07:28 (T68)	07:15		07:34 (T67)	06:29	06:01
	17:14	29	16:29 (T69)	17:49	81	17:06 (T69)	18:23	98	16:59 (T69)	19:57	51	08:48 (T68)	20:28	20:57
3	07:57		15:59 (T69)	07:41		15:45 (T69)	07:04		07:26 (T68)	07:13		07:32 (T67)	06:28	06:01
	17:15	32	16:31 (T69)	17:50	81	17:06 (T69)	18:24	99	16:57 (T69)	19:58	45	08:44 (T68)	20:29	20:58
4	07:57		15:59 (T69)	07:40		15:44 (T69)	07:02		07:25 (T68)	07:11		07:30 (T67)	06:27	06:01
	17:16	33	16:32 (T69)	17:51	82	17:06 (T69)	18:25	99	16:56 (T69)	19:59	30	08:00 (T67)	20:30	20:59
5	07:57		15:58 (T69)	07:39		15:44 (T69)	07:01		07:23 (T68)	07:10		07:30 (T67)	06:25	06:00
	17:17	36	16:34 (T69)	17:53	82	17:06 (T69)	18:26	98	16:54 (T69)	20:00	30	08:00 (T67)	20:31	20:59
6	07:57		15:58 (T69)	07:38		15:44 (T69)	06:59		07:22 (T68)	07:08		07:29 (T67)	06:24	06:00
	17:18	38	16:36 (T69)	17:54	83	17:07 (T69)	18:28	98	16:53 (T69)	20:00	30	07:59 (T67)	20:32	21:00
7	07:57		15:57 (T69)	07:37		15:44 (T69)	06:58		07:20 (T68)	07:06		07:29 (T67)	06:23	06:00
	17:19	40	16:37 (T69)	17:55	84	17:08 (T69)	18:29	96	16:51 (T69)	20:01	29	07:58 (T67)	20:33	21:01
8	07:57		15:57 (T69)	07:36		15:44 (T69)	07:56		08:18 (T68)	07:05		07:30 (T67)	06:22	05:59
	17:20	42	16:39 (T69)	17:57	84	17:08 (T69)	19:30	94	17:48 (T69)	20:02	27	07:57 (T67)	20:34	21:01
9	07:57		15:56 (T69)	07:35		15:45 (T69)	07:54		08:18 (T68)	07:03		07:30 (T67)	06:21	05:59
	17:21	44	16:40 (T69)	17:58	83	17:08 (T69)	19:31	90	17:46 (T69)	20:03	26	07:56 (T67)	20:35	21:02
10	07:57		15:55 (T69)	07:33		15:44 (T69)	07:53		08:17 (T68)	07:02		07:31 (T67)	06:20	05:59
	17:22	46	16:41 (T69)	17:59	84	17:08 (T69)	19:32	86	17:43 (T69)	20:04	23	07:54 (T67)	20:36	21:03
11	07:56		15:55 (T69)	07:32		15:44 (T69)	07:51		08:16 (T68)	07:00		07:33 (T67)	06:18	05:59
	17:23	48	16:43 (T69)	18:00	84	17:08 (T69)	19:33	78	17:38 (T69)	20:06	20	07:53 (T67)	20:37	21:03
12	07:56		15:55 (T69)	07:31		15:44 (T69)	07:50		08:16 (T68)	06:58		07:34 (T67)	06:17	05:59
	17:24	49	16:44 (T69)	18:01	85	17:09 (T69)	19:34	67	17:33 (T69)	20:07	16	07:50 (T67)	20:38	21:04
13	07:56		15:53 (T69)	07:30		15:45 (T69)	07:48		08:15 (T68)	06:57		07:37 (T67)	06:16	05:59
	17:25	52	16:45 (T69)	18:03	84	17:09 (T69)	19:35	55	09:10 (T68)	20:08	10	07:47 (T67)	20:39	21:04
14	07:55		15:53 (T69)	07:28		15:44 (T69)	07:46		08:14 (T68)	06:55			06:15	05:59
	17:26	54	16:47 (T69)	18:04	84	17:08 (T69)	19:37	56	09:10 (T68)	20:09			20:40	21:05
15	07:55		15:52 (T69)	07:27		15:45 (T69)	07:45		08:14 (T68)	06:54			06:14	05:59
	17:27	56	16:48 (T69)	18:05	84	17:09 (T69)	19:38	57	09:11 (T68)	20:10			20:41	21:05
16	07:55		15:52 (T69)	07:26		15:45 (T69)	07:43		08:13 (T68)	06:52			06:13	05:59
	17:28	57	16:49 (T69)	18:06	84	17:09 (T69)	19:39	57	09:10 (T68)	20:11			20:42	21:06
17	07:54		15:51 (T69)	07:25		15:45 (T69)	07:41		08:12 (T68)	06:51			06:12	05:59
	17:30	59	16:50 (T69)	18:08	83	17:08 (T69)	19:40	57	09:09 (T68)	20:12			20:43	21:06
18	07:54		15:51 (T69)	07:23		15:46 (T69)	07:40		08:13 (T68)	06:49			06:11	05:59
	17:31	61	16:52 (T69)	18:09	82	17:08 (T69)	19:41	57	09:10 (T68)	20:13			20:44	21:06
19	07:53		15:50 (T69)	07:22		15:46 (T69)	07:38		08:12 (T68)	06:47			06:11	05:59
	17:32	63	16:53 (T69)	18:10	81	17:07 (T69)	19:42	57	09:09 (T68)	20:14			20:45	21:07
20	07:53		15:50 (T69)	07:20		15:47 (T69)	07:36		08:12 (T68)	06:46			06:10	05:59
	17:33	64	16:54 (T69)	18:11	80	17:07 (T69)	19:43	56	09:08 (T68)	20:15			20:46	21:07
21	07:52		15:49 (T69)	07:19		15:47 (T69)	07:35		08:13 (T68)	06:44			06:09	05:59
	17:34	66	16:55 (T69)	18:12	80	17:07 (T69)	19:44	55	09:08 (T68)	20:16			20:47	21:07
22	07:51		15:49 (T69)	07:18		15:48 (T69)	07:33		08:13 (T68)	06:43			06:08	05:59
	17:35	67	16:56 (T69)	18:14	78	17:06 (T69)	19:45	54	09:07 (T68)	20:17			20:48	21:07
23	07:51		15:49 (T69)	07:16		15:49 (T69)	07:31		08:13 (T68)	06:42			06:07	06:00
	17:37	69	16:58 (T69)	18:15	77	17:06 (T69)	19:46	52	09:05 (T68)	20:18			20:49	21:08
24	07:50		15:48 (T69)	07:15		15:49 (T69)	07:30		08:14 (T68)	06:40			06:07	06:00
	17:38	70	16:58 (T69)	18:16	76	17:05 (T69)	19:47	51	09:05 (T68)	20:19			20:50	21:08
25	07:49		15:48 (T69)	07:13		15:50 (T69)	07:28		07:47 (T67)	06:39			06:06	06:00
	17:39	71	16:59 (T69)	18:17	74	17:04 (T69)	19:48	55	09:03 (T68)	20:20			20:51	21:08
26	07:48		15:47 (T69)	07:12		15:50 (T69)	07:26		07:45 (T67)	06:37			06:05	06:00
	17:40	73	17:00 (T69)	18:18	73	17:03 (T69)	19:50	59	09:02 (T68)	20:21			20:52	21:08
27	07:48		15:47 (T69)	07:10		07:38 (T68)	07:25		07:44 (T67)	06:36			06:05	06:01
	17:42	74	17:01 (T69)	18:20	87	17:03 (T69)	19:51	60	09:01 (T68)	20:23			20:52	21:08
28	07:47		15:46 (T69)	07:09		07:34 (T68)	07:23		07:42 (T67)	06:35			06:04	06:01
	17:43	75	17:01 (T69)	18:21	92	17:01 (T69)	19:52	60	08:59 (T68)	20:24			20:53	21:08
29	07:46		15:47 (T69)				07:21		07:40 (T67)	06:33			06:03	06:02
	17:44	76	17:03 (T69)				19:53	60	08:57 (T68)	20:25			20:54	21:08
30	07:45		15:46 (T69)				07:20		07:39 (T67)	06:32			06:03	06:02
	17:45	78	17:04 (T69)				19:54	60	08:56 (T68)	20:26			20:55	21:08
31	07:44		15:46 (T69)				07:18		07:37 (T67)				06:02	
	17:46	78	17:04 (T69)				19:55	58	08:53 (T68)				20:56	
Potential sun hours	297			297			370			399			448	452
Total, worst case		1727			2291			2176			391			
Sun reduction		0.31			0.40			0.44			0.52			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.73			0.73			0.62			0.63			
Total reduction		0.23			0.29			0.28			0.33			
Total, real		396			675			599			129			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1549 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1769)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August			September			October			November			December		
1	06:03	06:27			06:57		07:31 (T67)	07:28		07:54 (T68)	07:02		15:14 (T69)	07:37		15:37 (T69)
	21:08	20:50			20:07	21	07:52 (T67)	19:15	55	08:49 (T68)	17:28	84	16:38 (T69)	17:04	48	16:25 (T69)
2	06:03	06:28			06:58		07:30 (T67)	07:29		07:54 (T68)	07:03		15:13 (T69)	07:38		15:38 (T69)
	21:08	20:49			20:05	23	07:53 (T67)	19:13	75	17:15 (T69)	17:27	84	16:37 (T69)	17:04	46	16:24 (T69)
3	06:04	06:29			06:59		07:28 (T67)	07:30		07:54 (T68)	07:04		15:14 (T69)	07:39		15:39 (T69)
	21:08	20:48			20:04	26	07:54 (T67)	19:11	83	17:19 (T69)	17:26	84	16:38 (T69)	17:04	45	16:24 (T69)
4	06:04	06:30			07:00		07:27 (T67)	07:31		07:54 (T68)	07:05		15:14 (T69)	07:40		15:41 (T69)
	21:08	20:47			20:02	27	07:54 (T67)	19:10	89	17:22 (T69)	17:25	83	16:37 (T69)	17:03	42	16:23 (T69)
5	06:05	06:31			07:01		07:26 (T67)	07:32		07:56 (T68)	07:07		15:14 (T69)	07:41		15:42 (T69)
	21:08	20:45			20:01	29	07:55 (T67)	19:08	93	17:25 (T69)	17:23	83	16:37 (T69)	17:03	40	16:22 (T69)
6	06:05	06:31			07:02		07:25 (T67)	07:33		07:56 (T68)	07:08		15:14 (T69)	07:42		15:44 (T69)
	21:07	20:44			19:57	30	07:55 (T67)	19:07	96	17:27 (T69)	17:22	82	16:36 (T69)	17:03	38	16:22 (T69)
7	06:06	06:32			07:03		07:25 (T67)	07:34		07:57 (T68)	07:09		15:15 (T69)	07:43		15:45 (T69)
	21:07	20:43			19:56	30	07:55 (T67)	19:05	97	17:28 (T69)	17:21	82	16:37 (T69)	17:03	36	16:21 (T69)
8	06:07	06:33			07:04		07:25 (T67)	07:35		07:58 (T68)	07:10		15:15 (T69)	07:44		15:47 (T69)
	21:07	20:42			19:54	30	07:55 (T67)	19:03	98	17:29 (T69)	17:20	81	16:36 (T69)	17:03	34	16:21 (T69)
9	06:07	06:34			07:05		07:26 (T67)	07:36		07:59 (T68)	07:11		15:15 (T69)	07:44		15:48 (T69)
	21:06	20:41			19:52	45	08:37 (T68)	19:02	99	17:30 (T69)	17:19	81	16:36 (T69)	17:03	32	16:20 (T69)
10	06:08	06:35			07:06		07:27 (T67)	07:37		08:00 (T68)	07:13		15:17 (T69)	07:45		15:50 (T69)
	21:06	20:39			19:51	51	08:41 (T68)	19:00	99	17:31 (T69)	17:18	79	16:36 (T69)	17:03	30	16:20 (T69)
11	06:09	06:36			07:07		07:28 (T67)	07:38		08:01 (T68)	07:14		15:17 (T69)	07:46		15:52 (T69)
	21:06	20:38			19:49	55	08:43 (T68)	18:58	99	17:32 (T69)	17:17	78	16:35 (T69)	17:03	27	16:19 (T69)
12	06:09	06:37			07:08		07:28 (T67)	07:39		08:03 (T68)	07:15		15:17 (T69)	07:47		15:52 (T69)
	21:05	20:37			19:47	57	08:44 (T68)	18:57	97	17:33 (T69)	17:16	78	16:35 (T69)	17:03	26	16:18 (T69)
13	06:10	06:38			07:09		07:29 (T67)	07:40		08:05 (T68)	07:16		15:18 (T69)	07:48		15:54 (T69)
	21:05	20:35			19:45	59	08:46 (T68)	18:55	95	17:34 (T69)	17:15	76	16:34 (T69)	17:03	23	16:17 (T69)
14	06:11	06:39			07:10		07:30 (T67)	07:41		08:08 (T68)	07:17		15:19 (T69)	07:49		15:56 (T69)
	21:04	20:34			19:44	60	08:47 (T68)	18:54	90	17:34 (T69)	17:14	75	16:34 (T69)	17:04	21	16:17 (T69)
15	06:12	06:40			07:11		07:31 (T67)	07:42		08:14 (T68)	07:19		15:20 (T69)	07:49		15:57 (T69)
	21:04	20:33			19:42	60	08:48 (T68)	18:52	82	17:36 (T69)	17:13	74	16:34 (T69)	17:04	20	16:17 (T69)
16	06:12	06:41			07:12		07:32 (T67)	07:44		16:23 (T69)	07:20		15:20 (T69)	07:50		15:58 (T69)
	21:03	20:31			19:40	60	08:49 (T68)	18:51	73	17:36 (T69)	17:13	73	16:33 (T69)	17:04	18	16:16 (T69)
17	06:13	06:42			07:13		07:33 (T67)	07:45		16:21 (T69)	07:21		15:22 (T69)	07:51		16:00 (T69)
	21:03	20:30			19:39	59	08:50 (T68)	18:49	75	17:36 (T69)	17:12	71	16:33 (T69)	17:04	16	16:16 (T69)
18	06:14	06:43			07:14		07:34 (T67)	07:46		16:20 (T69)	07:22		15:22 (T69)	07:51		16:01 (T69)
	21:02	20:28			19:37	57	08:51 (T68)	18:48	76	17:36 (T69)	17:11	70	16:32 (T69)	17:05	15	16:16 (T69)
19	06:15	06:44			07:15		08:00 (T68)	07:47		16:19 (T69)	07:23		15:23 (T69)	07:52		16:02 (T69)
	21:01	20:27			19:35	51	08:51 (T68)	18:46	78	17:37 (T69)	17:10	69	16:32 (T69)	17:05	13	16:15 (T69)
20	06:16	06:45			07:16		07:59 (T68)	07:48		16:18 (T69)	07:24		15:24 (T69)	07:53		16:03 (T69)
	21:01	20:26			19:34	52	08:51 (T68)	18:45	79	17:37 (T69)	17:10	67	16:31 (T69)	17:05	12	16:15 (T69)
21	06:16	06:46			07:17		07:58 (T68)	07:49		16:18 (T69)	07:26		15:24 (T69)	07:53		16:04 (T69)
	21:00	20:24			19:32	54	08:52 (T68)	18:43	80	17:38 (T69)	17:09	66	16:30 (T69)	17:06	11	16:15 (T69)
22	06:17	06:47			07:18		07:57 (T68)	07:50		16:17 (T69)	07:27		15:26 (T69)	07:54		16:05 (T69)
	20:59	20:23			19:30	55	08:52 (T68)	18:42	81	17:38 (T69)	17:08	64	16:30 (T69)	17:06	11	16:16 (T69)
23	06:18	06:48			07:19		07:57 (T68)	07:51		16:16 (T69)	07:28		15:27 (T69)	07:54		16:04 (T69)
	20:58	20:21			19:28	55	08:52 (T68)	18:40	82	17:38 (T69)	17:08	63	16:30 (T69)	17:07	12	16:16 (T69)
24	06:19	06:49			07:20		07:56 (T68)	07:53		16:15 (T69)	07:29		15:28 (T69)	07:55		16:05 (T69)
	20:57	20:20			19:27	56	08:52 (T68)	18:39	83	17:38 (T69)	17:07	61	16:29 (T69)	17:07	13	16:18 (T69)
25	06:20	06:50			07:21		07:55 (T68)	07:54		16:15 (T69)	07:30		15:29 (T69)	07:55		16:05 (T69)
	20:57	20:18			19:25	57	08:52 (T68)	18:37	83	17:38 (T69)	17:06	59	16:28 (T69)	17:08	13	16:18 (T69)
26	06:21	06:51			07:22		07:55 (T68)	07:55		16:15 (T69)	07:31		15:30 (T69)	07:55		16:04 (T69)
	20:56	20:17			19:23	57	08:52 (T68)	18:36	83	17:38 (T69)	17:06	57	16:27 (T69)	17:09	15	16:19 (T69)
27	06:22	06:52			07:23		07:55 (T68)	07:56		16:14 (T69)	07:32		15:32 (T69)	07:56		16:04 (T69)
	20:55	20:15			19:22	56	08:51 (T68)	18:35	84	17:38 (T69)	17:06	56	16:28 (T69)	17:09	17	16:21 (T69)
28	06:23	06:53			07:24		07:54 (T68)	07:57		16:14 (T69)	07:34		15:33 (T69)	07:56		16:04 (T69)
	20:54	20:13			19:20	57	08:51 (T68)	18:33	84	17:38 (T69)	17:05	54	16:27 (T69)	17:10	18	16:22 (T69)
29	06:24	06:54			07:25		07:54 (T68)	07:58		16:14 (T69)	07:35		15:34 (T69)	07:56		16:03 (T69)
	20:53	20:12			19:18	57	08:51 (T68)	18:32	84	17:38 (T69)	17:05	52	16:26 (T69)	17:11	21	16:24 (T69)
30	06:25	06:55		07:37 (T67)	07:26		07:54 (T68)	07:59		16:14 (T69)	07:36		15:36 (T69)	07:57		16:02 (T69)
	20:52	20:10	10	07:47 (T67)	19:17	56	08:50 (T68)	18:31	84	17:38 (T69)	17:04	50	16:26 (T69)	17:12	23	16:25 (T69)
31	06:26	06:56		07:34 (T67)				08:01		16:14 (T69)				07:57		16:01 (T69)
	20:51	20:09	16	07:50 (T67)				18:29	84	17:38 (T69)				17:12	25	16:26 (T69)
Potential sun hours	459	428			375			345			298			288		
Total, worst case			26			1442			2640			2136			761	
Sun reduction			0.61			0.59			0.48			0.30			0.22	
Oper. time red.			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.			0.64			0.59			0.69			0.73			0.73	
Total reduction			0.40			0.35			0.34			0.22			0.16	
Total, real			10			512			890			474			124	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1570 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1770)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March			April			May			June
1	07:57	07:44	07:07			07:16		07:39 (T57a)	06:31		07:09 (T53)	06:02
	17:13	17:48	18:22			19:56	28	08:07 (T57a)	20:27	55	08:04 (T53)	20:57
2	07:57	07:43	07:06			07:15		07:40 (T57a)	06:29		07:09 (T53)	06:01
	17:14	17:49	18:23			19:57	26	08:06 (T57a)	20:28	55	08:04 (T53)	20:58
3	07:57	07:42	07:04			07:13		07:41 (T57a)	06:28		07:10 (T53)	06:01
	17:15	17:50	18:24			19:58	23	08:04 (T57a)	20:29	54	08:04 (T53)	20:58
4	07:58	07:41	07:03		07:22 (T78a)	07:11		07:41 (T57a)	06:27		07:10 (T53)	06:01
	17:16	17:52	18:26	4	07:26 (T78a)	19:59	21	08:02 (T57a)	20:30	53	08:03 (T53)	20:59
5	07:58	07:39	07:01		07:20 (T78a)	07:10		07:43 (T57a)	06:26		07:10 (T53)	06:00
	17:17	17:53	18:27	8	07:28 (T78a)	20:00	18	08:01 (T57a)	20:31	52	08:02 (T53)	21:00
6	07:57	07:38	07:00		07:19 (T78a)	07:08		07:35 (T53)	06:24		07:10 (T53)	06:00
	17:18	17:54	18:28	10	07:29 (T78a)	20:00	23	07:58 (T57a)	20:32	51	08:01 (T53)	21:01
7	07:57	07:37	06:58		07:17 (T78a)	07:07		07:31 (T53)	06:23		07:11 (T53)	06:00
	17:19	17:55	18:29	13	07:30 (T78a)	20:02	24	07:55 (T53)	20:33	49	08:00 (T53)	21:01
8	07:57	07:36	07:56		08:16 (T78a)	07:05		07:28 (T53)	06:22		07:12 (T53)	05:59
	17:20	17:57	19:30	15	08:31 (T78a)	20:03	30	07:58 (T53)	20:34	48	08:00 (T53)	21:02
9	07:57	07:35	07:55		08:14 (T78a)	07:03		07:25 (T53)	06:21		07:13 (T53)	05:59
	17:21	17:58	19:31	17	08:31 (T78a)	20:04	34	07:59 (T53)	20:36	46	07:59 (T53)	21:02
10	07:57	07:34	07:53		08:12 (T78a)	07:02		07:23 (T53)	06:20		07:13 (T53)	05:59
	17:22	17:59	19:32	18	08:30 (T78a)	20:05	38	08:01 (T53)	20:37	45	07:58 (T53)	21:03
11	07:57	07:33	07:51		08:11 (T78a)	07:00		07:21 (T53)	06:19		07:14 (T53)	05:59
	17:23	18:00	19:33	20	08:31 (T78a)	20:06	41	08:02 (T53)	20:38	43	07:57 (T53)	21:04
12	07:56	07:31	07:50		08:09 (T78a)	06:59		07:20 (T53)	06:18		07:15 (T53)	05:59
	17:24	18:02	19:35	21	08:30 (T78a)	20:07	44	08:04 (T53)	20:39	41	07:56 (T53)	21:04
13	07:56	07:30	07:48		08:07 (T78a)	06:57		07:18 (T53)	06:16		07:16 (T53)	05:59
	17:25	18:03	19:36	22	08:29 (T78a)	20:08	46	08:04 (T53)	20:40	39	07:55 (T53)	21:05
14	07:56	07:29	07:47		08:07 (T78a)	06:55		07:16 (T53)	06:15		07:17 (T53)	05:59
	17:26	18:04	19:37	21	08:28 (T78a)	20:09	49	08:05 (T53)	20:41	37	07:54 (T53)	21:05
15	07:55	07:27	07:45		08:07 (T78a)	06:54		07:16 (T53)	06:14		07:18 (T53)	05:59
	17:27	18:05	19:38	20	08:27 (T78a)	20:10	50	08:06 (T53)	20:42	35	07:53 (T53)	21:06
16	07:55	07:26	07:43		08:08 (T78a)	06:52		07:14 (T53)	06:13		07:20 (T53)	05:59
	17:28	18:07	19:39	17	08:25 (T78a)	20:11	52	08:06 (T53)	20:43	31	07:51 (T53)	21:06
17	07:55	07:25	07:42		08:11 (T78a)	06:51		07:14 (T53)	06:13		07:21 (T53)	05:59
	17:30	18:08	19:40	12	08:23 (T78a)	20:12	53	08:07 (T53)	20:44	28	07:49 (T53)	21:06
18	07:54	07:23	07:40		08:14 (T78a)	06:49		07:12 (T53)	06:12		07:22 (T53)	05:59
	17:31	18:09	19:41	4	08:18 (T78a)	20:13	55	08:07 (T53)	20:45	26	07:48 (T53)	21:07
19	07:54	07:22	07:38		07:57 (T57a)	06:48		07:12 (T53)	06:11		07:24 (T53)	05:59
	17:32	18:10	19:42	5	08:02 (T57a)	20:14	55	08:07 (T53)	20:46	21	07:45 (T53)	21:07
20	07:53	07:21	07:37		07:56 (T57a)	06:46		07:11 (T53)	06:10		07:27 (T53)	05:59
	17:33	18:11	19:43	10	08:06 (T57a)	20:15	56	08:07 (T53)	20:46	17	07:44 (T53)	21:07
21	07:52	07:19	07:35		07:54 (T57a)	06:45		07:11 (T53)	06:09		07:31 (T53)	05:59
	17:34	18:13	19:44	13	08:07 (T57a)	20:16	56	08:07 (T53)	20:47	9	07:40 (T53)	21:08
22	07:52	07:18	07:33		07:52 (T57a)	06:43		07:10 (T53)	06:08			05:59
	17:36	18:14	19:45	16	08:08 (T57a)	20:18	57	08:07 (T53)	20:48			21:08
23	07:51	07:16	07:32		07:51 (T57a)	06:42		07:10 (T53)	06:07			06:00
	17:37	18:15	19:47	18	08:09 (T57a)	20:19	57	08:07 (T53)	20:49			21:08
24	07:50	07:15	07:30		07:49 (T57a)	06:40		07:10 (T53)	06:07			06:00
	17:38	18:16	19:48	21	08:10 (T57a)	20:20	57	08:07 (T53)	20:50			21:08
25	07:50	07:13	07:28		07:47 (T57a)	06:39		07:09 (T53)	06:06			06:00
	17:39	18:17	19:49	23	08:10 (T57a)	20:21	58	08:07 (T53)	20:51			21:08
26	07:49	07:12	07:26		07:45 (T57a)	06:37		07:09 (T53)	06:05			06:01
	17:40	18:19	19:50	25	08:10 (T57a)	20:22	58	08:07 (T53)	20:52			21:08
27	07:48	07:10	07:25		07:44 (T57a)	06:36		07:08 (T53)	06:05			06:01
	17:42	18:20	19:51	26	08:10 (T57a)	20:23	58	08:06 (T53)	20:53			21:09
28	07:47	07:09	07:23		07:42 (T57a)	06:35		07:09 (T53)	06:04			06:01
	17:43	18:21	19:52	28	08:10 (T57a)	20:24	57	08:06 (T53)	20:54			21:09
29	07:46		07:21		07:40 (T57a)	06:33		07:09 (T53)	06:03			06:02
	17:44		19:53	29	08:09 (T57a)	20:25	57	08:06 (T53)	20:55			21:09
30	07:45		07:20		07:39 (T57a)	06:32		07:09 (T53)	06:03			06:02
	17:45		19:54	30	08:09 (T57a)	20:26	56	08:05 (T53)	20:55			21:09
31	07:45		07:18		07:39 (T57a)				06:02			
	17:47		19:55	29	08:08 (T57a)				20:56			
Potential sun hours	297	297	370			399			448			452
Total, worst case				495			1337			835		
Sun reduction				0.44			0.52			0.57		
Oper. time red.				1.00			1.00			1.00		
Wind dir. red.				0.61			0.66			0.66		
Total reduction				0.27			0.34			0.38		
Total, real				132			455			313		

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1570 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1770)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November	December
1	06:03			06:27		07:25 (T53)	06:58		07:20 (T53)	07:28		07:48 (T78a)	07:02	07:37
	21:09			20:50	42	08:07 (T53)	20:07	41	08:01 (T53)	19:15	21	08:09 (T78a)	17:28	17:04
2	06:03			06:28		07:24 (T53)	06:59		07:21 (T53)	07:29		07:49 (T78a)	07:03	07:38
	21:08			20:49	44	08:08 (T53)	20:06	38	07:59 (T53)	19:13	20	08:09 (T78a)	17:27	17:04
3	06:04			06:29		07:23 (T53)	07:00		07:23 (T53)	07:30		07:50 (T78a)	07:05	07:39
	21:08			20:48	45	08:08 (T53)	20:04	34	07:57 (T53)	19:12	19	08:09 (T78a)	17:26	17:04
4	06:04			06:30		07:22 (T53)	07:01		07:25 (T53)	07:31		07:51 (T78a)	07:06	07:40
	21:08			20:47	47	08:09 (T53)	20:02	30	07:55 (T53)	19:10	17	08:08 (T78a)	17:25	17:03
5	06:05			06:31		07:21 (T53)	07:02		07:27 (T53)	07:32		07:52 (T78a)	07:07	07:41
	21:08			20:46	49	08:10 (T53)	20:01	25	07:52 (T53)	19:08	16	08:08 (T78a)	17:24	17:03
6	06:05			06:32		07:20 (T53)	07:03		07:31 (T53)	07:33		07:53 (T78a)	07:08	07:42
	21:08			20:45	50	08:10 (T53)	19:58	23	07:54 (T57a)	19:07	14	08:07 (T78a)	17:22	17:03
7	06:06			06:33		07:20 (T53)	07:04		07:39 (T57a)	07:34		07:54 (T78a)	07:09	07:43
	21:07			20:43	51	08:11 (T53)	19:56	17	07:56 (T57a)	19:05	11	08:05 (T78a)	17:21	17:03
8	06:07			06:34		07:19 (T53)	07:05		07:37 (T57a)	07:35		07:55 (T78a)	07:11	07:44
	21:07			20:42	53	08:12 (T53)	19:54	20	07:57 (T57a)	19:03	9	08:04 (T78a)	17:20	17:03
9	06:07			06:35		07:19 (T53)	07:06		07:35 (T57a)	07:36		07:56 (T78a)	07:12	07:45
	21:07			20:41	53	08:12 (T53)	19:52	23	07:58 (T57a)	19:02	6	08:02 (T78a)	17:19	17:03
10	06:08			06:36		07:18 (T53)	07:07		07:33 (T57a)	07:37		07:57 (T78a)	07:13	07:46
	21:06			20:40	54	08:12 (T53)	19:51	26	07:59 (T57a)	19:00	2	07:59 (T78a)	17:18	17:03
11	06:09			06:37		07:18 (T53)	07:08		07:32 (T57a)	07:38			07:14	07:47
	21:06			20:38	55	08:13 (T53)	19:49	28	08:00 (T57a)	18:59			17:17	17:03
12	06:09			06:38		07:17 (T53)	07:09		07:31 (T57a)	07:39			07:15	07:47
	21:06			20:37	56	08:13 (T53)	19:47	29	08:00 (T57a)	18:57			17:16	17:03
13	06:10			06:39		07:17 (T53)	07:10		07:31 (T57a)	07:40			07:16	07:48
	21:05			20:36	56	08:13 (T53)	19:46	29	08:00 (T57a)	18:55			17:15	17:03
14	06:11			06:40		07:17 (T53)	07:11		07:31 (T57a)	07:42			07:18	07:49
	21:05			20:34	56	08:13 (T53)	19:44	29	08:00 (T57a)	18:54			17:14	17:04
15	06:12			06:41		07:16 (T53)	07:12		07:32 (T57a)	07:43			07:19	07:50
	21:04			20:33	58	08:14 (T53)	19:42	28	08:00 (T57a)	18:52			17:14	17:04
16	06:12			06:42		07:16 (T53)	07:13		07:33 (T57a)	07:44			07:20	07:50
	21:04			20:32	58	08:14 (T53)	19:41	26	07:59 (T57a)	18:51			17:13	17:04
17	06:13			06:43		07:16 (T53)	07:14		07:34 (T57a)	07:45			07:21	07:51
	21:03			20:30	57	08:13 (T53)	19:39	25	07:59 (T57a)	18:49			17:12	17:04
18	06:14			06:44		07:16 (T53)	07:15		07:34 (T57a)	07:46			07:22	07:52
	21:02			20:29	57	08:13 (T53)	19:37	23	07:57 (T57a)	18:48			17:11	17:05
19	06:15			06:45		07:16 (T53)	07:16		07:35 (T57a)	07:47			07:24	07:52
	21:02			20:27	57	08:13 (T53)	19:35	21	07:56 (T57a)	18:46			17:10	17:05
20	06:16			06:46		07:15 (T53)	07:17		07:36 (T57a)	07:48			07:25	07:53
	21:01			20:26	58	08:13 (T53)	19:34	19	07:55 (T57a)	18:45			17:10	17:06
21	06:17			06:47		07:15 (T53)	07:18		07:37 (T57a)	07:49			07:26	07:53
	21:00			20:24	58	08:13 (T53)	19:32	17	07:54 (T57a)	18:43			17:09	17:06
22	06:17			06:48		07:16 (T53)	07:19		07:38 (T57a)	07:50			07:27	07:54
	20:59			20:23	56	08:12 (T53)	19:30	14	07:52 (T57a)	18:42			17:08	17:06
23	06:18		07:40 (T53)	06:49		07:16 (T53)	07:20		07:39 (T57a)	07:52			07:28	07:54
	20:59	13	07:53 (T53)	20:21	56	08:12 (T53)	19:29	11	07:50 (T57a)	18:40			17:08	17:07
24	06:19		07:36 (T53)	06:50		07:16 (T53)	07:21		07:40 (T57a)	07:53			07:29	07:55
	20:58	19	07:55 (T53)	20:20	55	08:11 (T53)	19:27	7	07:47 (T57a)	18:39			17:07	17:08
25	06:20		07:34 (T53)	06:51		07:16 (T53)	07:22			07:54			07:31	07:55
	20:57	23	07:57 (T53)	20:18	54	08:10 (T53)	19:25			18:38			17:07	17:08
26	06:21		07:32 (T53)	06:52		07:15 (T53)	07:23		07:53 (T78a)	07:55			07:32	07:56
	20:56	27	07:59 (T53)	20:17	54	08:09 (T53)	19:23	11	08:04 (T78a)	18:36			17:06	17:09
27	06:22		07:31 (T53)	06:53		07:16 (T53)	07:24		07:50 (T78a)	07:56			07:33	07:56
	20:55	30	08:01 (T53)	20:15	52	08:08 (T53)	19:22	16	08:06 (T78a)	18:35			17:06	17:09
28	06:23		07:30 (T53)	06:54		07:16 (T53)	07:25		07:48 (T78a)	07:57			07:34	07:56
	20:54	32	08:02 (T53)	20:14	51	08:07 (T53)	19:20	19	08:07 (T78a)	18:34			17:05	17:10
29	06:24		07:28 (T53)	06:55		07:17 (T53)	07:26		07:47 (T78a)	07:59			07:35	07:57
	20:53	36	08:04 (T53)	20:12	49	08:06 (T53)	19:18	21	08:08 (T78a)	18:32			17:05	17:11
30	06:25		07:27 (T53)	06:56		07:18 (T53)	07:27		07:47 (T78a)	08:00			07:36	07:57
	20:52	38	08:05 (T53)	20:11	46	08:04 (T53)	19:17	22	08:09 (T78a)	18:31			17:04	17:12
31	06:26		07:26 (T53)	06:57		07:19 (T53)				08:01				07:57
	20:51	40	08:06 (T53)	20:09	44	08:03 (T53)				18:30				17:12
Potential sun hours	459			428			375			345			297	287
Total, worst case		258			1631			672			135			
Sun reduction		0.66			0.61			0.59			0.48			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.66			0.66			0.63			0.58			
Total reduction		0.43			0.40			0.37			0.28			
Total, real		112			655			249			38			

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1603 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1776)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January			February			March			April			May			June		
1	07:58		15:39 (T13)	07:44		17:10 (T12)	07:07			07:16		18:59 (T10a)	06:30			06:01		19:58 (T9)
	17:13	47	16:26 (T13)	17:47	13	17:23 (T12)	18:22			19:56	34	19:33 (T10a)	20:27			20:57	27	20:25 (T9)
2	07:58		15:40 (T13)	07:43		17:09 (T12)	07:06			07:14		18:59 (T10a)	06:29			06:01		19:58 (T9)
	17:13	46	16:26 (T13)	17:48	15	17:24 (T12)	18:23			19:57	34	19:33 (T10a)	20:28			20:58	26	20:24 (T9)
3	07:58		15:40 (T13)	07:42		17:08 (T12)	07:04			07:13		18:59 (T10a)	06:27			06:00		19:59 (T9)
	17:14	46	16:26 (T13)	17:50	18	17:26 (T12)	18:24			19:58	34	19:33 (T10a)	20:29			20:59	25	20:24 (T9)
4	07:58		15:41 (T13)	07:41		17:07 (T12)	07:03			07:11		18:59 (T10a)	06:26			06:00		19:59 (T9)
	17:15	46	16:27 (T13)	17:51	20	17:27 (T12)	18:25			19:59	32	19:31 (T10a)	20:30			20:59	25	20:24 (T9)
5	07:58		15:42 (T13)	07:40		17:07 (T12)	07:01			07:09		18:59 (T10a)	06:25			05:59		19:59 (T9)
	17:16	45	16:27 (T13)	17:52	22	17:29 (T12)	18:26			20:00	31	19:30 (T10a)	20:31			21:00	24	20:23 (T9)
6	07:58		15:42 (T13)	07:38		17:07 (T12)	06:59			07:08		19:01 (T10a)	06:24		20:05 (T9)	05:59		20:00 (T9)
	17:17	45	16:27 (T13)	17:54	23	17:30 (T12)	18:27			20:00	29	19:30 (T10a)	20:33	5	20:10 (T9)	21:01	23	20:23 (T9)
7	07:58		15:43 (T13)	07:37		17:06 (T12)	06:58			07:06		19:01 (T10a)	06:22		20:02 (T9)	05:59		20:01 (T9)
	17:18	45	16:28 (T13)	17:55	25	17:31 (T12)	18:29			20:01	27	19:28 (T10a)	20:34	9	20:11 (T9)	21:01	22	20:23 (T9)
8	07:58		15:44 (T13)	07:36		17:06 (T12)	07:56			07:05		19:03 (T10a)	06:21		20:00 (T9)	05:59		20:02 (T9)
	17:19	44	16:28 (T13)	17:56	26	17:32 (T12)	19:30			20:03	24	19:27 (T10a)	20:35	11	20:11 (T9)	21:02	21	20:23 (T9)
9	07:57		15:44 (T13)	07:35		17:06 (T12)	07:55			07:03		19:04 (T10a)	06:20		19:58 (T9)	05:58		20:02 (T9)
	17:20	43	16:27 (T13)	17:57	28	17:34 (T12)	19:31			20:04	20	19:24 (T10a)	20:36	15	20:13 (T9)	21:03	20	20:22 (T9)
10	07:57		15:45 (T13)	07:34		17:06 (T12)	07:53			07:01		19:05 (T10a)	06:19		19:57 (T9)	05:58		20:02 (T9)
	17:21	43	16:28 (T13)	17:59	29	17:35 (T12)	19:32			20:05	17	19:22 (T10a)	20:37	17	20:14 (T9)	21:03	20	20:22 (T9)
11	07:57		15:46 (T13)	07:33		17:06 (T12)	07:51			07:00		19:10 (T10a)	06:18		19:56 (T9)	05:58		20:03 (T9)
	17:22	42	16:28 (T13)	18:00	31	17:37 (T12)	19:33			20:06	8	19:18 (T10a)	20:38	19	20:15 (T9)	21:04	19	20:22 (T9)
12	07:57		15:46 (T13)	07:31		17:06 (T12)	07:50			06:58			06:17		19:56 (T9)	05:58		20:04 (T9)
	17:23	41	16:27 (T13)	18:01	30	17:36 (T12)	19:34			20:07			20:39	20	20:16 (T9)	21:04	18	20:22 (T9)
13	07:56		15:48 (T13)	07:30		17:06 (T12)	07:48			06:56			06:16		19:55 (T9)	05:58		20:04 (T9)
	17:24	40	16:28 (T13)	18:02	31	17:37 (T12)	19:35			20:08			20:40	21	20:16 (T9)	21:05	18	20:22 (T9)
14	07:56		15:49 (T13)	07:29		17:07 (T12)	07:46			06:55			06:15		19:55 (T9)	05:58		20:05 (T9)
	17:25	39	16:28 (T13)	18:04	29	17:36 (T12)	19:36			20:09			20:41	22	20:17 (T9)	21:05	17	20:22 (T9)
15	07:56		15:50 (T13)	07:27		17:07 (T12)	07:45			06:53			06:14		19:54 (T9)	05:58		20:06 (T9)
	17:27	37	16:27 (T13)	18:05	28	17:35 (T12)	19:38			20:10			20:42	24	20:18 (T9)	21:06	16	20:22 (T9)
16	07:55		15:51 (T13)	07:26		17:08 (T12)	07:43			06:52			06:13		19:54 (T9)	05:58		20:06 (T9)
	17:28	36	16:27 (T13)	18:06	27	17:35 (T12)	19:39			20:11			20:43	25	20:19 (T9)	21:06	16	20:22 (T9)
17	07:55		15:52 (T13)	07:25		17:10 (T12)	07:41			06:50			06:12		19:53 (T9)	05:58		20:06 (T9)
	17:29	34	16:26 (T13)	18:07	24	17:34 (T12)	19:40			20:12			20:44	27	20:20 (T9)	21:07	15	20:21 (T9)
18	07:54		15:54 (T13)	07:23		17:10 (T12)	07:40			06:49			06:11		19:54 (T9)	05:58		20:07 (T9)
	17:30	32	16:26 (T13)	18:08	22	17:32 (T12)	19:41			20:13			20:45	28	20:22 (T9)	21:07	14	20:21 (T9)
19	07:54		15:55 (T13)	07:22		17:12 (T12)	07:38			06:47			06:10		19:54 (T9)	05:58		20:07 (T9)
	17:31	30	16:25 (T13)	18:10	19	17:31 (T12)	19:42			20:14			20:46	28	20:22 (T9)	21:07	14	20:21 (T9)
20	07:53		15:56 (T13)	07:21		17:14 (T12)	07:36			06:46			06:09		19:54 (T9)	05:58		20:08 (T9)
	17:32	28	16:24 (T13)	18:11	14	17:28 (T12)	19:43			20:15			20:47	29	20:23 (T9)	21:08	14	20:22 (T9)
21	07:53		15:59 (T13)	07:19		17:19 (T12)	07:35		19:13 (T10a)	06:44			06:08		19:54 (T9)	05:58		20:08 (T9)
	17:34	24	16:23 (T13)	18:12	5	17:24 (T12)	19:44	10	19:23 (T10a)	20:16			20:48	30	20:24 (T9)	21:08	14	20:22 (T9)
22	07:52		16:00 (T13)	07:18			07:33		19:10 (T10a)	06:43			06:07		19:53 (T9)	05:59		20:08 (T9)
	17:35	22	16:22 (T13)	18:13			19:45	14	19:24 (T10a)	20:18			20:49	31	20:24 (T9)	21:08	14	20:22 (T9)
23	07:51		16:03 (T13)	07:16			07:31		19:07 (T10a)	06:41			06:07		19:54 (T9)	05:59		20:08 (T9)
	17:36	17	16:20 (T13)	18:15			19:46	18	19:25 (T10a)	20:19			20:50	32	20:26 (T9)	21:08	14	20:22 (T9)
24	07:50		16:06 (T13)	07:15			07:30		19:06 (T10a)	06:40			06:06		19:54 (T9)	05:59		20:09 (T9)
	17:37	10	16:16 (T13)	18:16			19:47	20	19:26 (T10a)	20:20			20:50	32	20:26 (T9)	21:09	14	20:23 (T9)
25	07:50			07:13			07:28		19:04 (T10a)	06:38			06:05		19:54 (T9)	05:59		20:09 (T9)
	17:38			18:17			19:48	23	19:27 (T10a)	20:21			20:51	31	20:25 (T9)	21:09	14	20:23 (T9)
26	07:49			07:12			07:26		19:03 (T10a)	06:37			06:05		19:55 (T9)	06:00		20:08 (T9)
	17:40			18:18			19:50	25	19:28 (T10a)	20:22			20:52	31	20:26 (T9)	21:09	15	20:23 (T9)
27	07:48			07:10			07:24		19:01 (T10a)	06:35			06:04		19:55 (T9)	06:00		20:09 (T9)
	17:41			18:19			19:51	28	19:29 (T10a)	20:23			20:53	30	20:25 (T9)	21:09	16	20:25 (T9)
28	07:47			07:09			07:23		19:01 (T10a)	06:34			06:03		19:56 (T9)	06:00		20:08 (T9)
	17:42			18:20			19:52	29	19:30 (T10a)	20:24			20:54	30	20:26 (T9)	21:09	17	20:25 (T9)
29	07:46		17:15 (T12)				07:21		19:00 (T10a)	06:33			06:03		19:56 (T9)	06:01		20:08 (T9)
	17:43	4	17:19 (T12)				19:53	31	19:31 (T10a)	20:25			20:55	29	20:25 (T9)	21:09	17	20:25 (T9)
30	07:46		17:13 (T12)				07:19		18:59 (T10a)	06:31			06:02		19:57 (T9)	06:01		20:08 (T9)
	17:45	7	17:20 (T12)				19:54	33	19:32 (T10a)	20:26			20:56	28	20:25 (T9)	21:09	18	20:26 (T9)
31	07:45		17:11 (T12)				07:18		19:00 (T10a)				06:02		19:57 (T9)			
	17:46	10	17:21 (T12)				19:55	34	19:34 (T10a)				20:56	28	20:25 (T9)			
Potential sun hours	297			297			370			399			449			453		
Total, worst case		903			479			265			290			632			547	
Sun reduction		0.31			0.40			0.44			0.52			0.57			0.64	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.74			0.71			0.63			0.63			0.55			0.55	
Total reduction		0.24			0.30			0.29			0.34			0.33			0.37	
Total, real		218			143			77			99			209			203	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar

Calculation: 2021-09-24_Shadow FlickerShadow receptor: 1603 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1776)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July			August			September			October			November			December		
1	06:02		20:07 (T9)	06:26		20:07 (T9)	06:57		19:08 (T10a)	07:28			07:02		16:36 (T12)	07:37		15:28 (T13)
	21:09	19	20:26 (T9)	20:50	19	20:26 (T9)	20:07	9	19:17 (T10a)	19:15			17:28	29	17:05 (T12)	17:03	42	16:10 (T13)
2	06:02		20:08 (T9)	06:27		20:07 (T9)	06:58		19:04 (T10a)	07:29			07:03		16:35 (T12)	07:38		15:28 (T13)
	21:09	19	20:27 (T9)	20:49	18	20:25 (T9)	20:06	17	19:21 (T10a)	19:13			17:27	28	17:03 (T12)	17:03	43	16:11 (T13)
3	06:03		20:07 (T9)	06:28		20:08 (T9)	06:59		19:02 (T10a)	07:30			07:05		16:35 (T12)	07:39		15:28 (T13)
	21:09	20	20:27 (T9)	20:48	16	20:24 (T9)	20:04	20	19:22 (T10a)	19:11			17:25	27	17:02 (T12)	17:03	43	16:11 (T13)
4	06:03		20:07 (T9)	06:29		20:09 (T9)	07:00		19:00 (T10a)	07:31			07:06		16:35 (T12)	07:40		15:28 (T13)
	21:08	21	20:28 (T9)	20:47	14	20:23 (T9)	20:02	24	19:24 (T10a)	19:10			17:24	25	17:00 (T12)	17:03	44	16:12 (T13)
5	06:04		20:06 (T9)	06:30		20:11 (T9)	07:01		18:58 (T10a)	07:32			07:07		16:37 (T12)	07:41		15:28 (T13)
	21:08	22	20:28 (T9)	20:46	11	20:22 (T9)	20:01	27	19:25 (T10a)	19:08			17:23	23	17:00 (T12)	17:03	45	16:13 (T13)
6	06:05		20:07 (T9)	06:31		20:13 (T9)	07:02		18:57 (T10a)	07:33			07:08		16:37 (T12)	07:42		15:28 (T13)
	21:08	22	20:29 (T9)	20:45	8	20:21 (T9)	19:57	29	19:26 (T10a)	19:06			17:22	21	16:58 (T12)	17:02	45	16:13 (T13)
7	06:05		20:07 (T9)	06:32		20:15 (T9)	07:03		18:56 (T10a)	07:34			07:09		16:37 (T12)	07:43		15:29 (T13)
	21:08	23	20:30 (T9)	20:44	5	20:20 (T9)	19:56	30	19:26 (T10a)	19:05			17:21	20	16:57 (T12)	17:02	45	16:14 (T13)
8	06:06		20:06 (T9)	06:33			07:04		18:55 (T10a)	07:35			07:11		16:39 (T12)	07:44		15:29 (T13)
	21:07	24	20:30 (T9)	20:42			19:54	32	19:27 (T10a)	19:03			17:20	17	16:56 (T12)	17:02	46	16:15 (T13)
9	06:06		20:06 (T9)	06:34			07:05		18:53 (T10a)	07:36			07:12		16:40 (T12)	07:45		15:29 (T13)
	21:07	25	20:31 (T9)	20:41			19:52	33	19:26 (T10a)	19:01			17:19	15	16:55 (T12)	17:02	46	16:15 (T13)
10	06:07		20:06 (T9)	06:35			07:06		18:52 (T10a)	07:37			07:13		16:41 (T12)	07:46		15:30 (T13)
	21:07	26	20:32 (T9)	20:40			19:51	34	19:26 (T10a)	19:00			17:18	13	16:54 (T12)	17:02	46	16:16 (T13)
11	06:08		20:05 (T9)	06:36			07:07		18:51 (T10a)	07:38			07:14		16:42 (T12)	07:47		15:29 (T13)
	21:06	27	20:32 (T9)	20:38			19:49	35	19:26 (T10a)	18:58			17:17	10	16:52 (T12)	17:02	47	16:16 (T13)
12	06:09		20:05 (T9)	06:37			07:08		18:51 (T10a)	07:39			07:15		16:45 (T12)	07:48		15:30 (T13)
	21:06	28	20:33 (T9)	20:37			19:47	34	19:25 (T10a)	18:57			17:16	7	16:52 (T12)	17:02	46	16:16 (T13)
13	06:09		20:05 (T9)	06:38			07:09		18:51 (T10a)	07:40			07:17		16:47 (T12)	07:48		15:30 (T13)
	21:05	29	20:34 (T9)	20:36			19:46	32	19:23 (T10a)	18:55			17:15	4	16:51 (T12)	17:03	47	16:17 (T13)
14	06:10		20:05 (T9)	06:39			07:10		18:50 (T10a)	07:41			07:18			07:49		15:31 (T13)
	21:05	29	20:34 (T9)	20:34			19:44	32	19:22 (T10a)	18:53			17:14			17:03	47	16:18 (T13)
15	06:11		20:04 (T9)	06:40			07:11		18:50 (T10a)	07:43			07:19			07:50		15:30 (T13)
	21:04	30	20:34 (T9)	20:33			19:42	30	19:20 (T10a)	18:52			17:13			17:03	48	16:18 (T13)
16	06:12		20:04 (T9)	06:41			07:12		18:50 (T10a)	07:44			07:20			07:51		15:31 (T13)
	21:04	31	20:35 (T9)	20:32			19:40	28	19:18 (T10a)	18:50			17:12			17:03	48	16:19 (T13)
17	06:12		20:05 (T9)	06:42			07:13		18:51 (T10a)	07:45			07:21			07:51		15:32 (T13)
	21:03	30	20:35 (T9)	20:30			19:39	26	19:17 (T10a)	18:49			17:11			17:04	47	16:19 (T13)
18	06:13		20:05 (T9)	06:43			07:14		18:51 (T10a)	07:46			07:23		15:40 (T13)	07:52		15:32 (T13)
	21:03	31	20:36 (T9)	20:29			19:37	24	19:15 (T10a)	18:47			17:10	10	15:50 (T13)	17:04	47	16:19 (T13)
19	06:14		20:04 (T9)	06:44			07:15		18:52 (T10a)	07:47			07:24		15:38 (T13)	07:53		15:32 (T13)
	21:02	31	20:35 (T9)	20:27			19:35	21	19:13 (T10a)	18:46			17:10	17	15:55 (T13)	17:04	48	16:20 (T13)
20	06:15		20:04 (T9)	06:45			07:16		18:53 (T10a)	07:48			07:25		15:35 (T13)	07:53		15:33 (T13)
	21:01	31	20:35 (T9)	20:26			19:34	18	19:11 (T10a)	18:44			17:09	22	15:57 (T13)	17:05	48	16:21 (T13)
21	06:16		20:04 (T9)	06:46			07:17		18:54 (T10a)	07:49		17:48 (T12)	07:26		15:34 (T13)	07:54		15:33 (T13)
	21:00	31	20:35 (T9)	20:24			19:32	16	19:10 (T10a)	18:43	8	17:56 (T12)	17:08	24	15:58 (T13)	17:05	48	16:21 (T13)
22	06:17		20:04 (T9)	06:47			07:18		18:56 (T10a)	07:50		17:44 (T12)	07:27		15:32 (T13)	07:54		15:34 (T13)
	21:00	31	20:35 (T9)	20:23			19:30	12	19:08 (T10a)	18:41	15	17:59 (T12)	17:08	28	16:00 (T13)	17:06	48	16:22 (T13)
23	06:18		20:04 (T9)	06:48			07:19		19:00 (T10a)	07:52		17:41 (T12)	07:28		15:32 (T13)	07:55		15:34 (T13)
	20:59	30	20:34 (T9)	20:21			19:28	6	19:06 (T10a)	18:40	20	18:01 (T12)	17:07	30	16:02 (T13)	17:06	48	16:22 (T13)
24	06:18		20:04 (T9)	06:49			07:20			07:53		17:41 (T12)	07:30		15:31 (T13)	07:55		15:34 (T13)
	20:58	29	20:33 (T9)	20:20			19:27			18:38	22	18:03 (T12)	17:06	32	16:03 (T13)	17:07	48	16:22 (T13)
25	06:19		20:05 (T9)	06:50			07:21			07:54		17:39 (T12)	07:31		15:30 (T13)	07:56		15:36 (T13)
	20:57	28	20:33 (T9)	20:18			19:25			18:37	25	18:04 (T12)	17:06	34	16:04 (T13)	17:07	47	16:23 (T13)
26	06:20		20:04 (T9)	06:51			07:22			07:55		17:38 (T12)	07:32		15:29 (T13)	07:56		15:36 (T13)
	20:56	27	20:31 (T9)	20:17			19:23			18:36	27	18:05 (T12)	17:05	36	16:05 (T13)	17:08	47	16:23 (T13)
27	06:21		20:04 (T9)	06:52			07:23			07:56		17:37 (T12)	07:33		15:29 (T13)	07:56		15:36 (T13)
	20:55	26	20:30 (T9)	20:15			19:22			18:34	28	18:05 (T12)	17:05	37	16:06 (T13)	17:09	48	16:24 (T13)
28	06:22		20:04 (T9)	06:53			07:24			07:57		17:36 (T12)	07:34		15:28 (T13)	07:57		15:37 (T13)
	20:54	25	20:29 (T9)	20:14			19:20			18:33	29	18:05 (T12)	17:04	39	16:07 (T13)	17:09	48	16:25 (T13)
29	06:23		20:05 (T9)	06:54			07:25			07:59		17:36 (T12)	07:35		15:29 (T13)	07:57		15:38 (T13)
	20:53	23	20:28 (T9)	20:12			19:18			18:32	30	18:06 (T12)	17:04	40	16:09 (T13)	17:10	47	16:25 (T13)
30	06:24		20:05 (T9)	06:55			07:27			08:00		17:35 (T12)	07:36		15:29 (T13)	07:57		15:38 (T13)
	20:52	23	20:28 (T9)	20:11			19:16			18:30	31	18:06 (T12)	17:04	40	16:09 (T13)	17:11	47	16:25 (T13)
31	06:25		20:06 (T9)	06:56						08:01		17:35 (T12)				07:57		15:38 (T13)
	20:51	21	20:27 (T9)	20:09						18:29	30	18:05 (T12)				17:12	47	16:25 (T13)
Potential sun hours	460			429			375			345			297			287		
Total, worst case		812			91			569			265			628			1441	
Sun reduction		0.66			0.61			0.59			0.48			0.30			0.22	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.55			0.55			0.63			0.71			0.73			0.74	
Total reduction		0.38			0.35			0.39			0.36			0.23			0.17	
Total, real		310			32			221			95			144			247	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)		First time (hh:mm) with flicker	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Project:
2021-05-06_Emerson Creek SFA

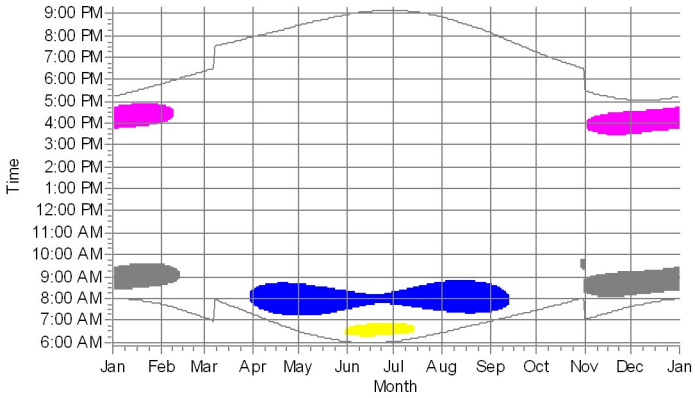
Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

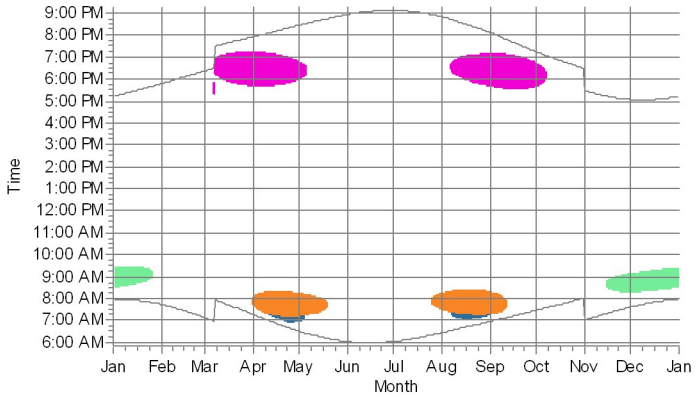
SHADOW - Calendar, graphical

Calculation: 2021-09-24_Shadow Flicker

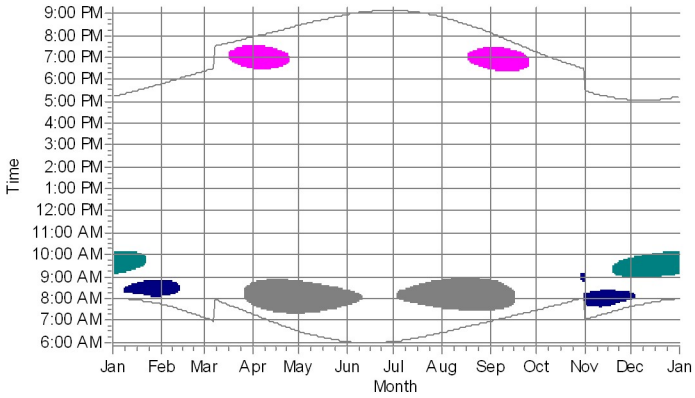
197: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1653)



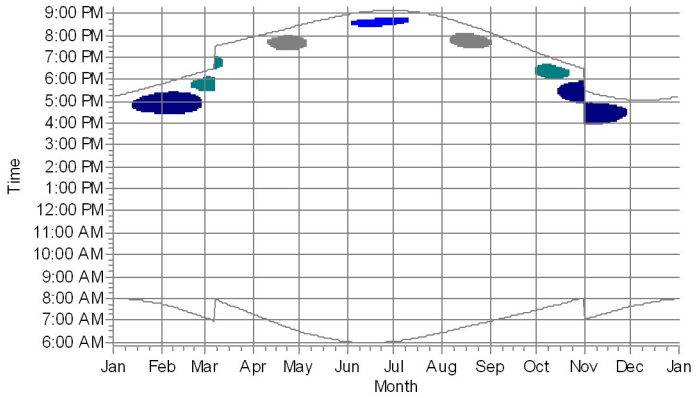
404: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1667)



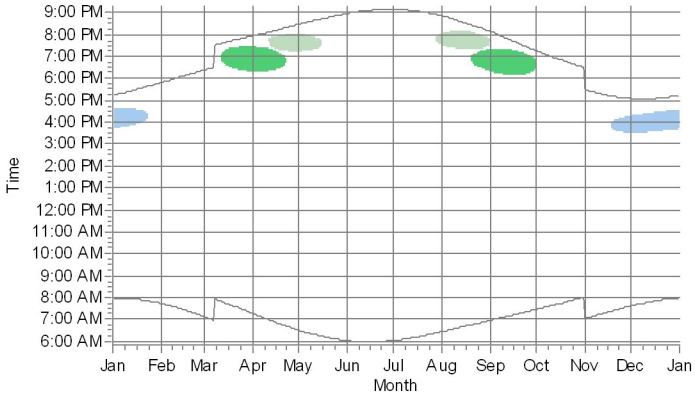
427: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1671)



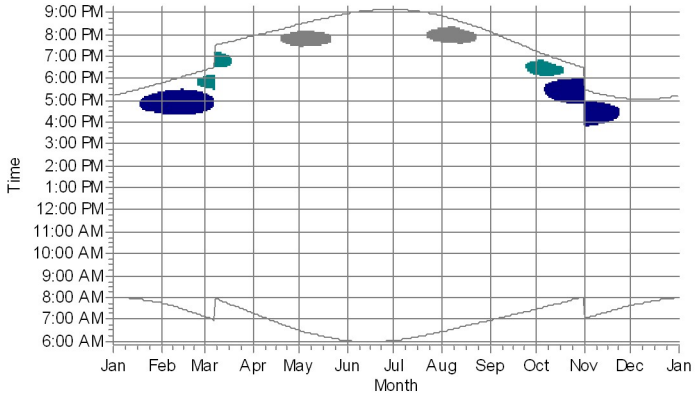
596: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1685)



614: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1687)



688: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1692)



WTGs

- T7: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (147)
- T9: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (148)
- T10a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (149)
- T11: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (150)
- T12: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (151)
- T13: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (152)
- T53: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (157)
- T57a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (159)
- T59a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (160)
- T67: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (167)
- T68: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (168)
- T69: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (169)
- T71a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (171)
- T78a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (175)

Project:
2021-05-06_Emerson Creek SFA

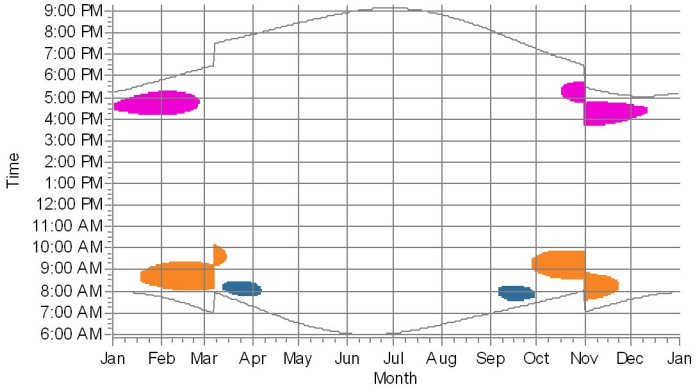
Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

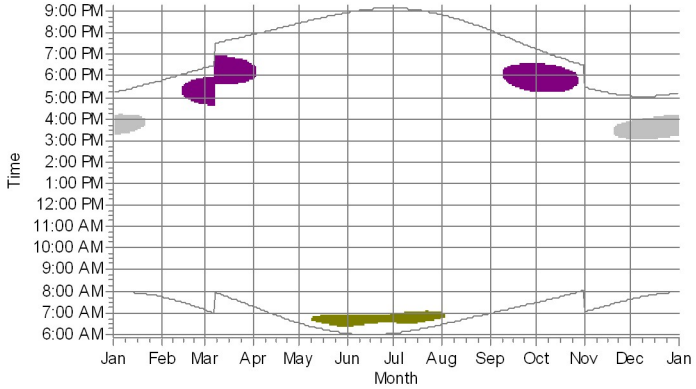
SHADOW - Calendar, graphical

Calculation: 2021-09-24_Shadow Flicker

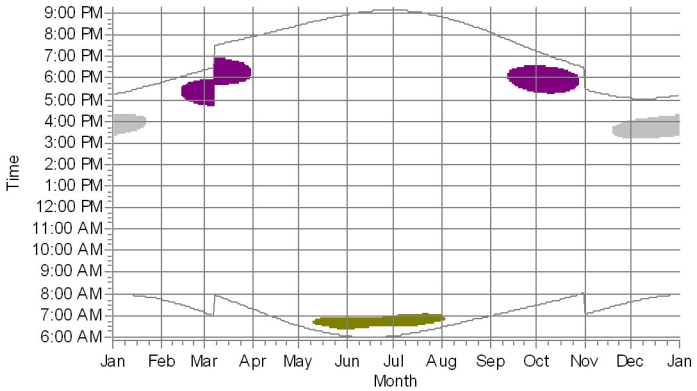
770: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1699)



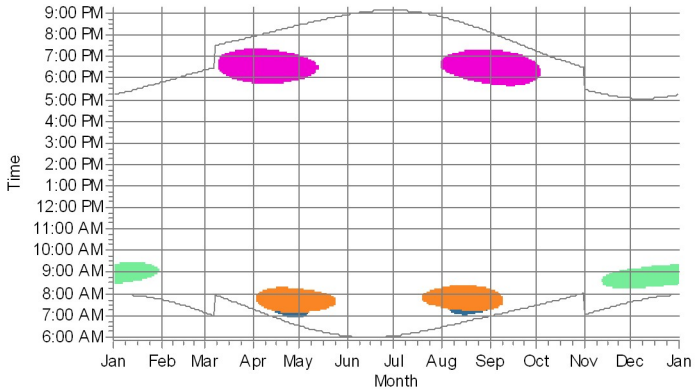
940: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1717)



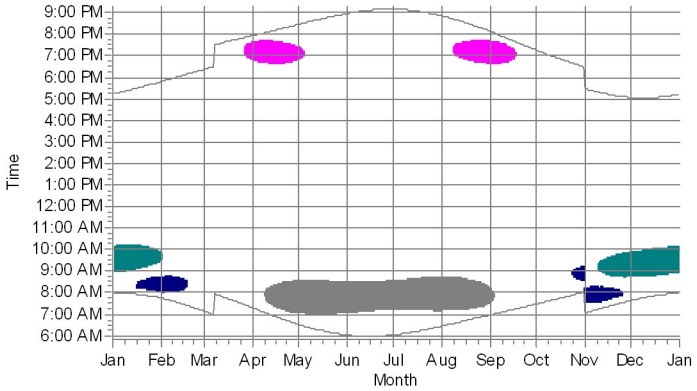
941: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1718)



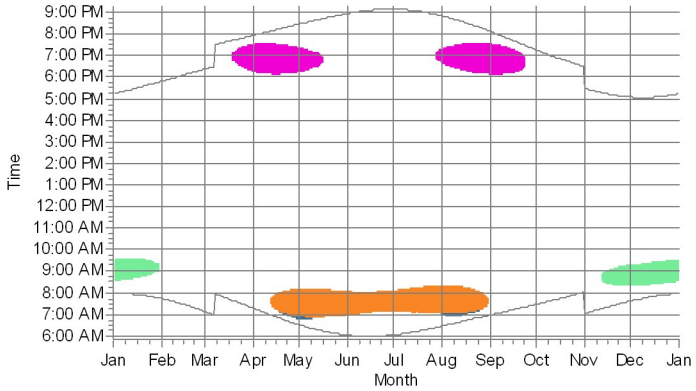
1043: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1726)



1056: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1728)



1179: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1737)



WTGs

- T10a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (149)
- T11: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (150)
- T12: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (151)
- T13: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (152)
- T51: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (155)
- T52: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (156)
- T53: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (157)
- T67: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (167)
- T68: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (168)
- T69: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (169)
- T71a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (171)

Project:
2021-05-06_Emerson Creek SFA

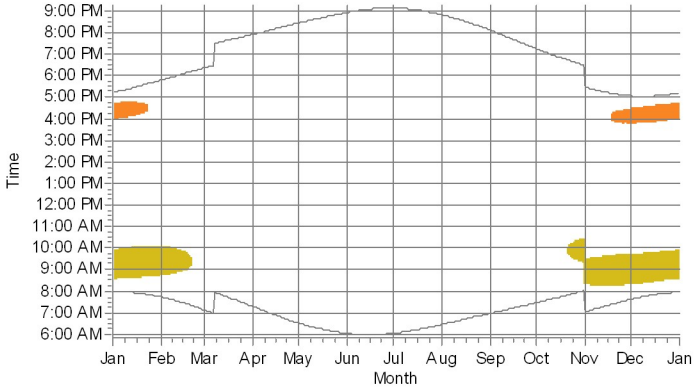
Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

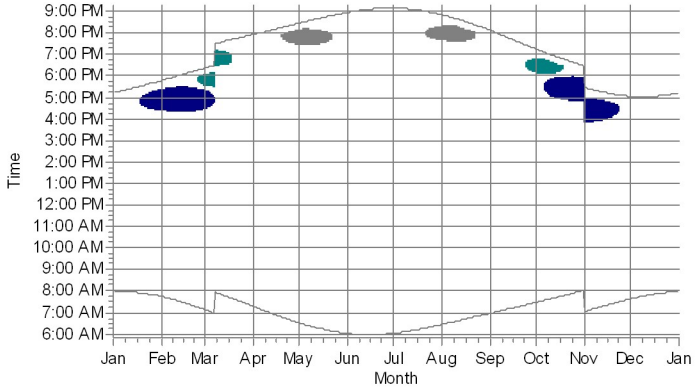
SHADOW - Calendar, graphical

Calculation: 2021-09-24_Shadow Flicker

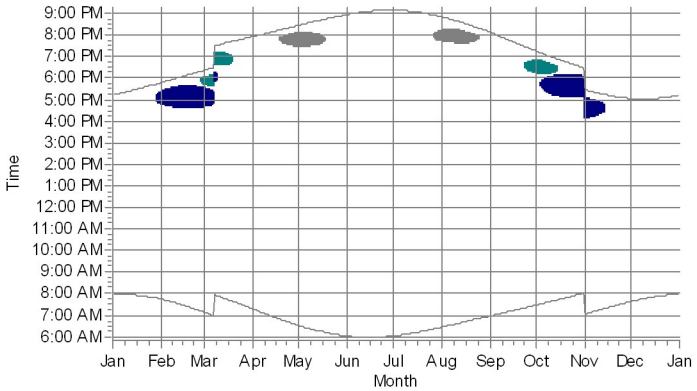
1231: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1739)



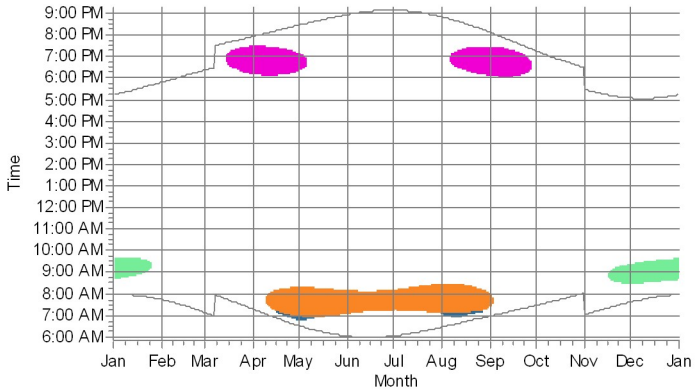
1237: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1740)



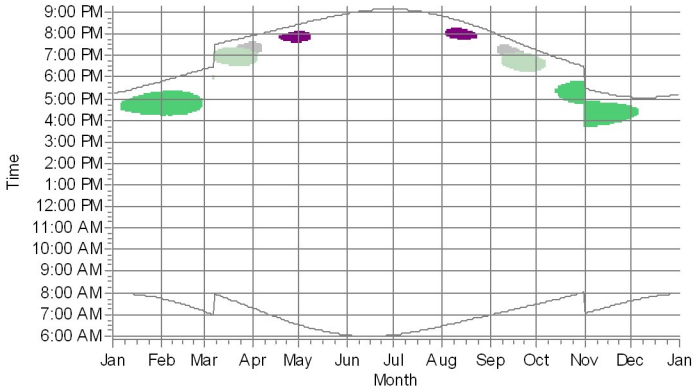
1314: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1746)



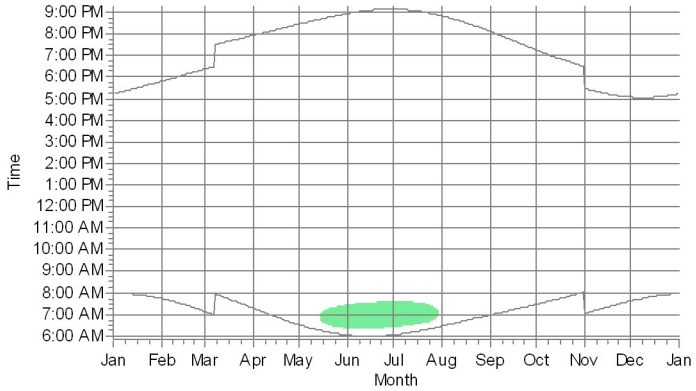
1375: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1748)



1389: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1750)



1468: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1761)



WTGs

- T10a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (149)
- T12: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (151)
- T13: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (152)
- T52: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (156)
- T53: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (157)
- T57a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (159)
- T67: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (167)
- T68: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (168)
- T69: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (169)
- T71a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (171)
- T78a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (175)
- T66a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (177)

Project:
2021-05-06_Emerson Creek SFA

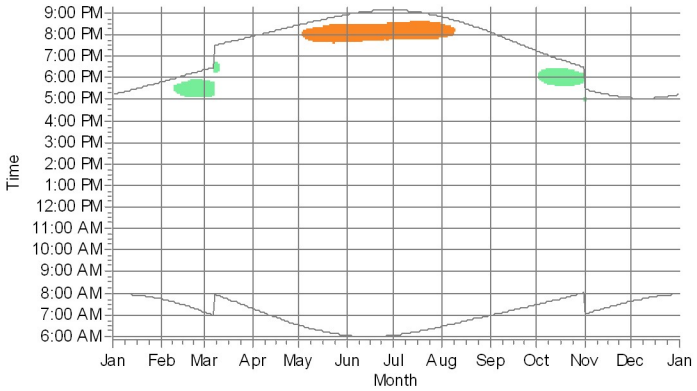
Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

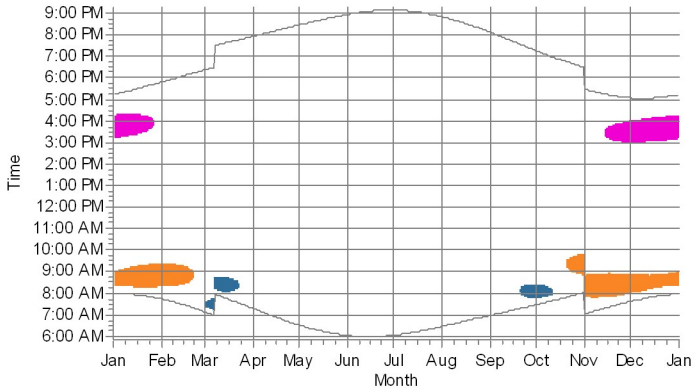
SHADOW - Calendar, graphical

Calculation: 2021-09-24_Shadow Flicker

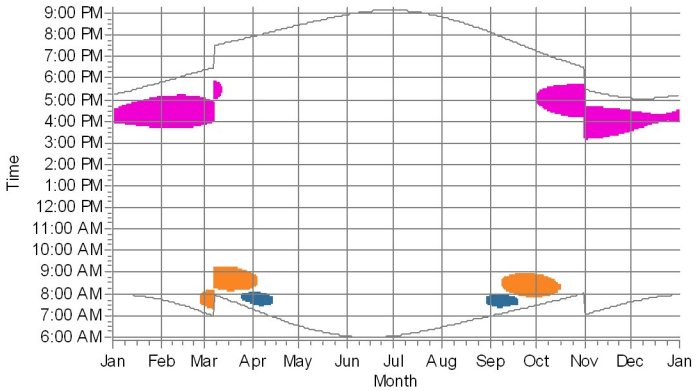
1505: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1763)



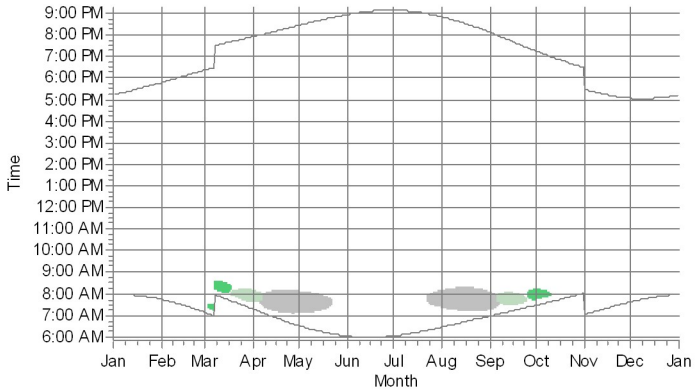
1518: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1766)



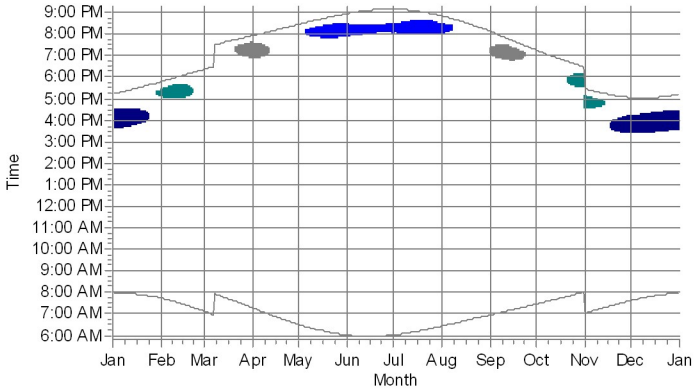
1549: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1769)



1570: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1770)



1603: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1776)



WTGs

- T9: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (148)
- T10a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (149)
- T12: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (151)
- T13: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (152)
- T53: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (157)
- T57a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (159)
- T67: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (167)
- T68: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (168)
- T69: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (169)
- T71a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (171)
- T78a: GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (175)

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T10a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (149)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June	
1	07:58	08:27-09:22/55	07:44	08:39-09:30/51	07:07	07:27-07:51/24	07:16	18:59-19:33/34	06:30	19:27-20:05/38	06:01	07:06-08:26/80
	17:13		17:47		18:22		19:56	07:46-08:39/53	20:27	07:06-08:44/98	20:57	
2	07:58	08:27-09:23/56	07:43	08:40-09:29/49	07:06	07:27-07:50/23	07:14	18:59-19:33/34	06:29	19:27-20:05/38	06:01	07:06-08:26/80
	17:14		17:49		18:23		19:57	07:44-08:40/56	20:28	07:05-08:44/99	20:58	
3	07:58	08:27-09:23/56	07:42	08:41-09:28/47	07:04	07:28-07:49/21	07:13	18:59-19:33/34	06:27	19:29-20:07/38	06:00	07:07-08:26/79
	17:14		17:50		18:24		19:58	07:42-08:42/60	20:29	07:04-08:43/99	20:59	
4	07:58	08:28-09:24/56	07:41	08:42-09:28/46	07:03	07:28-07:48/20	07:11	18:59-19:31/32	06:26	19:31-20:08/37	06:00	07:07-08:26/79
	17:15		17:51		18:25		19:59	07:40-08:43/63	20:30	07:04-08:42/98	20:59	
5	07:58	08:28-09:24/56	07:40	08:43-09:27/44	07:01	07:29-07:46/17	07:09	18:59-19:30/31	06:25	19:31-20:08/37	06:00	07:07-08:25/78
	17:16		17:52		18:26		20:00	07:38-08:44/66	20:32	07:04-08:42/98	21:00	
6	07:58	08:28-09:25/57	07:39	08:44-09:26/42	06:59	07:32-07:44/12	07:08	19:01-19:30/29	06:24	19:31-20:08/37	05:59	07:08-08:25/77
	17:17		17:54		18:27		20:00	07:37-08:45/68	20:33	07:03-08:41/98	21:01	
7	07:58	08:29-09:26/57	07:37	08:46-09:24/38	06:58		07:06	19:01-19:28/27	06:23	19:31-20:08/37	05:59	07:08-08:26/78
	17:18		17:55		18:29		20:01	07:35-08:45/70	20:34	07:03-08:41/98	21:02	
8	07:58	08:29-09:27/58	07:36	08:47-09:22/35	07:56		07:05	19:03-19:27/24	06:21	19:31-20:06/35	05:59	07:09-08:26/77
	17:19		17:56		19:30		20:03	07:35-08:47/72	20:35	07:02-08:39/97	21:02	
9	07:57	08:29-09:26/57	07:35	08:49-09:20/31	07:55		07:03	19:04-19:24/20	06:20	19:31-20:06/35	05:58	07:09-08:26/77
	17:20		17:57		19:31		20:04	07:33-08:47/74	20:36	07:02-08:39/97	21:03	
10	07:57	08:29-09:27/58	07:34	08:51-09:18/27	07:53		07:01	19:05-19:22/17	06:19	19:32-20:06/34	05:58	07:09-08:25/76
	17:21		17:59		19:32		20:05	07:32-08:47/75	20:37	07:02-08:38/96	21:03	
11	07:57	08:30-09:28/58	07:33	08:54-09:16/22	07:51		07:00	19:10-19:18/8 19:40-19:45/5	06:18	19:32-20:05/33	05:58	07:09-08:25/76
	17:22		18:00		19:33		20:06	07:31-08:48/77	20:38	07:02-08:37/95	21:04	
12	07:57	08:29-09:28/59	07:31	08:57-09:11/14	07:50		06:58	07:30-08:48/78	06:17	19:33-20:05/32	05:58	07:10-08:25/75
	17:23		18:01		19:34		20:07	19:35-19:46/11	20:39	07:02-08:37/95	21:04	
13	07:56	08:30-09:29/59	07:30		07:48		06:57	07:29-08:49/80	06:16	19:33-20:04/31	05:58	07:10-08:25/75
	17:24		18:02		19:35		20:08	19:33-19:47/14	20:40	07:02-08:36/94	21:05	
14	07:56	08:31-09:30/59	07:29		07:46		06:55	07:27-08:48/81	06:15	19:34-20:03/29	05:58	07:10-08:25/75
	17:26		18:04		19:37		20:09	19:31-19:48/17	20:41	07:02-08:35/93	21:05	
15	07:56	08:31-09:30/59	07:28		07:45		06:53	07:24-08:48/84	06:14	19:35-20:02/27	05:58	07:11-08:26/75
	17:27		18:05		19:38		20:10	19:29-19:48/19	20:42	07:02-08:34/92	21:06	
16	07:55	08:31-09:30/59	07:26		07:43		06:52	07:22-08:49/87	06:13	19:36-20:01/25	05:58	07:11-08:26/75
	17:28		18:06		19:39		20:11	19:28-19:50/22	20:43	07:02-08:33/91	21:06	
17	07:55	08:31-09:30/59	07:25		07:41		06:50	07:20-08:48/88	06:12	19:37-20:00/23	05:58	07:11-08:26/75
	17:29		18:07		19:40		20:12	19:26-19:50/24	20:44	07:03-08:33/90	21:07	
18	07:54	08:32-09:31/59	07:23		07:40		06:49	07:19-08:49/90	06:11	19:39-20:00/21	05:58	07:11-08:26/75
	17:30		18:09		19:41		20:13	19:26-19:52/26	20:45	07:03-08:32/89	21:07	
19	07:54	08:32-09:31/59	07:22	07:42-07:46/4	07:38		06:47	19:25-19:53/28	06:10	19:40-19:58/18	05:58	07:13-08:27/74
	17:31		18:10		19:42		20:14	07:17-08:48/91	20:46	07:03-08:31/88	21:07	
20	07:53	08:32-09:31/59	07:21	07:40-07:47/7	07:36		06:46	19:24-19:54/30	06:09	19:42-19:56/14	05:58	07:13-08:27/74
	17:32		18:11		19:43		20:15	07:16-08:48/92	20:47	07:03-08:30/87	21:08	
21	07:53	08:33-09:32/59	07:19	07:39-07:49/10	07:35	19:13-19:23/10	06:44	19:24-19:54/30	06:08	19:44-19:54/10	05:58	07:13-08:27/74
	17:34		18:12		19:44		20:17	07:14-08:48/94	20:48	07:03-08:29/86	21:08	
22	07:52	08:33-09:32/59	07:18	07:38-07:51/13	07:33	19:10-19:24/14	06:43	19:24-19:56/32	06:08	07:03-08:29/86	05:59	07:13-08:27/74
	17:35		18:13		19:45		20:18	07:13-08:48/95	20:49		21:08	
23	07:51	08:33-09:32/59	07:16	07:36-07:51/15	07:31	19:07-19:25/18	06:41	19:24-19:57/33	06:07	07:03-08:28/85	05:59	07:13-08:27/74
	17:36		18:15		19:46		20:19	07:12-08:48/96	20:50		21:08	
24	07:51	08:33-09:31/58	07:15	07:35-07:52/17	07:30	19:06-19:26/20	06:40	19:23-19:58/35	06:06	07:03-08:27/84	05:59	07:13-08:28/75
	17:37		18:16		19:47		20:20	07:11-08:47/96	20:50		21:09	
25	07:50	08:35-09:32/57	07:13	07:33-07:52/19	07:28	19:04-19:27/23	06:38	19:24-19:59/35	06:05	07:04-08:28/84	05:59	07:13-08:28/75
	17:39		18:17		19:49		20:21	07:10-08:47/97	20:51		21:09	
26	07:49	08:35-09:32/57	07:12	07:32-07:52/20	07:26	19:03-19:28/25	06:37	19:23-20:00/37	06:05	07:04-08:27/83	06:00	07:13-08:28/75
	17:40		18:18		19:50		20:22	07:08-08:46/98	20:52		21:09	
27	07:48	08:35-09:32/57	07:10	07:30-07:52/22	07:25	19:01-19:29/28	06:35	19:24-20:01/37	06:04	07:04-08:27/83	06:00	07:14-08:29/75
	17:41		18:19		19:51	08:04-08:25/21	20:23	07:08-08:46/98	20:53		21:09	
28	07:47	08:36-09:31/55	07:09	07:28-07:51/23	07:23	19:01-19:30/29	06:34	19:25-20:02/37	06:03	07:05-08:27/82	06:00	07:14-08:28/74
	17:42		18:21		19:52	07:59-08:29/30	20:24	07:08-08:46/98	20:54		21:09	
29	07:47	08:36-09:31/55			07:21	19:00-19:31/31	06:33	19:24-20:03/39	06:03	07:05-08:26/81	06:01	07:14-08:29/75
	17:44				19:53	07:55-08:32/37	20:25	07:06-08:45/99	20:55		21:09	
30	07:46	08:37-09:31/54			07:19	18:59-19:32/33	06:31	19:26-20:04/38	06:02	07:06-08:27/81	06:01	07:14-08:29/75
	17:45				19:54	07:51-08:34/43	20:26	07:06-08:45/99	20:56		21:09	
31	07:45	08:38-09:30/52			07:18	19:00-19:34/34			06:02	07:05-08:26/81		
	17:46				19:55	07:49-08:37/48			20:56			
Potential sun hours	297		297		370		399		449		453	
Sum of minutes with flicker		1777		596		561		3314		3437		2276

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T10a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (149)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:02	07:14-08:29/75	06:26	19:43-20:15/32	06:57	19:08-19:17/9 19:39-19:44/5	07:28		07:02	08:20-08:49/29	07:37	08:12-09:10/58
	21:09		20:50	07:13-08:47/94	20:07	07:30-08:47/77	19:15		17:28		17:03	
2	06:02	07:14-08:30/76	06:27	19:43-20:16/33	06:58	19:04-19:21/17	07:29		07:03	08:18-08:51/33	07:38	08:12-09:10/58
	21:09		20:49	07:13-08:48/95	20:06	07:31-08:46/75	19:13		17:27		17:03	
3	06:03	07:14-08:30/76	06:28	19:42-20:16/34	06:59	19:02-19:22/20	07:30		07:05	08:16-08:52/36	07:39	08:13-09:10/57
	21:09		20:48	07:13-08:49/96	20:04	07:31-08:45/74	19:11		17:25		17:03	
4	06:03	07:14-08:31/77	06:29	19:42-20:17/35	07:00	19:00-19:24/24	07:31		07:06	08:14-08:54/40	07:40	08:13-09:11/58
	21:08		20:47	07:13-08:50/97	20:02	07:32-08:44/72	19:10		17:24		17:03	
5	06:04	07:15-08:32/77	06:30	19:41-20:17/36	07:01	18:58-19:25/27	07:32		07:07	08:14-08:56/42	07:41	08:14-09:11/57
	21:08		20:46	07:13-08:50/97	20:01	07:32-08:43/71	19:08		17:23		17:03	
6	06:05	07:14-08:32/78	06:31	19:41-20:17/36	07:02	18:57-19:26/29	07:33		07:08	08:13-08:57/44	07:42	08:14-09:11/57
	21:08		20:45	07:13-08:51/98	19:57	07:33-08:41/68	19:06		17:22		17:02	
7	06:05	07:14-08:32/78	06:32	19:41-20:17/36	07:03	18:56-19:26/30	07:34	08:10-08:17/7	07:09	08:11-08:58/47	07:43	08:15-09:12/57
	21:08		20:44	07:13-08:51/98	19:56	07:34-08:40/66	19:05		17:21		17:02	
8	06:06	07:14-08:32/78	06:33	19:40-20:17/37	07:04	18:55-19:27/32	07:35	08:06-08:20/14	07:11	08:11-08:59/48	07:44	08:16-09:12/56
	21:07		20:42	07:13-08:52/99	19:54	07:35-08:38/63	19:03		17:20		17:02	
9	06:06	07:14-08:33/79	06:34	19:40-20:17/37	07:05	18:53-19:26/33	07:36	08:04-08:22/18	07:12	08:10-09:00/50	07:45	08:16-09:12/56
	21:07		20:41	07:14-08:52/98	19:52	07:36-08:36/60	19:01		17:19		17:02	
10	06:07	07:14-08:34/80	06:35	19:38-20:16/38	07:06	18:52-19:26/34	07:37	08:02-08:23/21	07:13	08:09-09:01/52	07:46	08:17-09:13/56
	21:07		20:40	07:14-08:52/98	19:51	07:38-08:34/56	19:00		17:18		17:02	
11	06:08	07:14-08:33/79	06:36	19:36-20:15/39	07:07	18:51-19:26/35	07:38	08:01-08:23/22	07:14	08:09-09:01/52	07:47	08:18-09:13/55
	21:06		20:39	07:14-08:53/99	19:49	07:38-08:31/53	18:58		17:17		17:02	
12	06:09	07:14-08:34/80	06:37	19:34-20:13/39	07:08	18:51-19:25/34	07:39	08:00-08:24/24	07:15	08:09-09:03/54	07:48	08:17-09:13/56
	21:06		20:37	07:14-08:53/99	19:47	07:40-08:29/49	18:57		17:16		17:03	
13	06:09	07:14-08:35/81	06:38	19:33-20:11/38	07:09	18:51-19:23/32	07:40	08:01-08:25/24	07:17	08:08-09:03/55	07:48	08:18-09:13/55
	21:05		20:36	07:15-08:53/98	19:46	07:42-08:26/44	18:55		17:15		17:03	
14	06:10	07:14-08:36/82	06:39	19:32-20:10/38	07:10	18:50-19:22/32	07:42	08:02-08:25/23	07:18	08:08-09:03/55	07:49	08:19-09:14/55
	21:05		20:35	07:14-08:53/99	19:44	07:44-08:23/39	18:53		17:14		17:03	
15	06:11	07:13-08:35/82	06:40	19:31-20:09/38	07:11	18:50-19:20/30	07:43	08:03-08:24/21	07:19	08:08-09:05/57	07:50	08:20-09:14/54
	21:04		20:33	07:14-08:53/99	19:42	07:47-08:19/32	18:52		17:13		17:03	
16	06:12	07:13-08:36/83	06:41	19:30-20:07/37	07:12	18:50-19:18/28	07:44	08:04-08:24/20	07:20	08:08-09:05/57	07:51	08:20-09:14/54
	21:04		20:32	07:15-08:53/98	19:40	07:52-08:14/22	18:50		17:12		17:03	
17	06:12	07:14-08:36/82	06:42	19:30-20:06/36	07:13	18:51-19:17/26	07:45	08:05-08:23/18	07:21	08:08-09:05/57	07:51	08:21-09:15/54
	21:03		20:30	07:15-08:53/98	19:39		18:49		17:11		17:04	
18	06:13	07:14-08:37/83	06:43	19:29-20:05/36	07:14	18:51-19:15/24	07:46	08:06-08:22/16	07:23	08:07-09:05/58	07:52	08:22-09:15/53
	21:03		20:29	07:16-08:53/97	19:37		18:47		17:10		17:04	
19	06:14	07:14-08:38/84	06:44	19:29-20:03/34	07:15	18:52-19:13/21	07:47	08:08-08:22/14	07:24	08:08-09:07/59	07:53	08:21-09:15/54
	21:02		20:27	07:17-08:53/96	19:35		18:46		17:10		17:04	
20	06:15	07:13-08:37/84	06:45	19:29-20:02/33	07:16	18:53-19:11/18	07:48	08:09-08:21/12	07:25	08:08-09:07/59	07:53	08:22-09:16/54
	21:01		20:26	07:17-08:53/96	19:34		18:44		17:09		17:05	
21	06:16	07:13-08:38/85	06:46	19:28-20:01/33	07:17	18:54-19:10/16	07:49	08:10-08:19/9	07:26	08:08-09:07/59	07:54	08:22-09:16/54
	21:00		20:25	07:18-08:53/95	19:32		18:43		17:08		17:05	
22	06:17	19:57-20:02/5	06:47	19:28-19:59/31	07:18	18:56-19:08/12	07:51	08:11-08:17/6	07:27	08:08-09:07/59	07:54	08:23-09:17/54
	21:00	07:13-08:39/86	20:23	07:19-08:52/93	19:30		18:41		17:08		17:06	
23	06:18	19:53-20:06/13	06:48	19:28-19:58/30	07:19	19:00-19:06/6	07:52	08:12-08:15/3	07:29	08:09-09:08/59	07:55	08:23-09:17/54
	20:59	07:13-08:40/87	20:22	07:20-08:52/92	19:28		18:40		17:07		17:06	
24	06:19	19:52-20:08/16	06:49	19:28-19:56/28	07:20		07:53		07:30	08:09-09:08/59	07:55	08:23-09:17/54
	20:58	07:13-08:41/88	20:20	07:21-08:52/91	19:27		18:39		17:06		17:07	
25	06:19	19:50-20:10/20	06:50	07:22-08:51/89	07:21		07:54		07:31	08:09-09:08/59	07:56	08:25-09:18/53
	20:57	07:13-08:42/89	20:18	19:29-19:55/26	19:25		18:37		17:06		17:07	
26	06:20	19:48-20:10/22	06:51	07:23-08:51/88	07:22		07:55		07:32	08:09-09:08/59	07:56	08:25-09:19/54
	20:56	07:13-08:43/90	20:17	19:29-19:53/24	19:23		18:36		17:05		17:08	
27	06:21	19:47-20:11/24	06:52	07:24-08:51/87	07:23		07:56		07:33	08:10-09:09/59	07:56	08:25-09:19/54
	20:55	07:12-08:43/91	20:15	19:30-19:52/22	19:22		18:34		17:05		17:09	
28	06:22	19:46-20:12/26	06:53	07:26-08:50/84	07:24		07:57		07:34	08:11-09:10/59	07:57	08:26-09:20/54
	20:54	07:12-08:44/92	20:14	19:31-19:50/19	19:20		18:33		17:05		17:09	
29	06:23	19:45-20:13/28	06:54	07:28-08:49/81	07:26		07:59		07:35	08:11-09:10/59	07:57	08:26-09:21/55
	20:53	07:12-08:45/93	20:12	19:32-19:49/17	19:18		18:32		17:04		17:10	
30	06:24	19:44-20:14/30	06:55	07:29-08:49/80	07:27		08:00	09:26-09:42/16	07:36	08:11-09:10/59	07:57	08:26-09:21/55
	20:52	07:12-08:46/94	20:11	19:33-19:47/14	19:16		18:30		17:04		17:11	
31	06:25	19:44-20:15/31	06:56	07:30-08:48/78			08:01	09:22-09:45/23			07:57	08:26-09:21/55
	20:51	07:12-08:47/95	20:09	19:35-19:46/11			18:29				17:12	
Potential sun hours	460		429		375		345		297		287	
Sum of minutes with flicker		2799		3884		1495		311		1574		1710

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T11 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (150)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June
1	07:58	09:09-10:15/66	07:44	16:05-16:46/41	07:07		07:16	18:33-19:34/61	06:30	18:53-19:21/28	06:01
	17:13	15:48-16:41/53	17:47		18:22		19:56		20:27		20:57
2	07:58	09:09-10:16/67	07:43	16:06-16:45/39	07:06		07:15	18:32-19:34/62	06:29	18:55-19:19/24	06:01
	17:14	15:49-16:41/52	17:49		18:23		19:57		20:28		20:58
3	07:58	09:10-10:16/66	07:42	16:08-16:44/36	07:04		07:13	18:32-19:36/64	06:28	18:57-19:16/19	06:00
	17:14	15:49-16:42/53	17:50		18:24		19:58		20:29		20:59
4	07:58	09:11-10:16/65	07:41	16:09-16:43/34	07:03		07:11	18:32-19:36/64	06:26	19:01-19:11/10	06:00
	17:15	15:49-16:42/53	17:51		18:25		19:59		20:30		21:00
5	07:58	09:11-10:16/65	07:40	16:11-16:42/31	07:01		07:10	18:31-19:37/66	06:25		06:00
	17:16	15:50-16:43/53	17:52		18:26		20:00		20:32		21:00
6	07:58	09:12-10:16/64	07:39	16:14-16:40/26	06:59		07:08	18:32-19:38/66	06:24		05:59
	17:17	15:50-16:44/54	17:54		18:28		20:00		20:33		21:01
7	07:58	09:13-10:17/64	07:37	16:16-16:38/22	06:58		07:06	18:31-19:38/67	06:23		05:59
	17:18	15:51-16:44/53	17:55		18:29		20:02		20:34		21:02
8	07:58	09:14-10:17/63	07:36	16:19-16:34/15	07:56		07:05	18:32-19:38/66	06:21		05:59
	17:19	15:51-16:45/54	17:56		19:30		20:03		20:35		21:02
9	07:57	09:14-10:16/62	07:35		07:55		07:03	18:31-19:38/67	06:20		05:58
	17:20	15:51-16:45/54	17:57		19:31		20:04		20:36		21:03
10	07:57	09:15-10:16/61	07:34		07:53		07:01	18:31-19:38/67	06:19		05:58
	17:21	15:51-16:45/54	17:59		19:32		20:05		20:37		21:03
11	07:57	09:16-10:17/61	07:33		07:51		07:00	18:32-19:38/66	06:18		05:58
	17:22	15:52-16:46/54	18:00		19:33		20:06		20:38		21:04
12	07:57	09:17-10:17/60	07:31		07:50		06:58	18:32-19:38/66	06:17		05:58
	17:23	15:52-16:46/54	18:01		19:34		20:07		20:39		21:05
13	07:56	09:17-10:16/59	07:30		07:48		06:57	18:33-19:38/65	06:16		05:58
	17:24	15:52-16:47/55	18:02		19:35		20:08		20:40		21:05
14	07:56	09:19-10:16/57	07:29		07:46		06:55	18:33-19:37/64	06:15		05:58
	17:26	15:53-16:48/55	18:04		19:37		20:09		20:41		21:06
15	07:56	09:19-10:15/56	07:28		07:45		06:53	18:33-19:37/64	06:14		05:58
	17:27	15:53-16:48/55	18:05		19:38		20:10		20:42		21:06
16	07:55	09:21-10:16/55	07:26		07:43		06:52	18:35-19:37/62	06:13		05:58
	17:28	15:54-16:48/54	18:06		19:39		20:11		20:43		21:06
17	07:55	09:21-10:15/54	07:25		07:41		06:50	18:35-19:36/61	06:12		05:58
	17:29	15:54-16:48/54	18:07		19:40		20:12		20:44		21:07
18	07:54	09:23-10:15/52	07:24		07:40	19:00-19:11/11	06:49	18:37-19:36/59	06:11		05:58
	17:30	15:55-16:49/54	18:09		19:41		20:13		20:45		21:07
19	07:54	09:24-10:14/50	07:22		07:38	18:54-19:16/22	06:47	18:37-19:35/58	06:10		05:58
	17:31	15:55-16:49/54	18:10		19:42		20:14		20:46		21:07
20	07:53	09:24-10:12/48	07:21		07:36	18:50-19:18/28	06:46	18:39-19:35/56	06:09		05:58
	17:33	15:55-16:49/54	18:11		19:43		20:15		20:47		21:08
21	07:53	09:26-10:12/46	07:19		07:35	18:48-19:21/33	06:44	18:41-19:33/52	06:08		05:58
	17:34	15:56-16:50/54	18:12		19:44		20:17		20:48		21:08
22	07:52	09:28-10:11/43	07:18		07:33	18:45-19:23/38	06:43	18:43-19:33/50	06:08		05:59
	17:35	15:57-16:49/52	18:13		19:45		20:18		20:49		21:08
23	07:51	09:29-10:09/40	07:16		07:31	18:43-19:24/41	06:41	18:44-19:32/48	06:07		05:59
	17:36	15:57-16:49/52	18:15		19:46		20:19		20:50		21:08
24	07:51	09:31-10:09/38	07:15		07:30	18:42-19:25/43	06:40	18:44-19:31/47	06:06		05:59
	17:37	15:57-16:49/52	18:16		19:48		20:20		20:51		21:09
25	07:50	09:33-10:07/34	07:13		07:28	18:40-19:26/46	06:38	18:45-19:30/45	06:05		05:59
	17:39	15:59-16:50/51	18:17		19:49		20:21		20:51		21:09
26	07:49	09:35-10:05/30	07:12		07:26	18:38-19:27/49	06:37	18:46-19:28/42	06:05		06:00
	17:40	15:59-16:49/50	18:18		19:50		20:22		20:52		21:09
27	07:48	09:38-10:02/24	07:10		07:25	18:38-19:28/50	06:36	18:47-19:28/41	06:04		06:00
	17:41	16:00-16:49/49	18:19		19:51		20:23		20:53		21:09
28	07:47	09:41-09:58/17	07:09		07:23	18:37-19:28/51	06:34	18:48-19:26/38	06:03		06:01
	17:42	16:01-16:48/47	18:21		19:52		20:24		20:54		21:09
29	07:47	16:02-16:48/46			07:21	18:35-19:29/54	06:33	18:49-19:24/35	06:03		06:01
	17:44				19:53		20:25		20:55		21:09
30	07:46	16:02-16:47/45			07:20	18:34-19:31/57	06:31	18:51-19:23/32	06:02		06:01
	17:45				19:54		20:26		20:56		21:09
31	07:45	16:04-16:47/43			07:18	18:34-19:33/59			06:02		
	17:46				19:55				20:57		
Potential sun hours	297		297		370		399		449		453
Sum of minutes with flicker		3084		244		582		1701		81	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T11 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (150)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August		September		October	November		December	
1	06:02	06:26		06:57	18:31-19:37/66	07:28	07:02		07:37	08:58-09:59/61
	21:09	20:50		20:07		19:15	17:28		17:03	15:34-16:28/54
2	06:02	06:27		06:58	18:30-19:37/67	07:29	07:03		07:38	08:58-10:00/62
	21:09	20:49		20:06		19:13	17:27		17:03	15:34-16:29/55
3	06:03	06:28		06:59	18:29-19:36/67	07:30	07:05	15:48-16:04/16	07:39	08:58-10:00/62
	21:09	20:48		20:04		19:11	17:25		17:03	15:35-16:29/54
4	06:03	06:29		07:00	18:29-19:35/66	07:31	07:06	15:45-16:07/22	07:40	08:58-10:01/63
	21:09	20:47		20:02		19:10	17:24		17:03	15:35-16:29/54
5	06:04	06:30		07:01	18:28-19:35/67	07:32	07:07	15:43-16:10/27	07:41	08:58-10:02/64
	21:08	20:46		20:01		19:08	17:23		17:03	15:36-16:29/53
6	06:05	06:31		07:02	18:28-19:34/66	07:33	07:08	15:41-16:12/31	07:42	08:58-10:03/65
	21:08	20:45		19:57		19:06	17:22		17:02	15:36-16:30/54
7	06:05	06:32		07:03	18:27-19:33/66	07:34	07:09	15:39-16:13/34	07:43	08:58-10:03/65
	21:08	20:44		19:56		19:05	17:21		17:02	15:37-16:30/53
8	06:06	06:33		07:04	18:27-19:31/64	07:35	07:11	15:38-16:15/37	07:44	08:59-10:04/65
	21:08	20:42		19:54		19:03	17:20		17:02	15:37-16:30/53
9	06:07	06:34	19:09-19:23/14	07:05	18:27-19:30/63	07:36	07:12	15:37-16:16/39	07:45	08:59-10:05/66
	21:07	20:41		19:52		19:02	17:19		17:02	15:38-16:31/53
10	06:07	06:35	19:06-19:26/20	07:06	18:26-19:29/63	07:37	07:13	15:36-16:17/41	07:46	08:59-10:06/67
	21:07	20:40		19:51		19:00	17:18		17:02	15:39-16:31/52
11	06:08	06:36	19:03-19:29/26	07:07	18:25-19:26/61	07:38	07:14	15:34-16:18/44	07:47	09:00-10:06/66
	21:06	20:39		19:49		18:58	17:17		17:02	15:39-16:32/53
12	06:09	06:37	19:01-19:30/29	07:08	18:25-19:24/59	07:39	07:16	15:34-16:19/45	07:48	08:59-10:06/67
	21:06	20:37		19:47		18:57	17:16		17:03	15:39-16:31/52
13	06:09	06:38	18:59-19:32/33	07:09	18:25-19:22/57	07:40	07:17	15:33-16:20/47	07:49	09:00-10:07/67
	21:06	20:36		19:46		18:55	17:15		17:03	15:40-16:32/52
14	06:10	06:39	18:56-19:32/36	07:10	18:25-19:20/55	07:42	07:18	09:13-09:31/18	07:49	09:00-10:08/68
	21:05	20:35		19:44		18:54	17:14	15:33-16:20/47	17:03	15:41-16:32/51
15	06:11	06:40	18:55-19:34/39	07:11	18:26-19:17/51	07:43	07:19	09:11-09:35/24	07:50	09:01-10:09/68
	21:04	20:33		19:42		18:52	17:13	15:33-16:22/49	17:03	15:41-16:33/52
16	06:12	06:41	18:53-19:35/42	07:12	18:26-19:16/50	07:44	07:20	09:08-09:38/30	07:51	09:01-10:08/67
	21:04	20:32		19:40		18:50	17:12	15:32-16:22/50	17:03	15:41-16:33/52
17	06:13	06:42	18:52-19:35/43	07:13	18:27-19:15/48	07:45	07:22	09:06-09:40/34	07:51	09:01-10:09/68
	21:03	20:30		19:39		18:49	17:11	15:32-16:23/51	17:04	15:42-16:33/51
18	06:13	06:43	18:51-19:36/45	07:14	18:27-19:14/47	07:46	07:23	09:04-09:42/38	07:52	09:02-10:10/68
	21:03	20:29		19:37		18:47	17:10	15:31-16:23/52	17:04	15:43-16:34/51
19	06:14	06:44	18:50-19:37/47	07:15	18:28-19:12/44	07:47	07:24	09:04-09:44/40	07:53	09:02-10:10/68
	21:02	20:27		19:35		18:46	17:10	15:32-16:24/52	17:04	15:43-16:34/51
20	06:15	06:45	18:49-19:37/48	07:16	18:29-19:10/41	07:48	07:25	09:03-09:46/43	07:53	09:03-10:11/68
	21:01	20:26		19:34		18:44	17:09	15:32-16:24/52	17:05	15:44-16:35/51
21	06:16	06:46	18:47-19:38/51	07:17	18:30-19:08/38	07:49	07:26	09:01-09:47/46	07:54	09:03-10:11/68
	21:01	20:25		19:32		18:43	17:08	15:31-16:25/54	17:05	15:44-16:35/51
22	06:17	06:47	18:45-19:38/53	07:18	18:32-19:06/34	07:51	07:27	09:00-09:48/48	07:54	09:04-10:12/68
	21:00	20:23		19:30		18:41	17:08	15:31-16:25/54	17:06	15:45-16:36/51
23	06:18	06:48	18:43-19:38/55	07:19	18:34-19:04/30	07:52	07:29	09:01-09:51/50	07:55	09:04-10:12/68
	20:59	20:22		19:28		18:40	17:07	15:32-16:26/54	17:06	15:45-16:36/51
24	06:19	06:49	18:41-19:39/58	07:20	18:36-19:00/24	07:53	07:30	09:00-09:52/52	07:55	09:05-10:13/68
	20:58	20:20		19:27		18:39	17:06	15:32-16:26/54	17:07	15:45-16:36/51
25	06:19	06:50	18:39-19:39/60	07:21	18:40-18:56/16	07:54	07:31	08:59-09:53/54	07:56	09:05-10:13/68
	20:57	20:18		19:25		18:37	17:06	15:32-16:26/54	17:07	15:46-16:37/51
26	06:20	06:51	18:38-19:39/61	07:22		07:55	07:32	08:59-09:54/55	07:56	09:05-10:13/68
	20:56	20:17		19:23		18:36	17:05	15:32-16:26/54	17:08	15:46-16:37/51
27	06:21	06:52	18:37-19:39/62	07:23		07:56	07:33	08:58-09:54/56	07:56	09:06-10:13/67
	20:55	20:15		19:22		18:34	17:05	15:32-16:27/55	17:09	15:46-16:38/52
28	06:22	06:53	18:35-19:39/64	07:25		07:58	07:34	08:59-09:56/57	07:57	09:07-10:15/68
	20:55	20:14		19:20		18:33	17:05	15:33-16:28/55	17:09	15:47-16:39/52
29	06:23	06:54	18:34-19:38/64	07:26		07:59	07:35	08:58-09:57/59	07:57	09:07-10:15/68
	20:54	20:12		19:18		18:32	17:04	15:34-16:28/54	17:10	15:48-16:39/51
30	06:24	06:55	18:33-19:38/65	07:27		08:00	07:36	08:58-09:58/60	07:57	09:08-10:15/67
	20:53	20:11		19:17		18:30	17:04	15:34-16:28/54	17:11	15:48-16:40/52
31	06:25	06:56	18:32-19:38/66			08:01			07:57	09:08-10:15/67
	20:52	20:09				18:29			17:12	15:48-16:40/52
Potential sun hours	460	429		375		345	297		287	
Sum of minutes with flicker	0		1081		1310	0		2042		3676

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T12 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (151)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April	May	June	
1	07:58	08:58-10:06/68	07:44	17:10-17:23/13	07:07	17:32-18:00/28	07:16	06:30	06:01	
	17:13		17:47	09:37-09:44/7	18:22		19:56	20:27	20:57	
2	07:58	08:59-10:06/67	07:43	17:09-17:24/15	07:06	17:31-18:01/30	07:14	06:29	06:01	
	17:14		17:49		18:23		19:57	20:28	20:58	
3	07:58	08:59-10:06/67	07:42	17:08-17:26/18	07:04	17:32-18:03/31	07:13	06:27	06:00	
	17:14		17:50		18:24		19:58	20:29	20:59	
4	07:58	09:00-10:07/67	07:41	17:07-17:27/20	07:03	17:31-18:03/32	07:11	06:26	06:00	06:51-07:05/14
	17:15		17:51		18:25		19:59	20:30	20:59	
5	07:58	09:01-10:07/66	07:40	17:07-17:29/22	07:01	17:31-18:04/33	07:09	06:25	06:00	06:47-07:07/20
	17:16		17:52		18:26		20:00	20:31	21:00	
6	07:58	09:01-10:07/66	07:39	17:07-17:30/23	06:59	17:32-18:06/34	07:08	06:24	05:59	06:45-07:10/25
	17:17		17:54		18:27		20:00	20:33	21:01	
7	07:58	09:02-10:08/66	07:37	17:06-17:31/25	06:58	17:32-18:07/35	07:06	06:23	05:59	06:44-07:12/28
	17:18		17:55		18:29		20:01	20:34	21:02	
8	07:58	09:03-10:08/65	07:36	17:06-17:32/26	07:56	18:32-19:08/36	07:05	06:21	05:59	06:43-07:14/31
	17:19		17:56		19:30		20:03	20:35	21:02	
9	07:57	09:03-10:07/64	07:35	17:06-17:34/28	07:55	18:33-19:09/36	07:03	06:20	05:58	06:42-07:15/33
	17:20		17:57		19:31		20:04	20:36	21:03	
10	07:57	09:04-10:08/64	07:34	17:06-17:35/29	07:53	18:33-19:10/37	07:01	06:19	05:58	06:41-07:16/35
	17:21		17:59		19:32		20:05	20:37	21:03	
11	07:57	09:05-10:08/63	07:33	17:06-17:37/31	07:51	18:34-19:10/36	07:00	06:18	05:58	06:40-07:17/37
	17:22		18:00		19:33		20:06	20:38	21:04	
12	07:57	09:05-10:07/62	07:31	17:06-17:36/30	07:50	18:34-19:09/35	06:58	06:17	05:58	06:39-07:18/39
	17:23		18:01		19:34		20:07	20:39	21:04	
13	07:56	09:06-10:08/62	07:30	17:06-17:37/31	07:48	18:34-19:08/34	06:57	06:16	05:58	06:39-07:19/40
	17:24		18:02		19:35		20:08	20:40	21:05	
14	07:56	09:07-10:08/61	07:29	17:07-17:36/29	07:46	18:35-19:08/33	06:55	06:15	05:58	06:39-07:20/41
	17:26		18:04		19:37		20:09	20:41	21:05	
15	07:56	09:07-10:07/60	07:28	17:07-17:35/28	07:45	18:36-19:06/30	06:53	06:14	05:58	06:38-07:20/42
	17:27		18:05		19:38		20:10	20:42	21:06	
16	07:55	09:09-10:08/59	07:26	17:08-17:35/27	07:43	18:37-19:05/28	06:52	06:13	05:58	06:38-07:21/43
	17:28		18:06		19:39		20:11	20:43	21:06	
17	07:55	09:09-10:07/58	07:25	17:10-17:34/24	07:41	18:39-19:02/23	06:50	06:12	05:58	06:38-07:21/43
	17:29		18:07		19:40		20:12	20:44	21:07	
18	07:54	09:10-10:07/57	07:23	17:10-17:32/22	07:40	18:42-19:01/19	06:49	06:11	05:58	06:38-07:22/44
	17:30		18:09		19:41		20:13	20:45	21:07	
19	07:54	09:11-10:07/56	07:22	17:12-17:31/19	07:38	18:47-18:57/10	06:47	06:10	05:58	06:39-07:23/44
	17:31		18:10		19:42		20:14	20:46	21:07	
20	07:53	09:12-10:06/54	07:21	17:14-17:28/14	07:36		06:46	06:09	05:58	06:39-07:23/44
	17:32		18:11		19:43		20:15	20:47	21:08	
21	07:53	09:13-10:06/53	07:19	17:19-17:24/5	07:35		06:44	06:08	05:58	06:39-07:23/44
	17:34		18:12	17:42-17:50/8	19:44		20:17	20:48	21:08	
22	07:52	09:14-10:05/51	07:18	17:39-17:51/12	07:33		06:43	06:08	05:59	06:39-07:23/44
	17:35		18:13		19:45		20:18	20:49	21:08	
23	07:51	09:15-10:04/49	07:16	17:38-17:52/14	07:31		06:41	06:07	05:59	06:39-07:23/44
	17:36		18:15		19:46		20:19	20:50	21:08	
24	07:51	09:16-10:03/47	07:15	17:36-17:53/17	07:30		06:40	06:06	05:59	06:40-07:24/44
	17:37		18:16		19:47		20:20	20:50	21:09	
25	07:50	09:18-10:02/44	07:13	17:35-17:55/20	07:28		06:38	06:05	05:59	06:40-07:23/43
	17:39		18:17		19:49		20:21	20:51	21:09	
26	07:49	09:20-10:01/41	07:12	17:33-17:56/23	07:26		06:37	06:05	06:00	06:40-07:23/43
	17:40		18:18		19:50		20:22	20:52	21:09	
27	07:48	09:21-09:59/38	07:10	17:33-17:57/24	07:25		06:36	06:04	06:00	06:41-07:24/43
	17:41		18:19		19:51		20:23	20:53	21:09	
28	07:47	09:23-09:58/35	07:09	17:32-17:58/26	07:23		06:34	06:03	06:00	06:42-07:23/41
	17:42		18:21		19:52		20:24	20:54	21:09	
29	07:47	17:15-17:19/4			07:21		06:33	06:03	06:01	06:43-07:23/40
	17:44	09:25-09:56/31			19:53		20:25	20:55	21:09	
30	07:46	17:13-17:20/7			07:19		06:31	06:02	06:01	06:43-07:22/39
	17:45	09:27-09:53/26			19:54		20:26	20:56	21:09	
31	07:45	17:11-17:21/10			07:18			06:02		
	17:46	09:31-09:50/19			19:55			20:56		
Potential sun hours	297		297		370		399	449	453	
Sum of minutes with flicker		1707		630		580	0	0		1028

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T12 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (151)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August	September		October		November		December	
1	06:02	06:44-07:21/37	06:26	06:57		07:28	18:13-18:48/35	07:02	16:36-17:05/29	07:37	08:47-09:50/63
	21:09		20:50	20:07		19:15		17:28		17:03	
2	06:02	06:45-07:21/36	06:27	06:58		07:29	18:12-18:48/36	07:03	16:35-17:03/28	07:38	08:47-09:51/64
	21:09		20:49	20:06		19:13		17:27		17:03	
3	06:03	06:46-07:20/34	06:28	06:59		07:30	18:12-18:49/37	07:05	16:35-17:02/27	07:39	08:47-09:51/64
	21:09		20:48	20:04		19:11		17:25		17:03	
4	06:03	06:48-07:19/31	06:29	07:00		07:31	18:11-18:48/37	07:06	16:35-17:00/25	07:40	08:47-09:52/65
	21:08		20:47	20:02		19:10		17:24		17:03	
5	06:04	06:50-07:19/29	06:30	07:01		07:32	18:10-18:46/36	07:07	16:37-17:00/23	07:41	08:47-09:53/66
	21:08		20:46	20:01		19:08		17:23		17:03	
6	06:05	06:51-07:17/26	06:31	07:02		07:33	18:09-18:44/35	07:08	16:37-16:58/21	07:42	08:47-09:53/66
	21:08		20:45	19:57		19:06		17:22		17:02	
7	06:05	06:53-07:15/22	06:32	07:03		07:34	18:08-18:42/34	07:09	16:37-16:57/20	07:43	08:48-09:54/66
	21:08		20:44	19:56		19:05		17:21		17:02	
8	06:06	06:55-07:12/17	06:33	07:04		07:35	18:07-18:41/34	07:11	16:39-16:56/17	07:44	08:48-09:55/67
	21:07		20:42	19:54		19:03		17:20		17:02	
9	06:06	07:00-07:09/9	06:34	07:05		07:36	18:06-18:39/33	07:12	16:40-16:55/15	07:45	08:48-09:55/67
	21:07		20:41	19:52		19:01		17:19		17:02	
10	06:07		06:35	07:06		07:37	18:06-18:37/31	07:13	16:41-16:54/13	07:46	08:49-09:56/67
	21:07		20:40	19:51		19:00		17:18	09:07-09:16/9	17:02	
11	06:08		06:36	07:07		07:38	18:05-18:35/30	07:14	16:42-16:52/10	07:47	08:48-09:56/68
	21:06		20:39	19:49		18:58		17:17	09:02-09:21/19	17:02	
12	06:09		06:37	07:08		07:39	18:05-18:34/29	07:15	16:45-16:52/7	07:48	08:49-09:56/67
	21:06		20:37	19:47		18:57		17:16	08:59-09:25/26	17:03	
13	06:09		06:38	07:09		07:40	18:06-18:33/27	07:17	16:47-16:51/4	07:48	08:49-09:57/68
	21:05		20:36	19:46		18:55		17:15	08:57-09:28/31	17:03	
14	06:10		06:39	07:10		07:42	18:06-18:31/25	07:18	08:55-09:30/35	07:49	08:50-09:58/68
	21:05		20:34	19:44		18:54		17:14		17:03	
15	06:11		06:40	07:11		07:43	18:06-18:29/23	07:19	08:54-09:32/38	07:50	08:51-09:59/68
	21:04		20:33	19:42		18:52		17:13		17:03	
16	06:12		06:41	07:12		07:44	18:06-18:28/22	07:20	08:52-09:34/42	07:51	08:50-09:59/69
	21:04		20:32	19:40		18:50		17:12		17:03	
17	06:12		06:42	07:13		07:45	18:07-18:26/19	07:21	08:51-09:35/44	07:51	08:51-10:00/69
	21:03		20:30	19:39		18:49		17:11		17:04	
18	06:13		06:43	07:14		07:46	18:08-18:24/16	07:23	08:50-09:37/47	07:52	08:52-10:01/69
	21:03		20:29	19:37		18:47		17:10		17:04	
19	06:14		06:44	07:15		07:47	18:09-18:22/13	07:24	08:50-09:39/49	07:53	08:52-10:01/69
	21:02		20:27	19:35		18:46		17:10		17:04	
20	06:15		06:45	07:16		07:48	18:11-18:22/11	07:25	08:49-09:40/51	07:53	08:53-10:02/69
	21:01		20:26	19:34		18:44		17:09		17:05	
21	06:16		06:46	07:17		07:49	17:48-17:56/8	07:26	08:48-09:41/53	07:54	08:53-10:02/69
	21:00		20:25	19:32		18:43	18:14-18:20/6	17:08		17:05	
22	06:17		06:47	07:18		07:51	17:44-17:59/15	07:27	08:48-09:42/54	07:54	08:54-10:03/69
	21:00		20:23	19:30		18:41		17:08		17:06	
23	06:18		06:48	07:19		07:52	17:41-18:01/20	07:28	08:48-09:44/56	07:55	08:54-10:03/69
	20:59		20:22	19:28		18:40		17:07		17:06	
24	06:19		06:49	07:20	18:32-18:38/6	07:53	17:41-18:03/22	07:30	08:47-09:44/57	07:55	08:54-10:03/69
	20:58		20:20	19:27		18:39		17:06		17:07	
25	06:19		06:50	07:21	18:26-18:42/16	07:54	17:39-18:04/25	07:31	08:47-09:45/58	07:56	08:55-10:04/69
	20:57		20:18	19:25		18:37		17:06		17:07	
26	06:20		06:51	07:22	18:22-18:44/22	07:55	17:38-18:05/27	07:32	08:47-09:46/59	07:56	08:55-10:04/69
	20:56		20:17	19:23		18:36		17:05		17:08	
27	06:21		06:52	07:23	18:19-18:46/27	07:56	17:37-18:05/28	07:33	08:46-09:46/60	07:56	08:55-10:04/69
	20:55		20:15	19:22		18:34		17:05		17:09	
28	06:22		06:53	07:24	18:17-18:46/29	07:57	17:36-18:05/29	07:34	08:47-09:48/61	07:57	08:57-10:05/68
	20:54		20:14	19:20		18:33		17:05		17:09	
29	06:23		06:54	07:26	18:15-18:47/32	07:59	17:36-18:06/30	07:35	08:47-09:49/62	07:57	08:57-10:05/68
	20:53		20:12	19:18		18:32		17:04		17:10	
30	06:24		06:55	07:27	18:14-18:48/34	08:00	17:35-18:06/31	07:36	08:47-09:49/62	07:57	08:57-10:05/68
	20:52		20:11	19:16		18:30		17:04		17:11	
31	06:25		06:56			08:01	17:35-18:05/30			07:57	08:58-10:05/67
	20:51		20:09			18:29				17:12	
Potential sun hours	460		429	375		345		297		287	
Sum of minutes with flicker		241	0		166		834		1212		2093

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T13 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (152)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June
1	07:58 15:39-16:26/47 17:13	07:44 16:27-17:21/54 17:47 08:04-08:46/42	07:07 16:33-17:30/57 18:22	07:16 19:56	06:30 07:06-07:43/37 20:27	06:01 06:23-06:51/28 20:57
2	07:58 15:40-16:26/46 17:14	07:43 16:26-17:23/57 17:49 08:03-08:46/43	07:06 16:34-17:29/55 18:23	07:14 19:57	06:29 07:07-07:42/35 20:28	06:01 06:22-06:50/28 20:58
3	07:58 15:40-16:26/46 17:14	07:42 16:26-17:25/59 17:50 08:04-08:46/42	07:04 16:36-17:28/52 18:24	07:13 19:58	06:27 07:07-07:40/33 20:29	06:00 06:22-06:51/29 20:59
4	07:58 15:41-16:27/46 17:15	07:41 16:25-17:26/61 17:51 08:04-08:45/41	07:03 16:38-17:26/48 18:25	07:11 19:59	06:26 07:08-07:39/31 20:30	06:00 06:22-06:52/30 20:59
5	07:58 15:42-16:27/45 17:16	07:40 16:25-17:28/63 17:52 08:04-08:45/41	07:01 16:40-17:24/44 18:26	07:09 20:00	06:25 07:10-07:38/28 20:31	06:00 06:21-06:52/31 21:00
6	07:58 15:42-16:27/45 17:17	07:38 16:25-17:29/64 17:54 08:04-08:44/40	06:59 16:44-17:22/38 18:27	07:08 20:00	06:24 07:11-07:37/26 20:33	05:59 06:21-06:52/31 21:01
7	07:58 15:43-16:28/45 17:18	07:37 16:24-17:29/65 17:55 08:05-08:44/39	06:58 16:51-17:19/28 18:29	07:06 20:01	06:23 07:13-07:35/22 20:34	05:59 06:21-06:53/32 21:02
8	07:58 15:44-16:28/44 17:19	07:36 16:24-17:30/66 17:56 08:05-08:42/37	07:56 17:54-18:16/22 19:30	07:05 07:27-07:33/6 20:03	06:21 07:14-07:32/18 20:35	05:59 06:21-06:53/32 21:02
9	07:57 15:44-16:27/43 17:20 08:19-08:25/6	07:35 16:24-17:32/68 17:57 08:05-08:41/36	07:55 17:59-18:12/13 19:31	07:03 07:22-07:38/16 20:04	06:20 07:17-07:30/13 20:36	05:58 06:21-06:54/33 21:03
10	07:57 15:45-16:28/43 17:21 08:19-08:28/9	07:34 16:24-17:33/69 17:59 08:06-08:40/34	07:53 19:32	07:01 07:20-07:40/20 20:05	06:19 20:37	05:58 06:20-06:53/33 21:03
11	07:57 15:46-16:28/42 17:22 08:19-08:30/11	07:33 16:24-17:33/69 18:00 08:07-08:40/33	07:51 19:33	07:00 07:19-07:43/24 20:06	06:18 20:38	05:58 06:20-06:54/34 21:04
12	07:57 15:46-16:27/41 17:23 08:18-08:31/13	07:31 16:23-17:33/70 18:01 08:07-08:38/31	07:50 19:34	06:58 07:17-07:44/27 20:07	06:17 20:39	05:58 06:20-06:54/34 21:04
13	07:56 15:48-16:28/40 17:24 08:18-08:33/15	07:30 16:23-17:34/71 18:02 08:09-08:37/28	07:48 19:35	06:56 07:16-07:45/29 20:08	06:16 20:40	05:58 06:20-06:54/34 21:05
14	07:56 15:49-16:28/39 08:18-08:35/17 17:26 16:46-16:53/7	07:29 16:24-17:35/71 18:04 08:10-08:36/26	07:46 19:36	06:55 07:14-07:46/32 20:09	06:15 20:41	05:58 06:20-06:55/35 21:05
15	07:56 15:50-16:27/37 08:17-08:35/18 17:27 16:42-16:57/15	07:28 16:23-17:35/72 18:05 08:11-08:34/23	07:45 19:38	06:53 07:12-07:46/34 20:10	06:14 20:42	05:58 06:20-06:55/35 21:06
16	07:55 15:51-16:27/36 08:17-08:37/20 17:28 16:41-17:00/19	07:26 16:24-17:35/71 18:06 08:14-08:32/18	07:43 19:39	06:52 07:11-07:47/36 20:11	06:13 20:43	05:58 06:20-06:55/35 21:06
17	07:55 15:52-16:26/34 16:39-17:02/23 17:29 08:16-08:38/22	07:25 16:24-17:36/72 18:07 08:17-08:30/13	07:41 19:40	06:50 07:09-07:47/38 20:12	06:12 20:44	05:58 06:20-06:55/35 21:07
18	07:54 15:54-16:26/32 16:38-17:04/26 17:30 08:16-08:39/23	07:23 16:24-17:35/71 18:09	07:40 19:41	06:49 07:08-07:48/40 20:13	06:11 20:45	05:58 06:20-06:55/35 21:07
19	07:54 15:55-16:25/30 08:15-08:40/25 17:31 16:36-17:06/30	07:22 16:25-17:36/71 18:10	07:38 19:42	06:47 07:06-07:47/41 20:14	06:10 20:46	05:58 06:21-06:56/35 21:07
20	07:53 15:56-16:24/28 08:14-08:41/27 17:32 16:35-17:07/32	07:21 16:24-17:35/71 18:11	07:36 19:43	06:46 07:06-07:48/42 20:15	06:09 06:30-06:38/8 20:47	05:58 06:21-06:56/35 21:08
21	07:53 15:59-16:23/24 08:14-08:42/28 17:34 16:35-17:09/34	07:19 16:25-17:35/70 18:12	07:35 19:44	06:44 07:05-07:47/42 20:16	06:08 06:29-06:40/11 20:48	05:58 06:21-06:56/35 21:08
22	07:52 16:00-16:22/22 08:13-08:43/30 17:35 16:34-17:10/36	07:18 16:25-17:34/69 18:13	07:33 19:45	06:43 07:05-07:48/43 20:18	06:07 06:29-06:43/14 20:49	05:59 06:21-06:56/35 21:08
23	07:51 16:03-16:20/17 08:12-08:43/31 17:36 16:33-17:11/38	07:16 16:26-17:34/68 18:15	07:31 19:46	06:41 07:05-07:48/43 20:19	06:07 06:28-06:44/16 20:50	05:59 06:21-06:56/35 21:08
24	07:51 16:06-16:16/10 08:11-08:43/32 17:37 16:32-17:12/40	07:15 16:27-17:33/66 18:16	07:30 19:47	06:40 07:04-07:47/43 20:20	06:06 06:27-06:45/18 20:50	05:59 06:22-06:57/35 21:09
25	07:50 16:32-17:14/42 17:39 08:11-08:45/34	07:13 16:28-17:33/65 18:17	07:28 19:49	06:38 07:05-07:47/42 20:21	06:05 06:27-06:46/19 20:51	05:59 06:22-06:57/35 21:09
26	07:49 16:31-17:15/44 17:40 08:10-08:45/35	07:12 16:28-17:32/64 18:18	07:26 19:50	06:37 07:04-07:46/42 20:22	06:05 06:26-06:47/21 20:52	06:00 06:22-06:57/35 21:09
27	07:48 16:31-17:16/45 17:41 08:09-08:45/36	07:10 16:30-17:32/62 18:19	07:25 19:51	06:35 07:05-07:46/41 20:23	06:04 06:25-06:47/22 20:53	06:00 06:23-06:58/35 21:09
28	07:47 16:30-17:17/47 17:42 08:08-08:46/38	07:09 16:31-17:31/60 18:20	07:23 19:52	06:34 07:05-07:45/40 20:24	06:03 06:25-06:48/23 20:54	06:00 06:23-06:58/35 21:09
29	07:46 16:29-17:17/48 17:43 08:07-08:46/39		07:21 19:53	06:33 07:05-07:44/39 20:25	06:03 06:24-06:49/25 20:55	06:01 06:24-06:58/34 21:09
30	07:46 16:28-17:18/50 17:45 08:06-08:46/40		07:19 19:54	06:31 07:06-07:43/37 20:26	06:02 06:24-06:50/26 20:56	06:01 06:24-06:58/34 21:09
31	07:45 16:27-17:19/52 17:46 08:05-08:46/41		07:18 19:55		06:02 06:23-06:50/27 20:56	
Potential sun hours	297	297	370	399	449	453
Sum of minutes with flicker	2100	2426	357	797	473	1002

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T13 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (152)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:02	06:24-06:58/34	06:26		06:57	07:18-07:42/24	07:28		07:02	15:54-17:02/68	07:37	15:28-16:10/42
	21:09		20:50		20:07		19:15		17:28	07:36-08:10/34	17:03	08:01-08:12/11
2	06:02	06:25-06:58/33	06:27		06:58	07:19-07:39/20	07:29		07:03	15:53-17:01/68	07:38	15:28-16:11/43
	21:09		20:49		20:06		19:13		17:27	07:35-08:11/36	17:03	08:02-08:11/9
3	06:03	06:25-06:58/33	06:28	07:30-07:37/7	06:59	07:20-07:36/16	07:30		07:05	15:53-17:00/67	07:39	15:28-16:11/43
	21:09		20:48		20:04		19:11		17:25	07:34-08:12/38	17:03	08:03-08:09/6
4	06:03	06:26-06:58/32	06:29	07:26-07:41/15	07:00	07:24-07:31/7	07:31	17:42-17:44/2	07:06	15:54-16:59/65	07:40	15:28-16:12/44
	21:08		20:47		20:02		19:10		17:24	07:34-08:13/39	17:03	
5	06:04	06:27-06:59/32	06:30	07:24-07:44/20	07:01		07:32	17:34-17:52/18	07:07	15:55-16:59/64	07:41	15:28-16:13/45
	21:08		20:46		20:01		19:08		17:23	07:34-08:14/40	17:03	
6	06:05	06:27-06:58/31	06:31	07:22-07:45/23	07:02		07:33	17:30-17:55/25	07:08	15:55-16:57/62	07:42	15:28-16:13/45
	21:08		20:45		19:57		19:06		17:22	07:34-08:15/41	17:02	
7	06:05	06:28-06:59/31	06:32	07:20-07:47/27	07:03		07:34	17:22-17:57/35	07:09	15:55-16:56/61	07:43	15:29-16:14/45
	21:08		20:44		19:56		19:05		17:21	07:34-08:15/41	17:02	
8	06:06	06:28-06:58/30	06:33	07:19-07:48/29	07:04		07:35	17:17-17:58/41	07:11	15:57-16:55/58	07:44	15:29-16:15/46
	21:07		20:42		19:54		19:03		17:20	07:34-08:16/42	17:02	
9	06:06	06:29-06:58/29	06:34	07:18-07:49/31	07:05		07:36	17:14-18:00/46	07:12	15:57-16:54/57	07:45	15:29-16:15/46
	21:07		20:41		19:52		19:01		17:19	07:34-08:17/43	17:02	
10	06:07	06:30-06:59/29	06:35	07:17-07:50/33	07:06		07:37	17:11-18:01/50	07:13	15:58-16:52/54	07:46	15:30-16:16/46
	21:07		20:40		19:51		19:00		17:18	07:35-08:17/42	17:02	
11	06:08	06:30-06:58/28	06:36	07:16-07:51/35	07:07		07:38	17:08-18:02/54	07:14	15:58-16:50/52	07:47	15:29-16:16/47
	21:06		20:38		19:49		18:58		17:17	07:36-08:17/41	17:02	
12	06:09	06:31-06:58/27	06:37	07:15-07:52/37	07:08		07:39	17:06-18:02/56	07:15	16:00-16:50/50	07:48	15:30-16:16/46
	21:06		20:37		19:47		18:57		17:16	07:38-08:18/40	17:02	
13	06:09	06:32-06:58/26	06:38	07:14-07:52/38	07:09		07:40	17:05-18:04/59	07:17	16:01-16:49/48	07:48	15:30-16:17/47
	21:05		20:36		19:46		18:55		17:15	07:39-08:18/39	17:03	
14	06:10	06:33-06:58/25	06:39	07:12-07:52/40	07:10		07:41	17:03-18:04/61	07:18	16:02-16:48/46	07:49	15:31-16:18/47
	21:05		20:34		19:44		18:53		17:14	07:40-08:17/37	17:03	
15	06:11	06:33-06:57/24	06:40	07:12-07:52/40	07:11		07:43	17:02-18:05/63	07:19	16:04-16:49/45	07:50	15:30-16:18/48
	21:04		20:33		19:42		18:52		17:13	07:42-08:18/36	17:03	
16	06:12	06:34-06:57/23	06:41	07:11-07:52/41	07:12		07:44	17:00-18:05/65	07:20	16:04-16:48/44	07:51	15:31-16:19/48
	21:04		20:32		19:40		18:50		17:12	07:43-08:18/35	17:03	
17	06:12	06:35-06:56/21	06:42	07:11-07:53/42	07:13		07:45	16:59-18:05/66	07:21	16:05-16:47/42	07:51	15:32-16:19/47
	21:03		20:30		19:39		18:49		17:11	07:44-08:18/34	17:04	
18	06:13	06:36-06:56/20	06:43	07:10-07:53/43	07:14		07:46	16:58-18:05/67	07:23	15:40-15:50/10 07:45-08:17/32	07:52	15:32-16:19/47
	21:03		20:29		19:37		18:47		17:10	16:06-16:46/40	17:04	
19	06:14	06:37-06:55/18	06:44	07:10-07:53/43	07:15		07:47	16:57-18:05/68	07:24	15:38-15:55/17 07:47-08:18/31	07:53	15:32-16:20/48
	21:02		20:27		19:35		18:46		17:10	16:08-16:46/38	17:04	
20	06:15	06:37-06:54/17	06:45	07:10-07:52/42	07:16		07:48	16:57-18:06/69	07:25	15:35-15:57/22 07:48-08:18/30	07:53	15:33-16:21/48
	21:01		20:26		19:34		18:44		17:09	16:09-16:45/36	17:05	
21	06:16	06:38-06:53/15	06:46	07:10-07:52/42	07:17		07:49	16:56-18:06/70	07:26	15:34-15:58/24 07:49-08:17/28	07:54	15:33-16:21/48
	21:00		20:24		19:32		18:43		17:08	16:10-16:44/34	17:05	
22	06:17	06:39-06:52/13	06:47	07:10-07:52/42	07:18		07:50	16:55-18:05/70	07:27	15:32-16:00/28 07:50-08:17/27	07:54	15:34-16:22/48
	21:00		20:23		19:30		18:41		17:08	16:11-16:43/32	17:06	
23	06:18	06:40-06:50/10	06:48	07:10-07:52/42	07:19		07:52	16:54-18:05/71	07:28	15:32-16:02/30 07:52-08:17/25	07:55	15:34-16:22/48
	20:59		20:21		19:28		18:40		17:07	16:13-16:43/30	17:06	
24	06:19	06:41-06:47/6	06:49	07:10-07:51/41	07:20		07:53	16:54-18:06/72	07:30	15:31-16:03/32 16:15-16:41/26	07:55	15:34-16:22/48
	20:58		20:20		19:27		18:39	08:51-08:55/4	17:06	07:53-08:17/24	17:07	
25	06:19		06:50	07:11-07:50/39	07:21		07:54	16:54-18:05/71	07:31	15:30-16:04/34 16:17-16:40/23	07:56	15:36-16:23/47
	20:57		20:18		19:25		18:37	08:46-09:00/14	17:06	07:54-08:16/22	17:07	
26	06:20		06:51	07:12-07:50/38	07:22		07:55	16:53-18:05/72	07:32	15:29-16:05/36 07:55-08:15/20	07:56	15:36-16:23/47
	20:56		20:17		19:23		18:36	08:43-09:03/20	17:05	16:19-16:38/19	17:08	
27	06:21		06:52	07:13-07:49/36	07:23		07:56	16:53-18:04/71	07:33	15:29-16:06/37 07:56-08:15/19	07:56	15:36-16:24/48
	20:55		20:15		19:22		18:34	08:40-09:04/24	17:05	16:21-16:36/15	17:09	
28	06:22		06:53	07:14-07:48/34	07:24		07:57	16:52-18:03/71	07:34	15:28-16:07/39 07:58-08:15/17	07:57	15:37-16:25/48
	20:54		20:14		19:20		18:33	08:40-09:06/26	17:04	16:25-16:32/7	17:09	
29	06:23		06:54	07:15-07:47/32	07:25		07:59	16:53-18:04/71	07:35	15:29-16:09/40	07:57	15:38-16:25/47
	20:53		20:12		19:18		18:32	08:38-09:07/29	17:04	07:59-08:14/15	17:10	
30	06:24		06:55	07:16-07:45/29	07:27		08:00	16:53-18:03/70	07:36	15:29-16:09/40	07:57	15:38-16:25/47
	20:52		20:11		19:16		18:30	08:37-09:08/31	17:04	08:00-08:13/13	17:11	
31	06:25		06:56	07:17-07:44/27			08:01	16:53-18:02/69			07:57	15:38-16:25/47
	20:51		20:09				18:29	08:36-09:09/33			17:12	
Potential sun hours	460		429		375		345		297		287	
Sum of minutes with flicker		587		988		67		1804		2601		1467

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T48 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (153)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57	07:43	07:07	07:16	06:30	06:02	06:02	06:27	06:58	07:28	07:02	07:37
	17:13	17:48	18:22	19:56	20:27	20:57	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57	07:43	07:06	07:15	06:29	06:01	06:03	06:28	06:58	07:29	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:58	21:08	20:49	20:06	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13	06:28	06:01	06:03	06:29	06:59	07:30	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:12	17:26	17:03
4	07:57	07:40	07:03	07:11	06:27	06:00	06:04	06:29	07:00	07:31	07:06	07:40
	17:16	17:51	18:25	19:59	20:30	20:59	21:08	20:47	20:02	19:10	17:25	17:03
5	07:57	07:39	07:01	07:10	06:25	06:00	06:05	06:30	07:01	07:32	07:07	07:41
	17:17	17:53	18:27	20:00	20:31	21:00	21:08	20:46	20:01	19:08	17:23	17:03
6	07:57	07:38	06:59	07:08	06:24	06:00	06:05	06:31	07:02	07:33	07:08	07:42
	17:18	17:54	18:28	20:00	20:32	21:00	21:08	20:44	19:57	19:07	17:22	17:03
7	07:57	07:37	06:58	07:06	06:23	06:00	06:06	06:32	07:03	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:56	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05	06:22	05:59	06:06	06:33	07:04	07:35	07:10	07:44
	17:20	17:56	19:30	20:03	20:34	21:02	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:55	07:03	06:21	05:59	06:07	06:34	07:05	07:36	07:12	07:45
	17:21	17:58	19:31	20:04	20:35	21:02	21:07	20:41	19:52	19:02	17:19	17:03
10	07:57	07:34	07:53	07:02	06:20	05:59	06:08	06:35	07:06	07:37	07:13	07:46
	17:22	17:59	19:32	20:05	20:36	21:03	21:06	20:40	19:51	19:00	17:18	17:03
11	07:57	07:32	07:51	07:00	06:18	05:59	06:08	06:36	07:07	07:38	07:14	07:46
	17:23	18:00	19:33	20:06	20:38	21:04	21:06	20:38	19:49	18:58	17:17	17:03
12	07:56	07:31	07:50	06:58	06:17	05:59	06:09	06:37	07:08	07:39	07:15	07:47
	17:24	18:01	19:34	20:07	20:39	21:04	21:06	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57	06:16	05:59	06:10	06:38	07:09	07:40	07:16	07:48
	17:25	18:03	19:36	20:08	20:40	21:05	21:05	20:36	19:46	18:55	17:15	17:03
14	07:56	07:29	07:46	06:55	06:15	05:58	06:11	06:39	07:10	07:41	07:18	07:49
	17:26	18:04	19:37	20:09	20:41	21:05	21:05	20:34	19:44	18:54	17:14	17:03
15	07:55	07:27	07:45	06:54	06:14	05:58	06:11	06:40	07:11	07:43	07:19	07:50
	17:27	18:05	19:38	20:10	20:42	21:05	21:04	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52	06:13	05:58	06:12	06:41	07:12	07:44	07:20	07:50
	17:28	18:06	19:39	20:11	20:43	21:06	21:03	20:32	19:40	18:51	17:13	17:04
17	07:54	07:25	07:41	06:51	06:12	05:59	06:13	06:42	07:13	07:45	07:21	07:51
	17:29	18:08	19:40	20:12	20:44	21:06	21:03	20:30	19:39	18:49	17:12	17:04
18	07:54	07:23	07:40	06:49	06:11	05:59	06:14	06:43	07:14	07:46	07:22	07:52
	17:31	18:09	19:41	20:13	20:45	21:07	21:02	20:29	19:37	18:48	17:11	17:05
19	07:53	07:22	07:38	06:47	06:11	05:59	06:15	06:44	07:15	07:47	07:24	07:52
	17:32	18:10	19:42	20:14	20:45	21:07	21:02	20:27	19:35	18:46	17:10	17:05
20	07:53	07:21	07:36	06:46	06:10	05:59	06:16	06:45	07:16	07:48	07:25	07:53
	17:33	18:11	19:43	20:15	20:46	21:07	21:01	20:26	19:34	18:45	17:09	17:05
21	07:52	07:19	07:35	06:44	06:09	05:59	06:16	06:46	07:17	07:49	07:26	07:53
	17:34	18:12	19:44	20:16	20:47	21:08	21:00	20:24	19:32	18:43	17:09	17:06
22	07:52	07:18	07:33	06:43	06:08	05:59	06:17	06:47	07:18	07:50	07:27	07:54
	17:35	18:14	19:45	20:17	20:48	21:08	20:59	20:23	19:30	18:42	17:08	17:06
23	07:51	07:16	07:31	06:42	06:07	05:59	06:18	06:48	07:19	07:52	07:28	07:54
	17:37	18:15	19:46	20:19	20:49	21:08	20:59	20:21	19:28	18:40	17:08	17:07
24	07:50	07:15	07:30	06:40	06:07	06:00	06:19	06:49	07:20	07:53	07:29	07:55
	17:38	18:16	19:48	20:20	20:50	21:08	20:58	20:20	19:27	18:39	17:07	17:07
25	07:50	07:13	07:28	06:39	06:06	06:00	06:20	06:50	07:21	07:54	07:30	07:55
	17:39	18:17	19:49	20:21	20:51	21:08	20:57	20:18	19:25	18:37	17:06	17:08
26	07:49	07:12	07:26	06:37	06:05	06:00	06:21	06:51	07:23	07:55	07:32	07:56
	17:40	18:18	19:50	20:22	20:52	21:08	20:56	20:17	19:23	18:36	17:06	17:09
27	07:48	07:10	07:25	06:36	06:04	06:01	06:22	06:52	07:24	07:56	07:33	07:56
	17:41	18:20	19:51	20:23	20:53	21:08	20:55	20:15	19:22	18:35	17:05	17:09
28	07:47	07:09	07:23	06:34	06:04	06:01	06:23	06:53	07:25	07:57	07:34	07:56
	17:43	18:21	19:52	20:24	20:54	21:09	20:54	20:14	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33	06:03	06:02	06:24	06:54	07:26	07:59	07:35	07:57
	17:44		19:53	20:25	20:54	21:09	20:53	20:12	19:18	18:32	17:05	17:11
30	07:45		07:20	06:32	06:03	06:02	06:25	06:55	07:27	08:00	07:36	07:57
	17:45		19:54	20:26	20:55	21:09	20:52	20:10	19:17	18:31	17:04	17:11
31	07:44		07:18		06:02		06:26	06:56		08:01		07:57
	17:46		19:55		20:56		20:51	20:09		18:29		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	297	287
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T50 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (154)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57	07:44	07:07	07:16	06:31	06:02	06:02	06:27	06:58	07:28	07:02	07:37
	17:13	17:48	18:22	19:56	20:27	20:57	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57	07:43	07:06	07:15	06:29	06:01	06:03	06:28	06:59	07:29	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:58	21:08	20:49	20:06	19:13	17:27	17:04
3	07:57	07:42	07:04	07:13	06:28	06:01	06:04	06:29	07:00	07:30	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:12	17:26	17:04
4	07:57	07:40	07:03	07:11	06:27	06:01	06:04	06:30	07:01	07:31	07:06	07:40
	17:16	17:52	18:25	19:59	20:30	20:59	21:08	20:47	20:02	19:10	17:25	17:03
5	07:57	07:39	07:01	07:10	06:25	06:00	06:05	06:31	07:02	07:32	07:07	07:41
	17:17	17:53	18:27	20:00	20:31	21:00	21:08	20:46	20:01	19:08	17:23	17:03
6	07:57	07:38	06:59	07:08	06:24	06:00	06:05	06:32	07:03	07:33	07:08	07:42
	17:18	17:54	18:28	20:00	20:32	21:01	21:08	20:45	19:57	19:07	17:22	17:03
7	07:57	07:37	06:58	07:06	06:23	06:00	06:06	06:33	07:04	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:56	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05	06:22	05:59	06:06	06:33	07:05	07:35	07:10	07:44
	17:20	17:57	19:30	20:03	20:34	21:02	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:55	07:03	06:21	05:59	06:07	06:34	07:06	07:36	07:12	07:45
	17:21	17:58	19:31	20:04	20:35	21:02	21:07	20:41	19:52	19:02	17:19	17:03
10	07:57	07:34	07:53	07:02	06:20	05:59	06:08	06:35	07:07	07:37	07:13	07:46
	17:22	17:59	19:32	20:05	20:37	21:03	21:06	20:40	19:51	19:00	17:18	17:03
11	07:57	07:33	07:51	07:00	06:18	05:59	06:09	06:36	07:08	07:38	07:14	07:47
	17:23	18:00	19:33	20:06	20:38	21:04	21:06	20:38	19:49	18:59	17:17	17:03
12	07:56	07:31	07:50	06:58	06:17	05:59	06:09	06:37	07:09	07:39	07:15	07:47
	17:24	18:02	19:34	20:07	20:39	21:04	21:06	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57	06:16	05:59	06:10	06:38	07:09	07:40	07:16	07:48
	17:25	18:03	19:36	20:08	20:40	21:05	21:05	20:36	19:46	18:55	17:15	17:03
14	07:56	07:29	07:46	06:55	06:15	05:59	06:11	06:39	07:10	07:42	07:18	07:49
	17:26	18:04	19:37	20:09	20:41	21:05	21:05	20:34	19:44	18:54	17:14	17:03
15	07:55	07:27	07:45	06:54	06:14	05:58	06:12	06:40	07:11	07:43	07:19	07:50
	17:27	18:05	19:38	20:10	20:42	21:06	21:04	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52	06:13	05:59	06:12	06:41	07:12	07:44	07:20	07:50
	17:28	18:06	19:39	20:11	20:43	21:06	21:03	20:32	19:41	18:51	17:13	17:04
17	07:54	07:25	07:41	06:51	06:12	05:59	06:13	06:43	07:13	07:45	07:21	07:51
	17:30	18:08	19:40	20:12	20:44	21:06	21:03	20:30	19:39	18:49	17:12	17:04
18	07:54	07:23	07:40	06:49	06:11	05:59	06:14	06:44	07:14	07:46	07:22	07:52
	17:31	18:09	19:41	20:13	20:45	21:07	21:02	20:29	19:37	18:48	17:11	17:05
19	07:53	07:22	07:38	06:48	06:11	05:59	06:15	06:45	07:15	07:47	07:24	07:52
	17:32	18:10	19:42	20:14	20:45	21:07	21:02	20:27	19:35	18:46	17:10	17:05
20	07:53	07:21	07:36	06:46	06:10	05:59	06:16	06:46	07:16	07:48	07:25	07:53
	17:33	18:11	19:43	20:15	20:46	21:07	21:01	20:26	19:34	18:45	17:10	17:05
21	07:52	07:19	07:35	06:45	06:09	05:59	06:16	06:47	07:17	07:49	07:26	07:53
	17:34	18:13	19:44	20:16	20:47	21:08	21:00	20:24	19:32	18:43	17:09	17:06
22	07:52	07:18	07:33	06:43	06:08	05:59	06:17	06:48	07:18	07:50	07:27	07:54
	17:35	18:14	19:45	20:17	20:48	21:08	20:59	20:23	19:30	18:42	17:08	17:06
23	07:51	07:16	07:31	06:42	06:07	06:00	06:18	06:49	07:20	07:52	07:28	07:54
	17:37	18:15	19:46	20:19	20:49	21:08	20:59	20:21	19:29	18:40	17:08	17:07
24	07:50	07:15	07:30	06:40	06:07	06:00	06:19	06:50	07:21	07:53	07:29	07:55
	17:38	18:16	19:48	20:20	20:50	21:08	20:58	20:20	19:27	18:39	17:07	17:07
25	07:50	07:13	07:28	06:39	06:06	06:00	06:20	06:51	07:22	07:54	07:30	07:55
	17:39	18:17	19:49	20:21	20:51	21:08	20:57	20:18	19:25	18:37	17:06	17:08
26	07:49	07:12	07:26	06:37	06:05	06:00	06:21	06:52	07:23	07:55	07:32	07:56
	17:40	18:18	19:50	20:22	20:52	21:08	20:56	20:17	19:23	18:36	17:06	17:09
27	07:48	07:10	07:25	06:36	06:05	06:01	06:22	06:53	07:24	07:56	07:33	07:56
	17:42	18:20	19:51	20:23	20:53	21:09	20:55	20:15	19:22	18:35	17:06	17:09
28	07:47	07:09	07:23	06:35	06:04	06:01	06:23	06:54	07:25	07:57	07:34	07:56
	17:43	18:21	19:52	20:24	20:54	21:09	20:54	20:14	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33	06:03	06:02	06:24	06:55	07:26	07:59	07:35	07:57
	17:44		19:53	20:25	20:54	21:09	20:53	20:12	19:18	18:32	17:05	17:11
30	07:45		07:20	06:32	06:03	06:02	06:25	06:56	07:27	08:00	07:36	07:57
	17:45		19:54	20:26	20:55	21:09	20:52	20:11	19:17	18:31	17:04	17:11
31	07:44		07:18		06:02		06:26	06:57		08:01		07:57
	17:47		19:55		20:56		20:51	20:09		18:30		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	297	287
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T51 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (155)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57	07:43	07:07	07:16 07:35-07:45/10	06:30	06:02 06:23-06:50/27	06:02 06:25-06:54/29	06:27 06:49-06:55/6	06:58 07:18-07:47/29	07:28	07:02	07:37
	17:13	17:48	18:22	19:56	20:27	20:57	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57	07:42	07:06	07:15 07:34-07:48/14	06:29	06:01 06:23-06:50/27	06:03 06:26-06:55/29	06:28 06:49-06:52/3	06:59 07:19-07:47/28	07:29	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:58	21:08	20:49	20:06	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13 07:32-07:48/16	06:28	06:01 06:23-06:51/28	06:03 06:26-06:55/29	06:29	07:00 07:20-07:47/27	07:30	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:12	17:26	17:03
4	07:57	07:40	07:03	07:11 07:30-07:49/19	06:27	06:00 06:22-06:50/28	06:04 06:27-06:56/29	06:30	07:01 07:21-07:47/26	07:31	07:06	07:40
	17:16	17:51	18:25	19:59	20:30	20:59	21:08	20:47	20:02	19:10	17:25	17:03
5	07:57	07:39	07:01	07:10 07:29-07:50/21	06:25	06:00 06:22-06:50/28	06:05 06:27-06:55/28	06:30	07:01 07:22-07:46/24	07:32	07:07	07:41
	17:17	17:53	18:27	20:00	20:31	21:00	21:08	20:46	20:01	19:08	17:23	17:03
6	07:57	07:38	06:59	07:08 07:27-07:49/22	06:24	06:00 06:22-06:50/28	06:05 06:28-06:56/28	06:31	07:02 07:23-07:46/23	07:33	07:08	07:42
	17:18	17:54	18:28	20:00	20:32	21:00	21:08	20:44	19:57	19:07	17:22	17:03
7	07:57	07:37	06:58	07:06 07:25-07:49/24	06:23	06:00 06:22-06:50/28	06:06 06:28-06:56/28	06:32	07:03 07:24-07:45/21	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:56	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05 07:24-07:50/26	06:22	05:59 06:21-06:50/29	06:06 06:29-06:57/28	06:33	07:04 07:25-07:44/19	07:35	07:10	07:44
	17:20	17:57	19:30	20:03	20:34	21:02	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:55	07:03 07:22-07:49/27	06:21	05:59 06:21-06:50/29	06:07 06:30-06:58/28	06:34	07:05 07:26-07:42/16	07:36	07:12	07:45
	17:21	17:58	19:31	20:04	20:35	21:02	21:07	20:41	19:52	19:02	17:19	17:03
10	07:57	07:34	07:53	07:02 07:21-07:49/28	06:20 06:40-06:41/1	05:59 06:21-06:50/29	06:08 06:30-06:58/28	06:35	07:06 07:27-07:41/14	07:37	07:13	07:46
	17:22	17:59	19:32	20:05	20:36	21:03	21:06	20:40	19:51	19:00	17:18	17:03
11	07:57	07:32	07:51	07:00 07:19-07:48/29	06:18 06:39-06:44/5	05:59 06:21-06:50/29	06:08 06:31-06:58/27	06:36	07:07 07:28-07:39/11	07:38	07:14	07:46
	17:23	18:00	19:33	20:06	20:37	21:04	21:06	20:38	19:49	18:58	17:17	17:03
12	07:56	07:31	07:50	06:58 07:19-07:47/28	06:17 06:38-06:45/7	05:59 06:21-06:50/29	06:09 06:32-06:59/27	06:37	07:08 07:29-07:36/7	07:39	07:15	07:47
	17:24	18:01	19:34	20:07	20:39	21:04	21:06	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57 07:20-07:47/27	06:16 06:37-06:46/9	05:59 06:21-06:50/29	06:10 06:32-06:59/27	06:38	07:09 07:30-07:31/1	07:40	07:16	07:48
	17:25	18:03	19:36	20:08	20:40	21:05	21:05	20:36	19:46	18:55	17:15	17:03
14	07:56	07:29	07:46	06:55 07:20-07:45/25	06:15 06:36-06:47/11	05:58 06:21-06:50/29	06:11 06:33-06:59/26	06:39	07:10	07:41	07:18	07:49
	17:26	18:04	19:37	20:09	20:41	21:05	21:05	20:34	19:44	18:54	17:14	17:03
15	07:55	07:27	07:45	06:54 07:21-07:44/23	06:14 06:35-06:48/13	05:58 06:21-06:50/29	06:11 06:34-07:00/26	06:40	07:11	07:43	07:19	07:50
	17:27	18:05	19:38	20:10	20:42	21:05	21:04	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52 07:22-07:42/20	06:13 06:34-06:48/14	05:58 06:21-06:50/29	06:12 06:35-07:00/25	06:41	07:12	07:44	07:20	07:50
	17:28	18:06	19:39	20:11	20:43	21:06	21:03	20:32	19:40	18:51	17:13	17:04
17	07:54	07:25	07:41	06:51 07:24-07:41/17	06:12 06:33-06:49/16	05:59 06:21-06:50/29	06:13 06:35-07:00/25	06:42	07:13	07:45	07:21	07:51
	17:29	18:08	19:40	20:12	20:44	21:06	21:03	20:30	19:39	18:49	17:12	17:04
18	07:54	07:23	07:40	06:49 07:25-07:38/13	06:11 06:32-06:49/17	05:59 06:21-06:50/29	06:14 06:36-07:00/24	06:43	07:14	07:46	07:22	07:52
	17:31	18:09	19:41	20:13	20:44	21:07	21:02	20:29	19:37	18:48	17:11	17:05
19	07:53	07:22	07:38	06:48	06:11 06:31-06:49/18	05:59 06:21-06:49/28	06:15 06:37-07:00/23	06:44	07:15	07:47	07:24	07:52
	17:32	18:10	19:42	20:14	20:45	21:07	21:02	20:27	19:35	18:46	17:10	17:05
20	07:53	07:21	07:36	06:46	06:10 06:31-06:50/19	05:59 06:21-06:49/28	06:16 06:38-07:01/23	06:45	07:16	07:48	07:25	07:53
	17:33	18:11	19:43	20:15	20:46	21:07	21:01	20:26	19:34	18:45	17:09	17:05
21	07:52	07:19	07:35	06:45	06:09 06:30-06:50/20	05:59 06:22-06:50/28	06:16 06:39-07:01/22	06:46	07:17	07:49	07:26	07:53
	17:34	18:12	19:44	20:16	20:47	21:08	21:00	20:24	19:32	18:43	17:09	17:06
22	07:52	07:18	07:33	06:43	06:08 06:29-06:50/21	05:59 06:22-06:50/28	06:17 06:40-07:01/21	06:47	07:18	07:50	07:27	07:54
	17:35	18:14	19:45	20:17	20:48	21:08	20:59	20:23	19:30	18:42	17:08	17:06
23	07:51	07:16	07:31	06:42	06:07 06:28-06:50/22	05:59 06:22-06:50/28	06:18 06:40-07:00/20	06:48	07:19	07:52	07:28	07:54
	17:37	18:15	19:46	20:18	20:49	21:08	20:59	20:21	19:28	18:40	17:08	17:07
24	07:50	07:15	07:30	06:40	06:07 06:28-06:51/23	06:00 06:22-06:50/28	06:19 06:41-07:00/19	06:49 07:33-07:37/4	07:20	07:53	07:29	07:55
	17:38	18:16	19:48	20:20	20:50	21:08	20:58	20:20	19:27	18:39	17:07	17:07
25	07:50	07:13	07:28	06:39	06:06 06:27-06:51/24	06:00 06:23-06:52/29	06:20 06:42-07:00/18	06:50 07:28-07:41/13	07:21	07:54	07:30	07:55
	17:39	18:17	19:49	20:21	20:51	21:08	20:57	20:18	19:25	18:37	17:06	17:08
26	07:49	07:12	07:26	06:37	06:05 06:26-06:50/24	06:00 06:23-06:52/29	06:21 06:43-06:59/16	06:51 07:25-07:43/18	07:23	07:55	07:32	07:56
	17:40	18:18	19:50	20:22	20:52	21:08	20:56	20:17	19:23	18:36	17:06	17:09
27	07:48	07:10	07:25	06:36	06:05 06:26-06:51/25	06:01 06:23-06:52/29	06:22 06:44-06:59/15	06:53 07:23-07:44/21	07:24	07:56	07:33	07:56
	17:41	18:20	19:51	20:23	20:53	21:08	20:55	20:15	19:22	18:35	17:05	17:09
28	07:47	07:09	07:23	06:35	06:04 06:25-06:51/26	06:01 06:24-06:53/29	06:23 06:45-06:59/14	06:54 07:22-07:45/23	07:25	07:57	07:34	07:56
	17:43	18:21	19:52	20:24	20:54	21:09	20:54	20:14	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33	06:03 06:25-06:51/26	06:02 06:24-06:53/29	06:24 06:46-06:58/12	06:55 07:21-07:46/25	07:26	07:59	07:35	07:57
	17:44		19:53	20:25	20:54	21:09	20:53	20:12	19:18	18:32	17:05	17:11
30	07:45		07:20	06:32	06:03 06:24-06:50/26	06:02 06:25-06:54/29	06:25 06:47-06:57/10	06:56 07:20-07:47/27	07:27	08:00	07:36	07:57
	17:45		19:54	20:26	20:55	21:08	20:52	20:10	19:17	18:31	17:04	17:11
31	07:44		07:18 07:37-07:44/7		06:02 06:24-06:51/27		06:26 06:48-06:56/8	06:57 07:19-07:47/28		08:01		07:57
	17:46		19:55		20:56		20:51	20:09		18:29		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	297	287
Sum of minutes with flicker	0	0	7	389	394	855	712	168	246	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T52 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (156)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June
1	07:57	15:31-16:01/30	07:44		07:07	16:45-18:00/75	07:16	17:58-18:25/27	06:31	19:41-20:05/24	06:02
	17:13		17:48		18:22		19:56		20:27		20:57
2	07:57	15:32-16:01/29	07:43		07:06	16:43-18:01/78	07:15	18:03-18:21/18	06:29	19:41-20:05/24	06:01
	17:14		17:49		18:23		19:57		20:28		20:58
3	07:57	15:33-16:01/28	07:42		07:04	16:43-18:03/80	07:13		06:28	19:42-20:05/23	06:01
	17:15		17:50		18:24		19:58		20:29		20:58
4	07:58	15:34-16:01/27	07:41		07:03	16:42-18:04/82	07:11		06:27	19:43-20:04/21	06:01
	17:16		17:52		18:25		19:59		20:30		20:59
5	07:58	15:35-16:01/26	07:39		07:01	16:41-18:05/84	07:10		06:26	19:43-20:02/19	06:00
	17:17		17:53		18:27		20:00		20:31		21:00
6	07:57	15:37-16:01/24	07:38		07:00	16:41-18:06/85	07:08		06:24	19:44-20:01/17	06:00
	17:18		17:54		18:28		20:00		20:32		21:01
7	07:57	15:37-15:59/22	07:37		06:58	16:41-18:07/86	07:07		06:23	19:46-19:59/13	06:00
	17:19		17:55		18:29		20:02		20:33		21:01
8	07:57	15:39-15:59/20	07:36		07:56	17:41-19:09/88	07:05		06:22	19:48-19:57/9	05:59
	17:20		17:57		19:30		20:03		20:34		21:02
9	07:57	15:42-15:58/16	07:35		07:55	17:40-19:10/90	07:03		06:21		05:59
	17:21		17:58		19:31		20:04		20:35		21:02
10	07:57	15:45-15:56/11	07:34		07:53	17:40-19:11/91	07:02		06:20		05:59
	17:22		17:59		19:32		20:05		20:37		21:03
11	07:57	15:49-15:51/2	07:33		07:51	17:40-19:12/92	07:00		06:19		05:59
	17:23		18:00		19:33		20:06		20:38		21:04
12	07:56		07:31		07:50	17:40-19:13/93	06:58		06:17		05:59
	17:24		18:02		19:35		20:07		20:39		21:04
13	07:56		07:30		07:48	17:39-19:14/95	06:57		06:16		05:59
	17:25		18:03		19:36		20:08		20:40		21:05
14	07:56		07:29		07:47	17:40-19:16/96	06:55		06:15		05:59
	17:26		18:04		19:37		20:09		20:41		21:05
15	07:55		07:27	17:11-17:30/19	07:45	17:40-19:17/97	06:54		06:14		05:59
	17:27		18:05		19:38		20:10		20:42		21:06
16	07:55		07:26	17:06-17:35/29	07:43	17:40-19:17/97	06:52		06:13		05:59
	17:28		18:07		19:39		20:11		20:43		21:06
17	07:55		07:25	17:03-17:37/34	07:42	17:41-19:19/98	06:51		06:12		05:59
	17:30		18:08		19:40		20:12		20:44		21:06
18	07:54		07:23	17:00-17:40/40	07:40	17:41-19:20/99	06:49		06:12		05:59
	17:31		18:09		19:41		20:13		20:45		21:07
19	07:53		07:22	16:58-17:43/45	07:38	17:41-19:21/100	06:48	19:52-19:53/1	06:11		05:59
	17:32		18:10		19:42		20:14		20:46		21:07
20	07:53		07:21	16:56-17:44/48	07:37	17:42-19:21/99	06:46	19:48-19:54/6	06:10		05:59
	17:33		18:11		19:43		20:15		20:46		21:07
21	07:52		07:19	16:54-17:46/52	07:35	17:42-18:57/75	06:45	19:47-19:55/8	06:09		05:59
	17:34		18:13		19:44	18:58-19:23/25	20:16		20:47		21:08
22	07:52		07:18	16:52-17:46/54	07:33	17:43-18:55/72	06:43	19:45-19:56/11	06:08		05:59
	17:35		18:14		19:45	18:58-19:22/24	20:18		20:48		21:08
23	07:51		07:16	16:51-17:48/57	07:31	17:43-18:52/69	06:42	19:44-19:57/13	06:07		06:00
	17:37		18:15		19:47	18:58-19:21/23	20:19		20:49		21:08
24	07:50		07:15	16:49-17:54/65	07:30	17:45-18:49/64	06:40	19:43-19:58/15	06:07		06:00
	17:38		18:16		19:48	18:59-19:21/22	20:20		20:50		21:08
25	07:50		07:13	16:49-17:55/66	07:28	17:46-18:41/55	06:39	19:42-19:59/17	06:06		06:00
	17:39		18:17		19:49	19:00-19:19/19	20:21		20:51		21:08
26	07:49		07:12	16:47-17:56/69	07:26	17:46-18:39/53	06:37	19:42-20:00/18	06:05		06:00
	17:40		18:18		19:50	19:01-19:16/15	20:22		20:52		21:08
27	07:48		07:10	16:46-17:58/72	07:25	17:48-18:38/50	06:36	19:41-20:00/19	06:05		06:01
	17:42		18:20		19:51	19:04-19:14/10	20:23		20:53		21:09
28	07:47		07:09	16:45-17:59/74	07:23	17:49-18:36/47	06:35	19:41-20:02/21	06:04		06:01
	17:43		18:21		19:52		20:24		20:54		21:09
29	07:46				07:21	17:51-18:33/42	06:33	19:41-20:03/22	06:03		06:02
	17:44				19:53		20:25		20:55		21:09
30	07:45				07:20	17:53-18:32/39	06:32	19:40-20:03/23	06:03		06:02
	17:45				19:54		20:26		20:55		21:09
31	07:44				07:18	17:55-18:29/34			06:02		
	17:47				19:55				20:56		
Potential sun hours	297		297		370		399		448		452
Sum of minutes with flicker		235		724		2543		219		150	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T52 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (156)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August		September		October		November	December	
1	06:03	06:27		06:58		07:28	17:19-18:52/93	07:02	07:37	
	21:08	20:50		20:07		19:15		17:28	17:04	
2	06:03	06:28		06:59		07:29	17:19-18:52/93	07:03	07:38	15:27-15:38/11
	21:08	20:49		20:06		19:13		17:27	17:04	
3	06:04	06:29		07:00		07:30	17:18-18:50/92	07:04	07:39	15:26-15:42/16
	21:08	20:48		20:04		19:12		17:26	17:04	
4	06:04	06:30	20:00-20:04/4	07:01		07:31	17:18-18:48/90	07:06	07:40	15:25-15:43/18
	21:08	20:47		20:02		19:10		17:25	17:03	
5	06:05	06:31	19:57-20:08/11	07:02		07:32	17:18-18:46/88	07:07	07:41	15:24-15:45/21
	21:08	20:46		20:01		19:08		17:24	17:03	
6	06:05	06:32	19:55-20:10/15	07:03		07:33	17:17-18:45/88	07:08	07:42	15:23-15:47/24
	21:08	20:45		19:57		19:07		17:22	17:03	
7	06:06	06:33	19:53-20:11/18	07:04		07:34	17:17-18:43/86	07:09	07:43	15:21-15:47/26
	21:07	20:43		19:56		19:05		17:21	17:03	
8	06:07	06:34	19:52-20:12/20	07:05		07:35	17:17-18:41/84	07:10	07:44	15:21-15:48/27
	21:07	20:42		19:54		19:03		17:20	17:03	
9	06:07	06:35	19:51-20:13/22	07:06		07:36	17:17-18:39/82	07:12	07:45	15:21-15:49/28
	21:07	20:41		19:52		19:02		17:19	17:03	
10	06:08	06:36	19:50-20:13/23	07:07	17:56-18:14/18	07:37	17:17-18:38/81	07:13	07:46	15:21-15:50/29
	21:06	20:40		19:51		19:00		17:18	17:03	
11	06:09	06:37	19:50-20:14/24	07:08	17:52-18:18/26	07:38	17:17-18:36/79	07:14	07:47	15:21-15:51/30
	21:06	20:38		19:49		18:59		17:17	17:03	
12	06:09	06:38	19:49-20:13/24	07:09	17:48-18:20/32	07:39	17:17-18:34/77	07:15	07:47	15:21-15:53/32
	21:06	20:37		19:47		18:57		17:16	17:03	
13	06:10	06:39	19:49-20:12/23	07:10	17:45-18:23/38	07:40	17:18-18:32/74	07:16	07:48	15:21-15:54/33
	21:05	20:36		19:46		18:55		17:15	17:03	
14	06:11	06:40	19:49-20:11/22	07:11	17:42-18:24/42	07:42	17:19-18:32/73	07:18	07:49	15:21-15:54/33
	21:05	20:34		19:44		18:54		17:14	17:04	
15	06:12	06:41	19:48-20:09/21	07:12	17:40-18:26/46	07:43	17:19-18:30/71	07:19	07:50	15:21-15:55/34
	21:04	20:33		19:42		18:52		17:13	17:04	
16	06:12	06:42	19:48-20:08/20	07:13	17:38-18:27/49	07:44	17:20-18:28/68	07:20	07:50	15:22-15:56/34
	21:03	20:32		19:41	18:53-19:01/8	18:51		17:13	17:04	
17	06:13	06:43	19:48-20:07/19	07:14	17:35-18:27/52	07:45	17:20-18:26/66	07:21	07:51	15:21-15:56/35
	21:03	20:30		19:39	18:50-19:04/14	18:49		17:12	17:04	
18	06:14	06:44	19:49-20:05/16	07:15	17:33-18:28/55	07:46	17:21-18:25/64	07:22	07:52	15:22-15:57/35
	21:02	20:29		19:37	18:47-19:06/19	18:48		17:11	17:05	
19	06:15	06:45	19:49-20:04/15	07:16	17:31-18:34/63	07:47	17:22-18:18/56	07:24	07:52	15:23-15:58/35
	21:02	20:27		19:35	18:46-19:07/21	18:46		17:10	17:05	
20	06:16	06:46	19:50-20:03/13	07:17	17:30-18:37/67	07:48	17:24-18:17/53	07:25	07:53	15:23-15:58/35
	21:01	20:26		19:34	18:44-19:07/23	18:45		17:10	17:05	
21	06:17	06:47	19:51-20:01/10	07:18	17:28-18:39/71	07:49	17:25-18:16/51	07:26	07:53	15:24-15:59/35
	21:00	20:24		19:32	18:43-19:08/25	18:43		17:09	17:06	
22	06:17	06:48	19:52-20:00/8	07:19	17:27-18:41/74	07:50	17:27-18:14/47	07:27	07:54	15:23-15:59/36
	20:59	20:23		19:30	18:42-19:08/26	18:42		17:08	17:06	
23	06:18	06:49	19:52-19:57/5	07:20	17:26-19:06/100	07:52	17:28-18:12/44	07:28	07:54	15:25-16:00/35
	20:59	20:21		19:29		18:40		17:08	17:07	
24	06:19	06:50		07:21	17:25-19:04/99	07:53	17:30-18:09/39	07:29	07:55	15:25-16:00/35
	20:58	20:20		19:27		18:39		17:07	17:08	
25	06:20	06:51		07:22	17:24-19:03/99	07:54	17:34-18:07/33	07:31	07:55	15:25-16:00/35
	20:57	20:18		19:25		18:38		17:07	17:08	
26	06:21	06:52		07:23	17:22-19:01/99	07:55	17:37-18:04/27	07:32	07:56	15:26-16:01/35
	20:56	20:17		19:23		18:36		17:06	17:09	
27	06:22	06:53		07:24	17:22-18:59/97	07:56	17:42-17:59/17	07:33	07:56	15:27-16:01/34
	20:55	20:15		19:22		18:35		17:06	17:09	
28	06:23	06:54		07:25	17:21-18:58/97	07:57		07:34	07:56	15:27-16:01/34
	20:54	20:14		19:20		18:33		17:05	17:10	
29	06:24	06:55		07:26	17:20-18:56/96	07:59		07:35	07:57	15:28-16:01/33
	20:53	20:12		19:18		18:32		17:05	17:11	
30	06:25	06:56		07:27	17:19-18:54/95	08:00		07:36	07:57	15:29-16:02/33
	20:52	20:11		19:17		18:31		17:04	17:12	
31	06:26	06:57				08:01			07:57	15:30-16:02/32
	20:51	20:09				18:30			17:12	
Potential sun hours	459	428		375		345		297	287	
Sum of minutes with flicker	0	333		1551		1816		0	913	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T53 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (157)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June	
1	07:57	16:21-16:47/26	07:44	16:31-17:24/53	07:07		07:16	19:09-19:34/25	06:31	07:09-08:04/55	06:02	
	17:13	15:18-16:14/56	17:48		18:22		19:56		20:27		20:57	
2	07:57	16:22-16:48/26	07:43	16:32-17:25/53	07:06		07:15	19:10-19:34/24	06:29	07:09-08:04/55	06:01	
	17:14	15:18-16:14/56	17:49		18:23		19:57		20:28		20:58	
3	07:57	16:22-16:49/27	07:42	16:33-17:26/53	07:04		07:13	19:10-19:32/22	06:28	07:10-08:04/54	06:01	
	17:15	15:19-16:15/56	17:50		18:24		19:58		20:29		20:58	
4	07:58	16:22-16:50/28	07:41	16:35-17:28/53	07:03		07:11	19:11-19:30/19	06:27	07:10-08:03/53	06:01	
	17:16	15:20-16:15/55	17:52		18:25		19:59		20:30		20:59	
5	07:57	16:22-16:51/29	07:39	16:37-16:59/22	07:01		07:10	19:13-19:29/16	06:26	07:10-08:02/52	06:00	
	17:17	15:21-16:15/54	17:53	17:00-17:29/29	18:27		20:00		20:31		21:00	
6	07:57	16:22-16:52/30	07:38	16:38-16:56/18	07:00		07:08	07:35-07:51/16	06:24	07:10-08:01/51	06:00	
	17:18	15:22-16:15/53	17:54	16:59-17:30/31	18:28		20:00	19:15-19:26/11	20:32		21:01	
7	07:57	16:21-16:52/31	07:37	16:42-16:53/11	06:58		07:07	07:31-07:55/24	06:23	07:11-08:00/49	06:00	
	17:19	15:22-16:15/53	17:55	17:01-17:31/30	18:29		20:02		20:33		21:01	
8	07:57	16:22-16:54/32	07:36	17:02-17:33/31	07:56		07:05	07:28-07:58/30	06:22	07:12-08:00/48	05:59	
	17:20	15:23-16:15/52	17:57		19:30		20:03		20:34		21:02	
9	07:57	16:22-16:55/33	07:35	17:04-17:34/30	07:55		07:03	07:25-07:59/34	06:21	07:13-07:59/46	05:59	
	17:21	15:24-16:15/51	17:58		19:31		20:04		20:35		21:02	
10	07:57	16:22-16:56/34	07:34	17:06-17:36/30	07:53		07:02	07:23-08:01/38	06:20	07:13-07:58/45	05:59	
	17:22	15:25-16:15/50	17:59		19:32		20:05		20:37		21:03	
11	07:57	16:22-16:57/35	07:33	17:07-17:37/30	07:51		07:00	07:21-08:02/41	06:19	07:14-07:57/43	05:59	
	17:23	15:26-16:14/48	18:00		19:33		20:06		20:38		21:04	
12	07:56	16:22-16:58/36	07:31	17:08-17:38/30	07:50		06:58	07:20-08:04/44	06:17	07:15-07:56/41	05:59	
	17:24	15:27-16:15/48	18:02		19:35		20:07	19:44-19:45/1	20:39		21:04	
13	07:56	16:23-17:00/37	07:30	17:09-17:40/31	07:48		06:57	07:18-08:04/46	06:16	07:16-07:55/39	05:59	
	17:25	15:29-16:15/46	18:03		19:36		20:08	19:41-19:47/6	20:40		21:05	
14	07:56	16:22-17:00/38	07:29	17:11-17:42/31	07:47		06:55	07:16-08:05/49	06:15	07:17-07:54/37	05:59	
	17:26	15:29-16:14/45	18:04		19:37		20:09	19:39-19:48/9	20:41		21:05	
15	07:55	16:23-17:02/39	07:27	17:12-17:42/30	07:45		06:54	07:16-08:06/50	06:14	07:18-07:53/35	05:59	
	17:27	15:31-16:14/43	18:05		19:38		20:10	19:38-19:49/11	20:42		21:06	
16	07:55	16:23-17:02/39	07:26	17:14-17:44/30	07:43		06:52	07:14-08:06/52	06:13	07:20-07:51/31	05:59	
	17:28	15:32-16:13/41	18:07		19:39		20:11	19:36-19:50/14	20:43		21:06	
17	07:54	16:23-17:03/40	07:25	17:25-17:45/20	07:42		06:51	07:14-08:07/53	06:12	07:21-07:49/28	05:59	
	17:30	15:35-16:12/37	18:08		19:40		20:12	19:36-19:51/15	20:44		21:06	
18	07:54	16:23-17:03/40	07:23	17:25-17:46/21	07:40		06:49	07:12-08:07/55	06:12	07:22-07:48/26	05:59	
	17:31	15:36-16:11/35	18:09		19:41		20:13	19:34-19:52/18	20:45		21:07	
19	07:53	16:24-17:07/43	07:22	17:25-17:48/23	07:38		06:48	07:12-08:07/55	06:11	07:24-07:45/21	05:59	
	17:32	15:39-16:11/32	18:10		19:42		20:14	19:34-19:53/19	20:46		21:07	
20	07:53	16:24-17:08/44	07:21	17:25-17:49/24	07:37		06:46	07:11-08:07/56	06:10	07:27-07:44/17	05:59	
	17:33	15:41-16:09/28	18:11		19:43		20:15	19:34-19:54/20	20:46		21:07	
21	07:52	16:24-17:09/45	07:19	17:25-17:50/25	07:35		06:45	07:11-08:07/56	06:09	07:31-07:40/9	05:59	
	17:34	15:44-16:07/23	18:13		19:44		20:16	19:34-19:55/21	20:47		21:08	
22	07:52	16:25-17:11/46	07:18	17:25-17:49/24	07:33	19:19-19:24/5	06:43	07:10-08:07/57	06:08		05:59	
	17:35	15:52-16:05/13	18:14		19:45		20:18	19:33-19:55/22	20:48		21:08	
23	07:51	16:25-17:12/47	07:16	17:26-17:49/23	07:31	19:16-19:25/9	06:42	07:10-08:07/57	06:07		06:00	
	17:37		18:15		19:47		20:19	19:34-19:57/23	20:49		21:08	
24	07:50	16:25-17:13/48	07:15	17:27-17:47/20	07:30	19:15-19:26/11	06:40	07:10-08:07/57	06:07		06:00	
	17:38		18:16		19:48		20:20	19:35-19:57/22	20:50		21:08	
25	07:50	16:25-17:14/49	07:13	17:28-17:46/18	07:28	19:13-19:27/14	06:39	07:09-08:07/58	06:06		06:00	
	17:39		18:17		19:49		20:21	19:34-19:56/22	20:51		21:08	
26	07:49	16:26-17:15/49	07:12	17:30-17:44/14	07:26	19:11-19:28/17	06:37	07:09-08:07/58	06:05		06:00	
	17:40		18:19		19:50		20:22	19:36-19:55/19	20:52		21:08	
27	07:48	16:27-17:17/50	07:10	17:33-17:41/8	07:25	19:11-19:30/19	06:36	07:08-08:06/58	06:05		06:01	
	17:42		18:20		19:51		20:23	19:36-19:53/17	20:53		21:09	
28	07:47	16:28-17:18/50	07:09		07:23	19:10-19:30/20	06:35	07:09-08:06/57	06:04		06:01	
	17:43		18:21		19:52		20:24	19:38-19:52/14	20:54		21:09	
29	07:46	16:28-17:20/52			07:21	19:09-19:31/22	06:33	07:09-08:06/57	06:03		06:02	
	17:44				19:53		20:25	19:40-19:49/9	20:54		21:09	
30	07:45	16:29-17:21/52			07:20	19:10-19:33/23	06:32	07:09-08:05/56	06:03		06:02	
	17:45				19:54		20:26		20:55		21:09	
31	07:44	16:30-17:22/52			07:18	19:09-19:34/25			06:02			
	17:47				19:55				20:56			
Potential sun hours	297		297		370		399		448		452	
Sum of minutes with flicker		2202		846		165		1613		835		0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T53 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (157)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:03		06:27	07:25-08:07/42	06:58	07:20-08:01/41	07:28		07:02	17:03-17:05/2	07:37	16:04-16:39/35
	21:08		20:50		20:07		19:15		17:28	16:34-17:02/28	17:04	15:08-15:56/48
2	06:03		06:28	07:24-08:08/44	06:59	07:21-07:59/38	07:29		07:03	16:33-17:04/31	07:38	16:04-16:38/34
	21:08		20:49		20:06		19:13		17:27		17:04	15:07-15:57/50
3	06:04		06:29	07:23-08:08/45	07:00	07:23-07:57/34	07:30		07:04	16:32-17:03/31	07:39	16:06-16:39/33
	21:08		20:48		20:04		19:12		17:26		17:04	15:08-15:59/51
4	06:04		06:30	07:22-08:09/47	07:01	07:25-07:55/30	07:31		07:06	16:11-16:24/13	07:40	16:07-16:39/32
	21:08		20:47		20:02		19:10		17:25	16:30-17:01/31	17:03	15:08-16:00/52
5	06:05		06:31	07:21-08:10/49	07:02	07:27-07:52/25	07:32		07:07	16:08-16:26/18	07:41	16:07-16:38/31
	21:08		20:46		20:01		19:08		17:24	16:29-17:00/31	17:03	15:08-16:01/53
6	06:05		06:32	07:20-08:10/50	07:03	07:31-07:47/16	07:33		07:08	16:07-16:59/52	07:42	16:08-16:38/30
	21:08		20:45		19:57	19:11-19:22/11	19:07		17:22		17:03	15:08-16:01/53
7	06:06		06:33	07:20-08:11/51	07:04	19:08-19:24/16	07:34		07:09	16:05-16:58/53	07:43	16:08-16:37/29
	21:07		20:43		19:56		19:05		17:21		17:03	15:07-16:01/54
8	06:07		06:34	07:19-08:12/53	07:05	19:06-19:25/19	07:35		07:10	16:03-16:56/53	07:44	16:09-16:37/28
	21:07		20:42		19:54		19:03		17:20		17:03	15:07-16:02/55
9	06:07		06:35	07:19-08:12/53	07:06	19:05-19:26/21	07:36		07:12	16:03-16:56/53	07:45	16:10-16:37/27
	21:07		20:41		19:52		19:02		17:19		17:03	15:07-16:03/56
10	06:08		06:36	07:18-08:12/54	07:07	19:03-19:27/24	07:37		07:13	16:02-16:54/52	07:46	16:11-16:37/26
	21:06		20:40		19:51		19:00		17:18		17:03	15:07-16:03/56
11	06:09		06:37	07:18-08:13/55	07:08	19:02-19:27/25	07:38		07:14	16:01-16:53/52	07:47	16:11-16:37/26
	21:06		20:38		19:49		18:59		17:17		17:03	15:08-16:04/56
12	06:09		06:38	07:17-08:13/56	07:09	19:02-19:26/24	07:39		07:15	16:00-16:52/52	07:47	16:12-16:38/26
	21:06		20:37		19:47		18:57		17:16		17:03	15:08-16:05/57
13	06:10		06:39	07:17-08:13/56	07:10	19:01-19:24/23	07:40		07:16	16:00-16:52/52	07:48	16:13-16:38/25
	21:05		20:36		19:46		18:55		17:15		17:03	15:09-16:06/57
14	06:11		06:40	07:17-08:13/56	07:11	19:01-19:23/22	07:42		07:18	16:00-16:50/50	07:49	16:13-16:37/24
	21:05		20:34	19:47-19:58/11	19:44		18:54		17:14		17:04	15:08-16:06/58
15	06:12		06:41	07:16-08:14/58	07:12	18:59-19:20/21	07:43	18:04-18:15/11	07:19	15:59-16:49/50	07:50	16:14-16:38/24
	21:04		20:33	19:45-20:00/15	19:42		18:52		17:13		17:04	15:09-16:06/57
16	06:12		06:42	07:16-08:14/58	07:13	18:59-19:18/19	07:44	18:01-18:17/16	07:20	16:00-16:49/49	07:50	16:15-16:38/23
	21:03		20:32	19:43-20:01/18	19:41		18:51		17:13		17:04	15:09-16:07/58
17	06:13		06:43	07:16-08:13/57	07:14	19:00-19:17/17	07:45	17:59-18:18/19	07:21	15:59-16:48/49	07:51	16:15-16:38/23
	21:03		20:30	19:42-20:02/20	19:39		18:49		17:12		17:04	15:09-16:07/58
18	06:14		06:44	07:16-08:13/57	07:15	19:00-19:15/15	07:46	17:58-18:19/21	07:22	15:59-16:47/48	07:52	16:16-16:39/23
	21:02		20:29	19:41-20:03/22	19:37		18:48		17:11		17:05	15:10-16:08/58
19	06:15		06:45	07:16-08:13/57	07:16	19:01-19:13/12	07:47	17:57-18:20/23	07:24	15:59-16:46/47	07:52	16:17-16:39/22
	21:02		20:27	19:40-20:03/23	19:35		18:46		17:10		17:05	15:11-16:09/58
20	06:16		06:46	07:15-08:13/58	07:17	19:02-19:11/9	07:48	17:57-18:21/24	07:25	16:00-16:46/46	07:53	16:17-16:39/22
	21:01		20:26	19:40-20:02/22	19:34		18:45		17:10	15:27-15:40/13	17:06	15:11-16:09/58
21	06:17		06:47	07:15-08:13/58	07:18	19:04-19:10/6	07:49	17:56-18:21/25	07:26	16:00-16:45/45	07:53	16:18-16:40/22
	21:00		20:24	19:39-20:01/22	19:32		18:43		17:09	15:20-15:43/23	17:06	15:11-16:10/59
22	06:17		06:48	07:16-08:12/56	07:19	19:07-19:08/1	07:50	17:55-18:19/24	07:27	16:00-16:44/44	07:54	16:18-16:40/22
	20:59		20:23	19:39-20:00/21	19:30		18:42		17:08	15:17-15:45/28	17:06	15:11-16:10/59
23	06:18	07:40-07:53/13	06:49	07:16-08:12/56	07:20		07:52	17:55-18:17/22	07:28	16:00-16:43/43	07:54	16:19-16:41/22
	20:59		20:21	19:37-19:57/20	19:29		18:40		17:08	15:15-15:47/32	17:07	15:12-16:11/59
24	06:19	07:36-07:55/19	06:50	07:16-08:11/55	07:21		07:53	17:55-18:15/20	07:29	16:00-16:40/40	07:55	16:19-16:41/22
	20:58		20:20	19:37-19:56/19	19:27		18:39		17:07	15:13-15:48/35	17:08	15:13-16:11/58
25	06:20	07:34-07:57/23	06:51	07:16-08:10/54	07:22		07:54	17:55-18:15/20	07:31	16:01-16:41/40	07:55	16:19-16:42/23
	20:57		20:18	19:37-19:54/17	19:25		18:38	17:48-17:53/5	17:07	15:13-15:50/37	17:08	15:13-16:11/58
26	06:21	07:32-07:59/27	06:52	07:15-08:09/54	07:23		07:55	17:43-18:13/30	07:32	16:02-16:41/39	07:56	16:20-16:43/23
	20:56		20:17	19:38-19:53/15	19:23		18:36		17:06	15:11-15:52/41	17:09	15:14-16:12/58
27	06:22	07:31-08:01/30	06:53	07:16-08:08/52	07:24		07:56	17:41-18:12/31	07:33	16:02-16:41/39	07:56	16:20-16:43/23
	20:55		20:15	19:38-19:51/13	19:22		18:35		17:06	15:10-15:53/43	17:09	15:14-16:12/58
28	06:23	07:30-08:02/32	06:54	07:16-08:07/51	07:25		07:57	17:39-18:10/31	07:34	16:02-16:40/38	07:56	16:20-16:44/24
	20:54		20:14	19:39-19:50/11	19:20		18:33		17:05	15:10-15:54/44	17:10	15:15-16:12/57
29	06:24	07:28-08:04/36	06:55	07:17-08:06/49	07:26		07:59	17:39-18:09/30	07:35	16:03-16:40/37	07:57	16:20-16:44/24
	20:53		20:12	19:40-19:48/8	19:18		18:32		17:05	15:09-15:55/46	17:11	15:15-16:13/58
30	06:25	07:27-08:05/38	06:56	07:18-08:04/46	07:27		08:00	17:37-18:08/31	07:36	16:03-16:39/36	07:57	16:21-16:46/25
	20:52		20:11	19:41-19:47/6	19:17		18:31		17:04	15:08-15:56/48	17:12	15:16-16:14/58
31	06:26	07:26-08:06/40	06:57	07:19-08:03/44			08:01	17:36-18:06/30			07:57	16:21-16:46/25
	20:51		20:09	19:44-19:45/1			18:30				17:12	15:17-16:14/57
Potential sun hours	459		428		375		345		297		287	
Sum of minutes with flicker		258		1915		469		413		1734		2540

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T56 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (158)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57 17:13	07:43 17:48	07:07 18:22	07:16 19:56	06:30 06:50-07:31/41 20:27	06:02 20:57	06:02 21:08	06:27 07:05-07:28/23 20:50	06:57 20:07	07:28 19:15	07:02 17:28	07:37 17:04
2	07:57 17:14	07:42 17:49	07:06 18:23	07:15 19:57	06:29 06:50-07:30/40 20:28	06:01 20:57	06:03 21:08	06:27 07:04-07:29/25 20:49	06:58 20:06	07:29 19:13	07:03 17:27	07:38 17:04
3	07:57 17:15	07:41 17:50	07:04 18:24	07:13 19:58	06:28 06:51-07:29/38 20:29	06:01 20:58	06:03 21:08	06:28 07:03-07:30/27 20:48	06:59 20:04	07:30 19:11	07:04 17:26	07:39 17:03
4	07:57 17:16	07:40 17:51	07:03 18:25	07:11 19:59	06:27 06:50-07:27/37 20:30	06:00 20:59	06:04 21:08	06:29 07:02-07:31/29 20:47	07:00 20:02	07:31 19:10	07:06 17:25	07:40 17:03
5	07:57 17:17	07:39 17:53	07:01 18:26	07:10 20:00	06:25 06:50-07:25/35 20:31	06:00 21:00	06:05 21:08	06:30 07:02-07:32/30 20:46	07:01 20:01	07:32 19:08	07:07 17:23	07:41 17:03
6	07:57 17:18	07:38 17:54	06:59 18:28	07:08 20:00	06:24 06:51-07:23/32 20:32	06:00 21:00	06:05 21:08	06:31 07:01-07:32/31 20:44	07:02 19:57	07:33 19:07	07:08 17:22	07:42 17:03
7	07:57 17:19	07:37 17:55	06:58 18:29	07:06 20:01	06:23 06:52-07:22/30 20:33	05:59 21:01	06:06 21:07	06:32 07:00-07:34/34 20:43	07:03 19:56	07:34 19:05	07:09 17:21	07:43 17:03
8	07:57 17:20	07:36 17:56	07:56 19:30	07:05 20:02	06:22 06:52-07:22/30 20:34	05:59 21:02	06:06 21:07	06:33 07:00-07:35/35 20:42	07:04 19:54	07:35 19:03	07:10 17:20	07:44 17:03
9	07:57 17:21	07:35 17:58	07:55 19:31	07:03 20:03	06:21 06:53-07:21/28 20:35	05:59 21:02	06:07 21:07	06:34 07:00-07:37/37 20:41	07:05 19:52	07:36 19:02	07:12 17:19	07:45 17:03
10	07:57 17:22	07:34 17:59	07:53 19:32	07:02 20:05	06:19 06:54-07:20/26 20:36	05:59 21:03	06:08 21:06	06:35 06:59-07:38/39 20:39	07:06 19:51	07:37 19:00	07:13 17:18	07:45 17:03
11	07:57 17:23	07:32 18:00	07:51 19:33	07:00 20:06	06:18 06:55-07:19/24 20:37	05:59 21:03	06:08 21:06	06:36 06:59-07:39/40 20:38	07:07 19:49	07:38 18:58	07:14 17:17	07:46 17:03
12	07:56 17:24	07:31 18:01	07:50 19:34	06:58 07:17-07:27/10 20:07	06:17 06:56-07:18/22 20:38	05:59 21:04	06:09 21:05	06:37 06:59-07:40/41 20:37	07:08 19:47	07:39 18:57	07:15 17:16	07:47 17:03
13	07:56 17:25	07:30 18:03	07:48 19:35	06:57 07:16-07:30/14 20:08	06:16 06:58-07:16/18 20:39	05:58 21:04	06:10 21:05	06:38 07:00-07:40/40 20:36	07:09 19:46	07:40 18:55	07:16 17:15	07:48 17:03
14	07:56 17:26	07:29 18:04	07:46 19:37	06:55 07:14-07:31/17 20:09	06:15 06:59-07:14/15 20:40	05:58 21:05	06:11 21:04	06:39 07:01-07:41/40 20:34	07:10 19:44	07:41 18:54	07:17 17:14	07:49 17:03
15	07:55 17:27	07:27 18:05	07:45 19:38	06:54 07:13-07:33/20 20:10	06:14 07:02-07:12/10 20:41	05:58 21:05	06:11 21:04	06:40 07:02-07:41/39 20:33	07:11 19:42	07:42 18:52	07:19 17:13	07:49 17:04
16	07:55 17:28	07:26 18:06	07:43 19:39	06:52 07:11-07:33/22 20:11	06:13 20:42	05:58 21:06	06:12 21:03	06:41 07:03-07:41/38 20:31	07:12 19:40	07:44 18:51	07:20 17:12	07:50 17:04
17	07:54 17:29	07:25 18:08	07:41 19:40	06:50 07:10-07:35/25 20:12	06:12 20:43	05:58 21:06	06:13 21:03	06:42 07:04-07:41/37 20:30	07:13 19:39	07:45 18:49	07:21 17:12	07:51 17:04
18	07:54 17:31	07:23 18:09	07:40 19:41	06:49 07:08-07:35/27 20:13	06:11 20:44	05:59 21:07	06:14 21:02	06:43 07:05-07:41/36 20:29	07:14 19:37	07:46 18:48	07:22 17:11	07:51 17:05
19	07:53 17:32	07:22 18:10	07:38 19:42	06:47 07:07-07:35/28 20:14	06:11 20:45	05:59 21:07	06:15 21:01	06:44 07:06-07:41/35 20:27	07:15 19:35	07:47 18:46	07:23 17:10	07:52 17:05
20	07:53 17:33	07:20 18:11	07:36 19:43	06:46 07:05-07:35/30 20:15	06:10 20:46	05:59 21:07	06:16 21:01	06:45 07:07-07:41/34 20:26	07:16 19:34	07:48 18:45	07:25 17:09	07:53 17:05
21	07:52 17:34	07:19 18:12	07:35 19:44	06:44 07:04-07:36/32 20:16	06:09 20:47	05:59 21:07	06:16 21:00	06:46 07:08-07:41/33 20:24	07:17 19:32	07:49 18:43	07:26 17:09	07:53 17:06
22	07:52 17:35	07:18 18:14	07:33 19:45	06:43 07:02-07:35/33 20:17	06:08 20:48	05:59 21:08	06:17 20:59	06:47 07:08-07:39/31 20:23	07:18 19:30	07:50 18:42	07:27 17:08	07:54 17:06
23	07:51 17:37	07:16 18:15	07:31 19:46	06:42 07:01-07:35/34 20:18	06:07 20:49	05:59 21:08	06:18 20:58	06:48 07:09-07:39/30 20:21	07:19 19:28	07:51 18:40	07:28 17:08	07:54 17:07
24	07:50 17:38	07:15 18:16	07:30 19:47	06:40 06:59-07:35/36 20:19	06:07 20:50	06:00 21:08	06:19 20:58	06:49 07:10-07:38/28 20:20	07:20 19:27	07:53 18:39	07:29 17:07	07:55 17:07
25	07:49 17:39	07:13 18:17	07:28 19:49	06:39 06:58-07:35/37 20:21	06:06 20:51	06:00 21:08	06:20 20:57	06:50 07:11-07:37/26 20:18	07:21 19:25	07:54 18:37	07:30 17:06	07:55 17:08
26	07:49 17:40	07:12 18:18	07:26 19:50	06:37 06:57-07:35/38 20:22	06:05 20:52	06:00 21:08	06:21 20:56	06:51 07:12-07:36/24 20:17	07:22 19:23	07:55 18:36	07:31 17:06	07:56 17:09
27	07:48 17:41	07:10 18:20	07:25 19:51	06:36 06:55-07:33/38 20:23	06:04 20:53	06:01 21:08	06:22 20:55	06:52 07:13-07:35/22 20:15	07:23 19:22	07:56 18:35	07:33 17:05	07:56 17:09
28	07:47 17:43	07:09 18:21	07:23 19:52	06:34 06:54-07:33/39 20:24	06:04 20:53	06:01 21:08	06:23 07:15-07:19/4 20:54	06:53 07:14-07:34/20 20:14	07:24 19:20	07:57 18:33	07:34 17:05	07:56 17:10
29	07:46 17:44		07:21 19:53	06:33 06:53-07:33/40 20:25	06:03 20:54	06:01 21:08	06:24 07:11-07:23/12 20:53	06:54 07:15-07:32/17 20:12	07:25 19:18	07:58 18:32	07:35 17:05	07:56 17:11
30	07:45 17:45		07:20 19:54	06:32 06:51-07:31/40 20:26	06:03 20:55	06:02 21:08	06:25 07:09-07:26/17 20:52	06:55 07:16-07:30/14 20:10	07:27 19:17	08:00 18:31	07:36 17:04	07:57 17:11
31	07:44 17:46		07:18 19:55		06:02 20:56		06:26 07:08-07:27/19 20:51	06:56 07:17-07:27/10 20:09		08:01 18:29		07:57 17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	297	287
Sum of minutes with flicker	0	0	0	560	426	0	52	945	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T57a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (159)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June	
1	07:57	16:08-16:47/39	07:44	16:49-16:59/10	07:07		07:16	07:39-08:07/28	06:31	19:17-19:57/40	06:02	
	17:13		17:48	17:07-17:24/17	18:22		19:56	18:41-19:06/25	20:27		20:57	
2	07:57	16:08-16:48/40	07:43	17:07-17:25/18	07:06		07:15	07:40-08:06/26	06:29	19:17-19:57/40	06:01	
	17:14		17:49		18:23		19:57	18:44-19:04/20	20:28		20:58	
3	07:57	16:08-16:49/41	07:42	17:07-17:26/19	07:04		07:13	07:41-08:04/23	06:28	19:18-19:56/38	06:01	
	17:15		17:50		18:24		19:58	18:47-19:00/13	20:29		20:58	
4	07:57	16:09-16:50/41	07:40	17:07-17:28/21	07:03		07:11	07:41-08:02/21	06:27	19:19-19:56/37	06:01	
	17:16		17:52		18:25		19:59		20:30		20:59	
5	07:57	16:09-16:51/42	07:39	17:08-17:29/21	07:01		07:10	07:43-08:01/18	06:25	19:18-19:54/36	06:00	
	17:17		17:53		18:27		20:00		20:31		21:00	
6	07:57	16:10-16:52/42	07:38	17:07-17:30/23	06:59		07:08	07:45-07:58/13	06:24	19:19-19:54/35	06:00	
	17:18		17:54		18:28		20:00		20:32		21:00	
7	07:57	16:09-16:52/43	07:37	17:08-17:31/23	06:58	17:59-18:02/3	07:06		06:23	19:20-19:53/33	06:00	
	17:19		17:55		18:29		20:01		20:33		21:01	
8	07:57	16:10-16:54/44	07:36	17:09-17:32/23	07:56	18:53-19:09/16	07:05		06:22	19:21-19:52/31	05:59	
	17:20		17:57		19:30		20:03		20:34		21:02	
9	07:57	16:11-16:55/44	07:35	17:09-17:31/22	07:55	18:49-19:10/21	07:03		06:21	19:22-19:51/29	05:59	
	17:21		17:58		19:31		20:04		20:35		21:02	
10	07:57	16:11-16:56/45	07:34	17:11-17:31/20	07:53	18:46-19:11/25	07:02		06:20	19:23-19:50/27	05:59	
	17:22		17:59		19:32		20:05		20:36		21:03	
11	07:57	16:11-16:57/46	07:33	17:11-17:29/18	07:51	18:45-19:12/27	07:00		06:19	19:25-19:49/24	05:59	
	17:23		18:00		19:33		20:06		20:38		21:04	
12	07:56	16:12-16:58/46	07:31	17:13-17:27/14	07:50	18:43-19:13/30	06:58		06:17	19:26-19:47/21	05:59	
	17:24		18:02		19:34		20:07		20:39		21:04	
13	07:56	16:13-17:00/47	07:30	17:16-17:25/9	07:48	18:41-19:14/33	06:57	19:34-19:47/13	06:16	19:28-19:45/17	05:59	
	17:25		18:03		19:36		20:08		20:40		21:05	
14	07:56	16:13-17:00/47	07:29		07:46	18:40-19:16/36	06:55	19:30-19:48/18	06:15	19:31-19:42/11	05:59	
	17:26		18:04		19:37		20:09		20:41		21:05	
15	07:55	16:14-17:02/48	07:27		07:45	18:39-19:17/38	06:54	19:28-19:49/21	06:14		05:59	
	17:27		18:05		19:38		20:10		20:42		21:05	
16	07:55	16:14-17:02/48	07:26		07:43	18:38-19:17/39	06:52	19:26-19:50/24	06:13		05:59	
	17:28		18:06		19:39		20:11		20:43		21:06	
17	07:54	16:15-17:04/49	07:25		07:42	18:38-19:19/41	06:51	19:24-19:51/27	06:12		05:59	
	17:30		18:08		19:40		20:12		20:44		21:06	
18	07:54	16:15-17:05/50	07:23		07:40	18:37-19:19/42	06:49	19:23-19:52/29	06:12		05:59	
	17:31		18:09		19:41		20:13		20:45		21:07	
19	07:53	16:16-17:06/50	07:22		07:38	07:57-08:02/5	06:48	19:22-19:53/31	06:11		05:59	
	17:32		18:10		19:42	18:36-19:19/43	20:14		20:45		21:07	
20	07:53	16:17-17:06/49	07:21		07:36	07:56-08:06/10	06:46	19:20-19:54/34	06:10		05:59	
	17:33		18:11		19:43	18:35-19:18/43	20:15		20:46		21:07	
21	07:52	16:17-17:06/49	07:19		07:35	07:54-08:07/13	06:45	19:20-19:55/35	06:09		05:59	
	17:34		18:13		19:44	18:35-19:19/44	20:16		20:47		21:08	
22	07:52	16:19-17:07/48	07:18		07:33	07:52-08:08/16	06:43	19:19-19:55/36	06:08		05:59	
	17:35		18:14		19:45	18:35-19:18/43	20:17		20:48		21:08	
23	07:51	16:19-17:07/48	07:16		07:31	07:51-08:09/18	06:42	19:18-19:57/39	06:07		06:00	
	17:37		18:15		19:46	18:35-19:17/42	20:19		20:49		21:08	
24	07:50	16:20-17:06/46	07:15		07:30	07:49-08:10/21	06:40	19:18-19:58/40	06:07		06:00	
	17:38		18:16		19:48	18:35-19:17/42	20:20		20:50		21:08	
25	07:50	16:21-17:06/45	07:13		07:28	07:47-08:10/23	06:39	19:17-19:58/41	06:06		06:00	
	17:39	17:13-17:14/1	18:17		19:49	18:35-19:16/41	20:21		20:51		21:08	
26	07:49	16:22-17:05/43	07:12		07:26	07:45-08:10/25	06:37	19:17-19:59/42	06:05		06:00	
	17:40	17:11-17:15/4	18:18		19:50	18:35-19:15/40	20:22		20:52		21:08	
27	07:48	16:25-17:06/41	07:10		07:25	07:44-08:10/26	06:36	19:17-19:58/41	06:05		06:01	
	17:42	17:11-17:17/6	18:20		19:51	18:36-19:15/39	20:23		20:53		21:08	
28	07:47	16:26-17:05/39	07:09		07:23	07:42-08:10/28	06:35	19:17-19:58/41	06:04		06:01	
	17:43	17:10-17:18/8	18:21		19:52	18:37-19:13/36	20:24		20:54		21:09	
29	07:46	16:28-17:04/36			07:21	07:40-08:09/29	06:33	19:17-19:58/41	06:03		06:02	
	17:44	17:09-17:20/11			19:53	18:37-19:12/35	20:25		20:54		21:09	
30	07:45	16:31-17:03/32			07:20	07:39-08:09/30	06:32	19:17-19:57/40	06:03		06:02	
	17:45	17:08-17:21/13			19:54	18:39-19:11/32	20:26		20:55		21:09	
31	07:44	16:46-17:01/15			07:18	07:39-08:08/29			06:02			
	17:47	17:08-17:22/14			19:55	18:40-19:09/29			20:56			
Potential sun hours	297		297		370		399		448		452	
Sum of minutes with flicker		1400		258		1133		780		419		0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T57a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (159)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:03		06:27	19:36-19:58/22	06:58		07:28	18:21-18:52/31	07:02	16:39-17:00/21	07:37	15:53-16:39/46
	21:08		20:50		20:07		19:15		17:28		17:04	
2	06:03		06:28	19:34-19:59/25	06:59		07:29	18:23-18:52/29	07:03	16:39-17:01/22	07:38	15:53-16:38/45
	21:08		20:49		20:06		19:13		17:27		17:04	
3	06:04		06:29	19:33-20:00/27	07:00		07:30	18:24-18:50/26	07:04	16:38-17:02/24	07:39	15:54-16:38/44
	21:08		20:48		20:04		19:12		17:26		17:04	
4	06:04		06:30	19:31-20:01/30	07:01		07:31	18:26-18:48/22	07:06	16:38-17:01/23	07:40	15:55-16:39/44
	21:08		20:47		20:02		19:10		17:25		17:03	
5	06:05		06:31	19:30-20:02/32	07:02		07:32	18:28-18:46/18	07:07	16:37-17:00/23	07:41	15:55-16:38/43
	21:08		20:46		20:01		19:08		17:24		17:03	
6	06:05		06:32	19:29-20:03/34	07:03	07:42-07:54/12	07:33	18:31-18:43/12	07:08	16:38-16:59/21	07:42	15:55-16:37/42
	21:08		20:45		19:57		19:07		17:22		17:03	
7	06:06		06:33	19:29-20:04/35	07:04	07:39-07:56/17	07:34		07:09	16:37-16:58/21	07:43	15:55-16:37/42
	21:07		20:43		19:56		19:05		17:21		17:03	
8	06:07		06:34	19:28-20:04/36	07:05	07:37-07:57/20	07:35		07:10	16:37-16:56/19	07:44	15:56-16:37/41
	21:07		20:42		19:54		19:03		17:20		17:03	
9	06:07		06:35	19:27-20:05/38	07:06	07:35-07:58/23	07:36		07:12	16:38-16:56/18	07:45	15:56-16:37/41
	21:07		20:41		19:52	18:41-18:54/13	19:02		17:19		17:03	
10	06:08		06:36	19:27-20:05/38	07:07	07:33-07:59/26	07:37		07:13	16:20-16:30/10	07:46	15:57-16:37/40
	21:06		20:40		19:51	18:37-18:57/20	19:00		17:18	16:38-16:54/16	17:03	
11	06:09		06:37	19:26-20:06/40	07:08	07:32-08:00/28	07:38		07:14	16:17-16:32/15 16:39-16:53/14	07:46	15:58-16:37/39
	21:06		20:38		19:49	18:34-18:59/25	18:59		17:17	16:07-16:11/4	17:03	
12	06:09		06:38	19:26-20:06/40	07:09	07:31-08:00/29	07:39		07:15	16:02-16:34/32	07:47	15:58-16:38/40
	21:06		20:37		19:47	18:32-19:01/29	18:57		17:16	16:39-16:52/13	17:03	
13	06:10		06:39	19:25-20:06/41	07:10	07:31-08:00/29	07:40		07:16	16:00-16:36/36	07:48	15:59-16:38/39
	21:05		20:36		19:46	18:30-19:02/32	18:55		17:15	16:41-16:52/11	17:03	
14	06:11		06:40	19:25-20:06/41	07:11	07:31-08:00/29	07:42		07:18	15:58-16:37/39	07:49	15:59-16:37/38
	21:05		20:34		19:44	18:29-19:03/34	18:54		17:14	16:41-16:50/9	17:04	15:42-15:44/2
15	06:12		06:41	19:25-20:06/41	07:12	07:32-08:00/28	07:43		07:19	15:56-16:38/42	07:50	16:00-16:38/38
	21:04		20:33		19:42	18:26-19:02/36	18:52		17:13	16:43-16:49/6	17:04	15:41-15:47/6
16	06:12		06:42	19:24-20:06/42	07:13	07:33-07:59/26	07:44		07:20	15:56-16:39/43	07:50	16:01-16:38/37
	21:03		20:32		19:41	18:25-19:03/38	18:51		17:13	16:44-16:48/4	17:04	15:40-15:49/9
17	06:13		06:43	19:24-20:06/42	07:13	07:34-07:59/25	07:45		07:21	15:55-16:40/45	07:51	16:00-16:38/38
	21:03		20:30		19:39	18:24-19:03/39	18:49		17:12	16:47-16:48/1	17:04	15:39-15:50/11
18	06:14		06:44	19:24-20:05/41	07:14	07:34-07:57/23	07:46		07:22	15:54-16:40/46	07:52	16:01-16:39/38
	21:02		20:29		19:37	18:23-19:04/41	18:48		17:11		17:05	15:40-15:51/11
19	06:15		06:45	19:24-20:04/40	07:15	07:35-07:56/21	07:47		07:24	15:53-16:41/48	07:52	16:02-16:39/37
	21:02		20:27		19:35	18:22-19:04/42	18:46		17:10		17:05	15:40-15:52/12
20	06:16		06:46	19:24-20:02/38	07:16	07:36-07:55/19	07:48		07:25	15:54-16:42/48	07:53	16:02-16:39/37
	21:01		20:26		19:34	18:21-19:04/43	18:45		17:10		17:05	15:40-15:53/13
21	06:17		06:47	19:24-20:01/37	07:18	07:37-07:54/17	07:49		07:26	15:53-16:42/49	07:53	16:03-16:40/37
	21:00		20:24		19:32	18:20-19:03/43	18:43		17:09		17:06	15:41-15:54/13
22	06:17		06:48	19:25-20:00/35	07:19	07:38-07:52/14	07:50		07:27	15:53-16:42/49	07:54	16:03-16:40/37
	20:59		20:23		19:30	18:20-19:03/43	18:42		17:08		17:06	15:40-15:54/14
23	06:18		06:49	19:24-19:57/33	07:20	07:39-07:50/11	07:52		07:28	15:52-16:42/50	07:54	16:04-16:41/37
	20:59		20:21		19:29	18:19-19:03/44	18:40		17:08		17:07	15:42-15:55/13
24	06:19		06:50	19:25-19:56/31	07:21	07:40-07:47/7	07:53		07:29	15:52-16:42/50	07:55	16:04-16:41/37
	20:58		20:20		19:27	18:19-19:02/43	18:39		17:07		17:08	15:42-15:54/12
25	06:20		06:51	19:26-19:54/28	07:22	18:19-19:02/43	07:54		07:30	15:53-16:42/49	07:55	16:04-16:42/38
	20:57		20:18		19:25		18:38		17:07		17:08	15:42-15:54/12
26	06:21		06:52	19:26-19:53/27	07:23	18:19-19:01/42	07:55		07:32	15:53-16:42/49	07:56	16:05-16:43/38
	20:56		20:17		19:23		18:36		17:06		17:09	15:44-15:55/11
27	06:22		06:53	19:28-19:51/23	07:24	18:19-18:59/40	07:56		07:33	15:53-16:41/48	07:56	16:06-16:43/37
	20:55		20:15		19:22		18:35		17:06		17:09	15:45-15:54/9
28	06:23		06:54	19:29-19:50/21	07:25	18:19-18:58/39	07:57		07:34	15:53-16:40/47	07:56	16:06-16:44/38
	20:54		20:14		19:20		18:33		17:05		17:10	15:46-15:54/8
29	06:24	19:44-19:50/6	06:55	19:31-19:48/17	07:26	18:20-18:56/36	07:59	17:45-17:56/11	07:35	15:53-16:40/47	07:57	16:06-16:44/38
	20:53		20:12		19:18		18:32		17:05		17:11	15:48-15:52/4
30	06:25	19:40-19:54/14	06:56	19:34-19:47/13	07:27	18:20-18:54/34	08:00	17:42-17:58/16	07:36	15:53-16:39/46	07:57	16:07-16:46/39
	20:52		20:11		19:17		18:31		17:04		17:12	
31	06:26	19:38-19:57/19	06:57				08:01	17:41-17:59/18			07:57	16:07-16:46/39
	20:51		20:09				18:30				17:12	
Potential sun hours	459		428		375		345		297		287	
Sum of minutes with flicker		39		988		1203		183		1158		1384

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T59a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (160)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June	
1	07:57	15:46-16:30/44	07:43		07:07	17:06-17:57/51	07:16	18:33-19:32/59	06:31	18:50-19:53/63	06:02	
	17:13		17:48		18:22		19:56		20:27		20:57	
2	07:57	15:47-16:30/43	07:42		07:06	17:05-17:57/52	07:15	18:36-19:33/57	06:29	18:54-19:53/59	06:01	
	17:14		17:49		18:23		19:57		20:28		20:58	
3	07:57	15:48-16:31/43	07:41		07:04	17:05-17:58/53	07:13	18:38-19:33/55	06:28	19:05-19:53/48	06:01	
	17:15		17:50		18:24		19:58		20:29		20:58	
4	07:57	15:48-16:31/43	07:40		07:03	17:04-18:01/57	07:11	18:37-19:33/56	06:27	19:06-19:53/47	06:01	
	17:16		17:52		18:25		19:59		20:30		20:59	
5	07:57	15:49-16:31/42	07:39		07:01	17:04-18:04/60	07:10	18:37-19:34/57	06:25	19:06-19:51/45	06:00	
	17:17		17:53		18:27		20:00		20:31		21:00	
6	07:57	15:50-16:32/42	07:38		06:59	17:04-18:06/62	07:08	18:36-19:34/58	06:24	19:06-19:51/45	06:00	
	17:18		17:54		18:28		20:00		20:32		21:00	
7	07:57	15:50-16:31/41	07:37		06:58	17:04-18:07/63	07:06	18:35-19:33/58	06:23	19:07-19:50/43	06:00	
	17:19		17:55		18:29		20:01		20:33		21:01	
8	07:57	15:51-16:31/40	07:36		07:56	18:03-19:08/65	07:05	18:35-19:34/59	06:22	19:08-19:50/42	05:59	
	17:20		17:57		19:30		20:03		20:34		21:02	
9	07:57	15:52-16:32/40	07:35		07:55	18:04-19:10/66	07:03	18:34-19:33/59	06:21	19:08-19:49/41	05:59	
	17:21		17:58		19:31		20:04		20:35		21:02	
10	07:57	15:53-16:32/39	07:34		07:53	18:04-19:11/67	07:02	18:35-19:38/63	06:20	19:09-19:48/39	05:59	
	17:22		17:59		19:32		20:05		20:36		21:03	
11	07:57	15:53-16:31/38	07:32		07:51	18:04-19:12/68	07:00	18:34-19:43/69	06:19	19:10-19:47/37	05:59	
	17:23		18:00		19:33		20:06		20:37		21:03	
12	07:56	15:54-16:32/38	07:31		07:50	18:04-19:13/69	06:58	18:33-19:45/72	06:17	19:11-19:46/35	05:59	
	17:24		18:02		19:34		20:07		20:39		21:04	
13	07:56	15:55-16:32/37	07:30		07:48	18:04-19:13/69	06:57	18:34-19:47/73	06:16	19:12-19:45/33	05:59	
	17:25		18:03		19:36		20:08		20:40		21:05	
14	07:56	15:56-16:31/35	07:29		07:46	18:06-19:14/68	06:55	18:34-19:47/73	06:15	19:13-19:44/31	05:59	
	17:26		18:04		19:37		20:09		20:41		21:05	
15	07:55	15:57-16:31/34	07:27		07:45	18:06-19:14/68	06:54	18:34-19:49/75	06:14	19:15-19:43/28	05:59	
	17:27		18:05		19:38		20:10		20:42		21:05	
16	07:55	15:58-16:30/32	07:26		07:43	18:06-19:14/68	06:52	18:34-19:50/76	06:13	19:16-19:41/25	05:59	
	17:28		18:06		19:39		20:11		20:43		21:06	
17	07:54	16:00-16:30/30	07:25	17:26-17:38/12	07:41	18:08-19:14/66	06:51	18:35-19:51/76	06:12	19:18-19:39/21	05:59	
	17:30		18:08		19:40		20:12		20:44		21:06	
18	07:54	16:01-16:29/28	07:23	17:22-17:43/21	07:40	18:09-19:14/65	06:49	18:34-19:52/78	06:12	19:20-19:37/17	05:59	
	17:31		18:09		19:41		20:13		20:44		21:07	
19	07:53	16:03-16:29/26	07:22	17:20-17:46/26	07:38	18:10-19:13/63	06:48	18:35-19:53/78	06:11	19:23-19:34/11	05:59	
	17:32		18:10		19:42		20:14		20:45		21:07	
20	07:53	16:04-16:28/24	07:21	17:17-17:48/31	07:36	18:11-19:13/62	06:46	18:35-19:53/78	06:10		05:59	
	17:33		18:11		19:43		20:15		20:46		21:07	
21	07:52	16:06-16:26/20	07:19	17:15-17:50/35	07:35	18:14-19:13/59	06:45	18:36-19:54/78	06:09		05:59	
	17:34		18:13		19:44		20:16		20:47		21:08	
22	07:52	16:09-16:25/16	07:18	17:13-17:51/38	07:33	18:16-19:12/56	06:43	18:37-19:54/77	06:08		05:59	
	17:35		18:14		19:45		20:17		20:48		21:08	
23	07:51	16:12-16:22/10	07:16	17:12-17:53/41	07:31	18:20-19:15/55	06:42	18:38-19:54/76	06:07		06:00	
	17:37		18:15		19:46		20:19		20:49		21:08	
24	07:50		07:15	17:10-17:53/43	07:30	18:25-19:21/56	06:40	18:39-19:55/76	06:07		06:00	
	17:38		18:16		19:48		20:20		20:50		21:08	
25	07:50		07:13	17:10-17:55/45	07:28	18:25-19:23/58	06:39	18:39-19:54/75	06:06		06:00	
	17:39		18:17		19:49		20:21		20:51		21:08	
26	07:49		07:12	17:08-17:55/47	07:26	18:25-19:25/60	06:37	18:41-19:55/74	06:05		06:00	
	17:40		18:18		19:50		20:22		20:52		21:08	
27	07:48		07:10	17:08-17:56/48	07:25	18:27-19:27/60	06:36	18:42-19:54/72	06:05		06:01	
	17:42		18:20		19:51		20:23		20:53		21:08	
28	07:47		07:09	17:06-17:56/50	07:23	18:27-19:29/62	06:35	18:43-19:54/71	06:04		06:01	
	17:43		18:21		19:52		20:24		20:54		21:08	
29	07:46				07:21	18:28-19:29/61	06:33	18:46-19:54/68	06:03		06:02	
	17:44				19:53		20:25		20:54		21:09	
30	07:45				07:20	18:30-19:31/61	06:32	18:47-19:53/66	06:03		06:02	
	17:45				19:54		20:26		20:55		21:08	
31	07:44				07:18	18:31-19:31/60			06:02			
	17:47				19:55				20:56			
Potential sun hours	297		297		370		399		448		452	
Sum of minutes with flicker		785		437		1910		2062		710		0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T59a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (160)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:03		06:27	19:21-19:57/36	06:58	18:33-19:41/68	07:28	17:43-18:52/69	07:02		07:37	15:35-16:13/38
	21:08		20:50		20:07		19:15		17:28		17:04	
2	06:03		06:28	19:19-19:57/38	06:59	18:33-19:36/63	07:29	17:42-18:51/69	07:03		07:38	15:35-16:14/39
	21:08		20:49		20:06		19:13		17:27		17:04	
3	06:04		06:29	19:19-19:58/39	07:00	18:32-19:31/59	07:30	17:42-18:50/68	07:04		07:39	15:35-16:15/40
	21:08		20:48		20:04		19:12		17:26		17:04	
4	06:04		06:30	19:18-19:59/41	07:01	18:32-19:31/59	07:31	17:42-18:48/66	07:06		07:40	15:35-16:15/40
	21:08		20:47		20:02		19:10		17:25		17:03	
5	06:05		06:31	19:17-20:00/43	07:02	18:32-19:30/58	07:32	17:41-18:46/65	07:07		07:41	15:35-16:16/41
	21:08		20:46		20:01		19:08		17:24		17:03	
6	06:05		06:32	19:16-20:00/44	07:03	18:32-19:30/58	07:33	17:40-18:45/65	07:08		07:42	15:35-16:17/42
	21:08		20:44		19:57		19:07		17:22		17:03	
7	06:06		06:33	19:16-20:01/45	07:04	18:32-19:29/57	07:34	17:40-18:43/63	07:09		07:43	15:35-16:17/42
	21:07		20:43		19:56		19:05		17:21		17:03	
8	06:07		06:34	19:15-20:01/46	07:05	18:32-19:28/56	07:35	17:39-18:41/62	07:10		07:44	15:35-16:18/43
	21:07		20:42		19:54		19:03		17:20		17:03	
9	06:07		06:35	19:15-20:01/46	07:06	18:33-19:27/54	07:36	17:39-18:38/59	07:12		07:45	15:36-16:19/43
	21:07		20:41		19:52		19:02		17:19		17:03	
10	06:08		06:36	19:14-20:02/48	07:07	18:30-19:26/56	07:37	17:39-18:34/55	07:13		07:46	15:36-16:19/43
	21:06		20:40		19:51		19:00		17:18		17:03	
11	06:09		06:37	19:01-20:02/61	07:08	18:26-19:25/59	07:38	17:39-18:31/52	07:14		07:46	15:37-16:20/43
	21:06		20:38		19:49		18:59		17:17		17:03	
12	06:09		06:38	18:58-20:02/64	07:09	18:24-19:24/60	07:39	17:39-18:30/51	07:15		07:47	15:37-16:21/44
	21:06		20:37		19:47		18:57		17:16		17:03	
13	06:10		06:39	18:55-20:02/67	07:10	18:21-19:22/61	07:40	17:39-18:30/51	07:16		07:48	15:38-16:22/44
	21:05		20:36		19:46		18:55		17:15		17:03	
14	06:11		06:40	18:53-20:02/69	07:11	18:19-19:21/62	07:41	17:40-18:30/50	07:18		07:49	15:37-16:21/44
	21:05		20:34		19:44		18:54		17:14		17:04	
15	06:12		06:41	18:51-20:02/71	07:11	18:17-19:18/61	07:43	17:40-18:29/49	07:19		07:50	15:38-16:22/44
	21:04		20:33		19:42		18:52		17:13		17:04	
16	06:12		06:42	18:49-20:02/73	07:12	18:15-19:16/61	07:44	17:41-18:27/46	07:20		07:50	15:39-16:23/44
	21:03		20:32		19:41		18:51		17:13		17:04	
17	06:13		06:43	18:47-20:01/74	07:13	18:14-19:14/60	07:45	17:41-18:26/45	07:21		07:51	15:38-16:23/45
	21:03		20:30		19:39		18:49		17:12		17:04	
18	06:14		06:44	18:46-20:01/75	07:14	18:13-19:11/58	07:46	17:42-18:25/43	07:22		07:52	15:39-16:24/45
	21:02		20:29		19:37		18:48		17:11		17:05	
19	06:15		06:45	18:45-20:01/76	07:15	18:12-19:08/56	07:47	17:43-18:23/40	07:24	15:46-15:56/10	07:52	15:40-16:25/45
	21:02		20:27		19:35		18:46		17:10		17:05	
20	06:16		06:46	18:43-20:00/77	07:16	18:08-19:03/55	07:48	17:45-18:22/37	07:25	15:43-15:59/16	07:53	15:40-16:25/45
	21:01		20:26		19:34		18:45		17:10		17:05	
21	06:17		06:47	18:42-20:00/78	07:17	18:03-18:57/54	07:49	17:46-18:20/34	07:26	15:42-16:02/20	07:53	15:41-16:26/45
	21:00		20:24		19:32		18:43		17:09		17:06	
22	06:17		06:48	18:41-19:59/78	07:18	17:59-18:57/58	07:50	17:48-18:18/30	07:27	15:40-16:04/24	07:54	15:41-16:26/45
	20:59		20:23		19:30		18:42		17:08		17:06	
23	06:18		06:49	18:40-19:57/77	07:20	17:56-18:57/61	07:52	17:50-18:15/25	07:28	15:39-16:05/26	07:54	15:41-16:26/45
	20:59		20:21		19:29		18:40		17:08		17:07	
24	06:19	19:36-19:42/6	06:50	18:38-19:56/78	07:21	17:54-18:57/63	07:53	17:53-18:12/19	07:29	15:38-16:06/28	07:55	15:42-16:27/45
	20:58		20:20		19:27		18:39		17:07		17:08	
25	06:20	19:32-19:46/14	06:51	18:37-19:54/77	07:22	17:52-18:56/64	07:54	17:59-18:07/8	07:30	15:38-16:08/30	07:55	15:42-16:27/45
	20:57		20:18		19:25		18:38		17:07		17:08	
26	06:21	19:29-19:49/20	06:52	18:36-19:53/77	07:23	17:50-18:56/66	07:55		07:32	15:37-16:09/32	07:56	15:43-16:28/45
	20:56		20:17		19:23		18:36		17:06		17:09	
27	06:22	19:28-19:51/23	06:53	18:36-19:51/75	07:24	17:48-18:55/67	07:56		07:33	15:36-16:10/34	07:56	15:43-16:28/45
	20:55		20:15		19:22		18:35		17:06		17:09	
28	06:23	19:26-19:52/26	06:54	18:35-19:50/75	07:25	17:47-18:55/68	07:57		07:34	15:36-16:11/35	07:56	15:44-16:28/44
	20:54		20:14		19:20		18:33		17:05		17:10	
29	06:24	19:25-19:54/29	06:55	18:34-19:48/74	07:26	17:45-18:54/69	07:59		07:35	15:35-16:12/37	07:57	15:44-16:28/44
	20:53		20:12		19:18		18:32		17:05		17:11	
30	06:25	19:24-19:55/31	06:56	18:34-19:47/73	07:27	17:44-18:53/69	08:00		07:36	15:35-16:13/38	07:57	15:44-16:28/44
	20:52		20:10		19:17		18:31		17:04		17:12	
31	06:26	19:22-19:56/34	06:57	18:33-19:45/72			08:01				07:57	15:46-16:30/44
	20:51		20:09				18:30				17:12	
Potential sun hours	459		428		375		345		297		287	
Sum of minutes with flicker		183		1967		1820		1221		330		1345

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T6 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (146)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:58	07:44 16:59-17:23/24	07:07 17:05-17:29/24	07:16	06:30	06:01	06:02	06:26	06:57	07:28	07:02 16:28-17:05/37	07:37
	17:13	17:47	18:22	19:56	20:27	20:57	21:09	20:50	20:07	19:15	17:28	17:03
2	07:58	07:43 16:59-17:24/25	07:06 17:08-17:26/18	07:14	06:29	06:01	06:02	06:27	06:58	07:29	07:03 16:28-17:03/35	07:38
	17:14	17:49	18:23	19:57	20:28	20:58	21:09	20:49	20:06	19:13	17:27	17:03
3	07:58	07:42 16:59-17:26/27	07:04 17:12-17:22/10	07:13	06:27	06:00	06:03	06:28	06:59	07:30	07:05 16:29-17:02/33	07:39
	17:14	17:50	18:24	19:58	20:29	20:59	21:09	20:48	20:04	19:11	17:25	17:03
4	07:58	07:41 16:59-17:27/28	07:03	07:11	06:26	06:00	06:03	06:29	07:00	07:31	07:06 16:29-17:00/31	07:40
	17:15	17:51	18:25	19:59	20:31	21:00	21:09	20:47	20:02	19:10	17:24	17:03
5	07:58	07:40 16:59-17:29/30	07:01	07:10	06:25	06:00	06:04	06:30	07:01	07:32	07:07 16:30-17:00/30	07:41
	17:16	17:52	18:26	20:00	20:32	21:00	21:08	20:46	20:01	19:08	17:23	17:03
6	07:58	07:39 17:00-17:30/30	06:59	07:08	06:24	05:59	06:05	06:31	07:02	07:33	07:08 16:29-16:58/29	07:42
	17:17	17:54	18:28	20:00	20:33	21:01	21:08	20:45	19:57	19:06	17:22	17:02
7	07:58	07:37 17:00-17:32/32	06:58	07:06	06:23	05:59	06:05	06:32	07:03	07:34	07:09 16:29-16:57/28	07:43
	17:18	17:55	18:29	20:02	20:34	21:02	21:08	20:44	19:56	19:05	17:21	17:02
8	07:58	07:36 16:59-17:32/33	07:56	07:05	06:21	05:59	06:06	06:33	07:04	07:35	07:11 16:30-16:56/26	07:44
	17:19	17:56	19:30	20:03	20:35	21:02	21:08	20:42	19:54	19:03	17:20	17:02
9	07:58	07:35 16:58-17:34/36	07:55	07:03	06:20	05:58	06:06	06:34	07:05	07:36	07:12 16:30-16:55/25	07:45
	17:20	17:57	19:31	20:04	20:36	21:03	21:07	20:41	19:52	19:02	17:19	17:02
10	07:57	07:34 16:58-17:35/37	07:53	07:01	06:19	05:58	06:07	06:35	07:06	07:37	07:13 16:30-16:54/24	07:46
	17:21	17:59	19:32	20:05	20:37	21:03	21:07	20:40	19:51	19:00	17:18	17:02
11	07:57	07:33 16:58-17:37/39	07:51	07:00	06:18	05:58	06:08	06:36	07:07	07:38 17:43-17:58/15	07:14 16:30-16:52/22	07:47
	17:22	18:00	19:33	20:06	20:38	21:04	21:06	20:39	19:49	18:58	17:17	17:02
12	07:57	07:31 16:56-17:38/42	07:50	06:58	06:17	05:58	06:09	06:37	07:08	07:39 17:40-18:01/21	07:16 16:32-16:52/20	07:48
	17:23	18:01	19:34	20:07	20:39	21:05	21:06	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30 16:56-17:39/43	07:48	06:57	06:16	05:58	06:09	06:38	07:09	07:40 17:38-18:03/25	07:17 16:32-16:51/19	07:49
	17:24	18:02	19:35	20:08	20:40	21:05	21:06	20:36	19:46	18:55	17:15	17:03
14	07:56	07:29 16:57-17:40/43	07:46	06:55	06:15	05:58	06:10	06:39	07:10	07:42 17:36-18:05/29	07:18 16:33-16:49/16	07:49
	17:26	18:04	19:37	20:09	20:41	21:06	21:05	20:35	19:44	18:54	17:14	17:03
15	07:56	07:28 16:56-17:39/43	07:45	06:53	06:14	05:58	06:11	06:40	07:11	07:43 17:34-18:06/32	07:19 16:35-16:49/14	07:50
	17:27	18:05	19:38	20:10	20:42	21:06	21:04	20:33	19:42	18:52	17:13	17:03
16	07:55	07:26 16:56-17:40/44	07:43	06:52	06:13	05:58	06:12	06:41	07:12	07:44 17:32-18:07/35	07:20 16:36-16:48/12	07:51
	17:28	18:06	19:39	20:11	20:43	21:06	21:04	20:32	19:40	18:50	17:12	17:03
17	07:55	07:25 16:56-17:40/44	07:41	06:50	06:12	05:58	06:12	06:42	07:13	07:45 17:31-18:07/36	07:22 16:37-16:47/10	07:51
	17:29	18:07	19:40	20:12	20:44	21:07	21:03	20:30	19:39	18:49	17:11	17:04
18	07:54	07:24 16:56-17:40/44	07:40	06:49	06:11	05:58	06:13	06:43	07:14	07:46 17:29-18:08/39	07:23 16:38-16:46/8	07:52
	17:30	18:09	19:41	20:13	20:45	21:07	21:03	20:29	19:37	18:47	17:10	17:04
19	07:54	07:22 16:56-17:40/44	07:38	06:47	06:10	05:58	06:14	06:44	07:15	07:47 17:29-18:09/40	07:24 16:42-16:46/4	07:53
	17:31	18:10	19:42	20:14	20:46	21:07	21:02	20:28	19:35	18:46	17:10	17:04
20	07:53	07:21 16:56-17:39/43	07:36	06:46	06:09	05:58	06:15	06:45	07:16	07:48 17:28-18:09/41	07:25	07:53
	17:32	18:11	19:43	20:15	20:47	21:08	21:01	20:26	19:34	18:44	17:09	17:05
21	07:53	07:19 16:57-17:39/42	07:35	06:44	06:08	05:58	06:16	06:46	07:17	07:49 17:27-18:10/43	07:26	07:54
	17:34	18:12	19:44	20:17	20:48	21:08	21:01	20:25	19:32	18:43	17:08	17:05
22	07:52	07:18 16:57-17:38/41	07:33	06:43	06:08	05:59	06:17	06:47	07:18	07:51 17:27-18:10/43	07:27	07:54
	17:35	18:13	19:45	20:18	20:49	21:08	21:00	20:23	19:30	18:41	17:08	17:06
23	07:51 17:07-17:11/4	07:16 16:58-17:37/39	07:31	06:41	06:07	05:59	06:18	06:48	07:19	07:52 17:26-18:09/43	07:29	07:55
	17:36	18:15	19:46	20:19	20:50	21:08	20:59	20:22	19:28	18:40	17:07	17:06
24	07:51 17:04-17:12/8	07:15 16:59-17:37/38	07:30	06:40	06:06	05:59	06:19	06:49	07:20	07:53 17:26-18:10/44	07:30	07:55
	17:37	18:16	19:48	20:20	20:51	21:09	20:58	20:20	19:27	18:39	17:06	17:07
25	07:50 17:04-17:14/10	07:13 16:59-17:36/37	07:28	06:38	06:05	05:59	06:19	06:50	07:21	07:54 17:26-18:10/44	07:31	07:56
	17:39	18:17	19:49	20:21	20:51	21:09	20:57	20:19	19:25	18:37	17:06	17:07
26	07:49 17:03-17:15/12	07:12 17:00-17:34/34	07:26	06:37	06:05	06:00	06:20	06:51	07:22	07:55 17:26-18:10/44	07:32	07:56
	17:40	18:18	19:50	20:22	20:52	21:09	20:56	20:17	19:23	18:36	17:05	17:08
27	07:48 17:02-17:16/14	07:10 17:02-17:33/31	07:25	06:36	06:04	06:00	06:21	06:52	07:23	07:56 17:25-18:09/44	07:33	07:56
	17:41	18:19	19:51	20:23	20:53	21:09	20:55	20:15	19:22	18:34	17:05	17:09
28	07:47 17:01-17:17/16	07:09 17:03-17:31/28	07:23	06:34	06:03	06:00	06:22	06:53	07:25	07:58 17:26-18:10/44	07:34	07:57
	17:42	18:21	19:52	20:24	20:54	21:09	20:55	20:14	19:20	18:33	17:05	17:09
29	07:47 17:00-17:19/19		07:21	06:33	06:03	06:01	06:23	06:54	07:26	07:59 17:26-18:09/43	07:35	07:57
	17:44		19:53	20:25	20:55	21:09	20:54	20:12	19:18	18:32	17:04	17:10
30	07:46 17:00-17:20/20		07:20	06:31	06:02	06:01	06:24	06:55	07:27	08:00 17:26-18:07/41	07:36	07:57
	17:45		19:54	20:26	20:56	21:09	20:53	20:11	19:17	18:30	17:04	17:11
31	07:45 16:59-17:21/22		07:18		06:02		06:25	06:56		08:01 17:26-18:05/39		07:57
	17:46		19:55		20:57		20:52	20:09		18:29		17:12
Potential sun hours	297	297	370	399	449	453	460	429	375	345	297	287
Sum of minutes with flicker	125	1021	52	0	0	0	0	0	0	785	423	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T60 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (161)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57	07:43	07:07	07:16	06:30	06:02	06:02	06:26	06:57	07:27	07:02	07:37
	17:13	17:48	18:22	19:56	20:27	20:56	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57	07:42	07:05	07:14	06:29	06:01	06:03	06:27	06:58	07:28	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:57	21:08	20:49	20:05	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13	06:28	06:01	06:03	06:28	06:59	07:29	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:11	17:26	17:03
4	07:57	07:40	07:02	07:11	06:26	06:00	06:04	06:29	07:00	07:30	07:05	07:40
	17:16	17:51	18:25	19:59	20:30	20:59	21:08	20:46	20:02	19:10	17:24	17:03
5	07:57	07:39	07:01	07:09	06:25	06:00	06:04	06:30	07:01	07:32	07:06	07:41
	17:17	17:53	18:26	20:00	20:31	20:59	21:07	20:45	20:00	19:08	17:23	17:03
6	07:57	07:38	06:59	07:08	06:24	06:00	06:05	06:31	07:02	07:33	07:08	07:42
	17:18	17:54	18:27	20:00	20:32	21:00	21:07	20:44	19:57	19:06	17:22	17:03
7	07:57	07:37	06:58	07:06	06:23	05:59	06:06	06:32	07:03	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:55	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05	06:22	05:59	06:06	06:33	07:04	07:35	07:10	07:43
	17:20	17:56	19:30	20:02	20:34	21:01	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:54	07:03	06:20	05:59	06:07	06:34	07:05	07:36	07:11	07:44
	17:21	17:58	19:31	20:03	20:35	21:02	21:06	20:40	19:52	19:01	17:19	17:03
10	07:56	07:33	07:53	07:01	06:19	05:59	06:08	06:35	07:06	07:37	07:12	07:45
	17:22	17:59	19:32	20:04	20:36	21:03	21:06	20:39	19:50	19:00	17:18	17:03
11	07:56	07:32	07:51	07:00	06:18	05:59	06:08	06:36	07:07	07:38	07:14	07:46
	17:23	18:00	19:33	20:05	20:37	21:03	21:06	20:38	19:49	18:58	17:17	17:03
12	07:56	07:31	07:49	06:58	06:17	05:58	06:09	06:37	07:08	07:39	07:15	07:47
	17:24	18:01	19:34	20:06	20:38	21:04	21:05	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57	06:16	05:58	06:10	06:38	07:09	07:40	07:16	07:48
	17:25	18:03	19:35	20:08	20:39	21:04	21:05	20:35	19:45	18:55	17:15	17:03
14	07:55	07:28	07:46	06:55	06:15	05:58	06:11	06:39	07:10	07:41	07:17	07:48
	17:26	18:04	19:36	20:09	20:40	21:05	21:04	20:34	19:44	18:54	17:14	17:03
15	07:55	07:27	07:44	06:53	06:14	05:58	06:11	06:40	07:11	07:42	07:18	07:49
	17:27	18:05	19:37	20:10	20:41	21:05	21:04	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52	06:13	05:58	06:12	06:41	07:12	07:43	07:20	07:50
	17:28	18:06	19:39	20:11	20:42	21:05	21:03	20:31	19:40	18:50	17:12	17:04
17	07:54	07:24	07:41	06:50	06:12	05:58	06:13	06:42	07:13	07:44	07:21	07:51
	17:29	18:07	19:40	20:12	20:43	21:06	21:02	20:30	19:38	18:49	17:12	17:04
18	07:54	07:23	07:40	06:49	06:11	05:58	06:14	06:43	07:14	07:46	07:22	07:51
	17:30	18:09	19:41	20:13	20:44	21:06	21:02	20:28	19:37	18:47	17:11	17:04
19	07:53	07:22	07:38	06:47	06:10	05:59	06:15	06:44	07:15	07:47	07:23	07:52
	17:32	18:10	19:42	20:14	20:45	21:07	21:01	20:27	19:35	18:46	17:10	17:05
20	07:52	07:20	07:36	06:46	06:10	05:59	06:15	06:45	07:16	07:48	07:24	07:52
	17:33	18:11	19:43	20:15	20:46	21:07	21:00	20:25	19:33	18:44	17:09	17:05
21	07:52	07:19	07:34	06:44	06:09	05:59	06:16	06:46	07:17	07:49	07:26	07:53
	17:34	18:12	19:44	20:16	20:47	21:07	21:00	20:24	19:32	18:43	17:09	17:06
22	07:51	07:17	07:33	06:43	06:08	05:59	06:17	06:47	07:18	07:50	07:27	07:54
	17:35	18:13	19:45	20:17	20:48	21:07	20:59	20:23	19:30	18:41	17:08	17:06
23	07:51	07:16	07:31	06:41	06:07	05:59	06:18	06:48	07:19	07:51	07:28	07:54
	17:36	18:15	19:46	20:18	20:49	21:08	20:58	20:21	19:28	18:40	17:07	17:07
24	07:50	07:15	07:29	06:40	06:06	06:00	06:19	06:49	07:20	07:52	07:29	07:54
	17:38	18:16	19:47	20:19	20:50	21:08	20:57	20:20	19:27	18:39	17:07	17:07
25	07:49	07:13	07:28	06:38	06:06	06:00	06:20	06:50	07:21	07:54	07:30	07:55
	17:39	18:17	19:48	20:20	20:51	21:08	20:56	20:18	19:25	18:37	17:06	17:08
26	07:48	07:12	07:26	06:37	06:05	06:00	06:21	06:51	07:22	07:55	07:31	07:55
	17:40	18:18	19:49	20:21	20:52	21:08	20:56	20:16	19:23	18:36	17:06	17:08
27	07:48	07:10	07:24	06:36	06:04	06:01	06:22	06:52	07:23	07:56	07:32	07:56
	17:41	18:19	19:50	20:22	20:52	21:08	20:55	20:15	19:21	18:34	17:05	17:09
28	07:47	07:09	07:23	06:34	06:04	06:01	06:23	06:53	07:24	07:57	07:33	07:56
	17:43	18:21	19:52	20:23	20:53	21:08	20:54	20:13	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33	06:03	06:01	06:24	06:54	07:25	07:58	07:35	07:56
	17:44		19:53	20:25	20:54	21:08	20:53	20:12	19:18	18:32	17:04	17:11
30	07:45		07:19	06:32	06:03	06:02	06:24	06:55	07:26	07:59	07:36	07:56
	17:45		19:54	20:26	20:55	21:08	20:52	20:10	19:16	18:31	17:04	17:11
31	07:44		07:18		06:02		06:25	06:56		08:01		07:57
	17:46		19:55		20:56		20:51	20:09		18:29		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	0	0	0	0	0	0	0	0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T61 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (162)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57	07:43	07:07	07:16	06:31 06:50-07:06/16	06:02 06:24-06:50/26	06:03 06:25-06:56/31	06:27 06:54-07:13/19	06:58	07:28	07:02	07:37
	17:13	17:48	18:22	19:56	20:27	20:57	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57	07:42	07:06	07:15	06:29 06:49-07:06/17	06:01 06:23-06:50/27	06:03 06:26-06:57/31	06:28 06:53-07:14/21	06:59	07:29	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:57	21:08	20:49	20:06	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13	06:28 06:48-07:07/19	06:01 06:23-06:51/28	06:04 06:26-06:57/31	06:29 06:51-07:14/23	07:00	07:30	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:12	17:26	17:04
4	07:57	07:40	07:03	07:11	06:27 06:47-07:07/20	06:01 06:22-06:50/28	06:04 06:27-06:57/30	06:30 06:51-07:14/23	07:01	07:31	07:06	07:40
	17:16	17:52	18:25	19:59	20:30	20:59	21:08	20:47	20:02	19:10	17:25	17:03
5	07:57	07:39	07:01	07:10	06:25 06:45-07:06/21	06:00 06:22-06:51/29	06:05 06:27-06:57/30	06:31 06:52-07:15/23	07:02	07:32	07:07	07:41
	17:17	17:53	18:27	20:00	20:31	21:00	21:08	20:46	20:01	19:08	17:24	17:03
6	07:57	07:38	06:59	07:08	06:24 06:44-07:06/22	06:00 06:22-06:51/29	06:05 06:28-06:57/29	06:32 06:53-07:15/22	07:03	07:33	07:08	07:42
	17:18	17:54	18:28	20:00	20:32	21:00	21:08	20:44	19:57	19:07	17:22	17:03
7	07:57	07:37	06:58	07:06	06:23 06:43-07:05/22	06:00 06:22-06:52/30	06:06 06:28-06:57/29	06:33 06:54-07:15/21	07:04	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:56	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05	06:22 06:42-07:05/23	05:59 06:21-06:51/30	06:07 06:29-06:57/28	06:34 06:55-07:15/20	07:05	07:35	07:10	07:44
	17:20	17:57	19:30	20:02	20:34	21:02	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:55	07:03	06:21 06:41-07:04/23	05:59 06:21-06:51/30	06:07 06:30-06:58/28	06:35 06:56-07:15/19	07:05	07:36	07:12	07:45
	17:21	17:58	19:31	20:04	20:35	21:02	21:07	20:41	19:52	19:02	17:19	17:03
10	07:57	07:34	07:53	07:02	06:20 06:42-07:04/22	05:59 06:21-06:52/31	06:08 06:30-06:57/27	06:36 06:57-07:15/18	07:06	07:37	07:13	07:45
	17:22	17:59	19:32	20:05	20:36	21:03	21:06	20:39	19:51	19:00	17:18	17:03
11	07:57	07:32	07:51	07:00	06:19 06:43-07:03/20	05:59 06:21-06:52/31	06:09 06:31-06:58/27	06:37 06:58-07:15/17	07:07	07:38	07:14	07:46
	17:23	18:00	19:33	20:06	20:37	21:03	21:06	20:38	19:49	18:59	17:17	17:03
12	07:56	07:31	07:50	06:58	06:17 06:43-07:02/19	05:59 06:21-06:52/31	06:09 06:32-06:58/26	06:38 06:59-07:15/16	07:08	07:39	07:15	07:47
	17:24	18:02	19:34	20:07	20:38	21:04	21:05	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57	06:16 06:44-07:01/17	05:59 06:21-06:53/32	06:10 06:32-06:57/25	06:39 07:00-07:14/14	07:09	07:40	07:16	07:48
	17:25	18:03	19:36	20:08	20:39	21:04	21:05	20:36	19:46	18:55	17:15	17:03
14	07:56	07:29	07:46	06:55	06:15 06:46-06:59/13	05:59 06:21-06:53/32	06:11 06:33-06:57/24	06:40 07:01-07:13/12	07:10	07:41	07:18	07:49
	17:26	18:04	19:37	20:09	20:40	21:05	21:04	20:34	19:44	18:54	17:14	17:04
15	07:55	07:27	07:45	06:54	06:14 06:47-06:58/11	05:59 06:21-06:53/32	06:12 06:34-06:57/23	06:41 07:02-07:12/10	07:11	07:43	07:19	07:49
	17:27	18:05	19:38	20:10	20:41	21:05	21:04	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52	06:13 06:51-06:54/3	05:59 06:21-06:53/32	06:12 06:35-06:58/23	06:42 07:03-07:11/8	07:12	07:44	07:20	07:50
	17:28	18:06	19:39	20:11	20:42	21:06	21:03	20:31	19:40	18:51	17:13	17:04
17	07:54	07:25	07:41	06:51	06:12 06:33-06:38/5	05:59 06:21-06:53/32	06:13 06:36-06:57/21	06:43 07:04-07:09/5	07:13	07:45	07:21	07:51
	17:30	18:08	19:40	20:12	20:43	21:06	21:03	20:30	19:39	18:49	17:12	17:04
18	07:54	07:23	07:40	06:49	06:12 06:32-06:40/8	05:59 06:21-06:53/32	06:14 06:36-06:56/20	06:44 07:05-07:07/2	07:14	07:46	07:22	07:51
	17:31	18:09	19:41	20:13	20:44	21:07	21:02	20:29	19:37	18:48	17:11	17:05
19	07:53	07:22	07:38	06:48	06:11 06:31-06:41/10	05:59 06:21-06:53/32	06:15 06:37-06:56/19	06:45	07:15	07:47	07:23	07:52
	17:32	18:10	19:42	20:14	20:45	21:07	21:01	20:27	19:35	18:46	17:10	17:05
20	07:53	07:21	07:36	06:46	06:10 06:31-06:43/12	05:59 06:21-06:53/32	06:16 06:38-06:56/18	06:46	07:16	07:48	07:25	07:53
	17:33	18:11	19:43	20:15	20:46	21:07	21:01	20:26	19:34	18:45	17:10	17:05
21	07:52	07:19	07:35	06:45	06:09 06:30-06:44/14	05:59 06:22-06:54/32	06:17 06:39-06:55/16	06:47	07:17	07:49	07:26	07:53
	17:34	18:13	19:44	20:16	20:47	21:07	21:00	20:24	19:32	18:43	17:09	17:06
22	07:52	07:18	07:33	06:43	06:08 06:29-06:45/16	05:59 06:22-06:54/32	06:17 06:40-06:55/15	06:48	07:18	07:50	07:27	07:54
	17:35	18:14	19:45	20:17	20:48	21:08	20:59	20:23	19:30	18:42	17:08	17:06
23	07:51	07:16	07:31	06:42	06:07 06:28-06:45/17	06:00 06:22-06:54/32	06:18 06:41-06:54/13	06:49	07:19	07:51	07:28	07:54
	17:37	18:15	19:46	20:18	20:49	21:08	20:58	20:21	19:28	18:40	17:08	17:07
24	07:50	07:15	07:30	06:40	06:07 06:28-06:47/19	06:00 06:22-06:54/32	06:19 06:41-06:52/11	06:50	07:20	07:53	07:29	07:55
	17:38	18:16	19:48	20:19	20:50	21:08	20:58	20:20	19:27	18:39	17:07	17:08
25	07:49	07:13	07:28	06:39 06:58-07:01/3	06:06 06:27-06:47/20	06:00 06:23-06:55/32	06:20 06:42-06:51/9	06:51	07:21	07:54	07:30	07:55
	17:39	18:17	19:49	20:21	20:51	21:08	20:57	20:18	19:25	18:37	17:07	17:08
26	07:49	07:12	07:26	06:37 06:57-07:03/6	06:05 06:27-06:48/21	06:00 06:23-06:55/32	06:21 06:43-06:50/7	06:52	07:22	07:55	07:31	07:56
	17:40	18:18	19:50	20:22	20:52	21:08	20:56	20:17	19:23	18:36	17:06	17:09
27	07:48	07:10	07:25	06:36 06:55-07:04/9	06:05 06:26-06:48/22	06:01 06:23-06:55/32	06:22 06:44-06:47/3	06:53	07:24	07:56	07:33	07:56
	17:42	18:20	19:51	20:23	20:53	21:08	20:55	20:15	19:22	18:35	17:06	17:09
28	07:47	07:09	07:23	06:35 06:54-07:05/11	06:04 06:25-06:48/23	06:01 06:24-06:56/32	06:23 07:00-07:06/6	06:54	07:25	07:57	07:34	07:56
	17:43	18:21	19:52	20:24	20:53	21:08	20:54	20:14	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33 06:53-07:06/13	06:03 06:25-06:49/24	06:02 06:24-06:56/32	06:24 06:57-07:09/12	06:55	07:26	07:58	07:35	07:56
	17:44		19:53	20:25	20:54	21:08	20:53	20:12	19:18	18:32	17:05	17:11
30	07:45		07:20	06:32 06:52-07:06/14	06:03 06:24-06:49/25	06:02 06:25-06:56/31	06:25 06:56-07:11/15	06:56	07:27	08:00	07:36	07:57
	17:45		19:54	20:26	20:55	21:08	20:52	20:10	19:17	18:31	17:04	17:12
31	07:44		07:18		06:02 06:24-06:50/26		06:26 06:55-07:12/17	06:57		08:01		07:57
	17:47		19:55		20:56		20:51	20:09		18:30		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	0	0	0	56	550	925	644	293	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T62 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (163)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May		June		July		August	September	October	November	December
1	07:57	07:43	07:07	07:16	06:30		06:02	06:23-06:35/12	06:02	06:25-06:43/18	06:26	06:57	07:27	07:02	07:37
	17:13	17:48	18:22	19:56	20:27		20:56		21:08		20:50	20:07	19:15	17:28	17:04
2	07:57	07:42	07:05	07:14	06:29		06:01	06:23-06:36/13	06:03	06:25-06:43/18	06:27	06:58	07:28	07:03	07:38
	17:14	17:49	18:23	19:57	20:28		20:57		21:08		20:49	20:05	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13	06:28		06:01	06:23-06:37/14	06:03	06:26-06:43/17	06:28	06:59	07:29	07:04	07:39
	17:15	17:50	18:24	19:58	20:29		20:58		21:08		20:48	20:04	19:11	17:26	17:03
4	07:57	07:40	07:02	07:11	06:26		06:00	06:22-06:36/14	06:04	06:26-06:43/17	06:29	07:00	07:30	07:05	07:40
	17:16	17:51	18:25	19:59	20:30		20:59		21:08		20:46	20:02	19:10	17:24	17:03
5	07:57	07:39	07:01	07:09	06:25		06:00	06:22-06:37/15	06:04	06:27-06:43/16	06:30	07:01	07:32	07:06	07:41
	17:17	17:53	18:26	20:00	20:31		20:59		21:07		20:45	20:00	19:08	17:23	17:03
6	07:57	07:38	06:59	07:08	06:24		06:00	06:22-06:37/15	06:05	06:28-06:44/16	06:31	07:02	07:33	07:08	07:42
	17:18	17:54	18:27	20:00	20:32		21:00		21:07		20:44	19:57	19:06	17:22	17:03
7	07:57	07:37	06:58	07:06	06:23		05:59	06:21-06:37/16	06:06	06:28-06:43/15	06:32	07:03	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33		21:01		21:07		20:43	19:55	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05	06:22		05:59	06:21-06:37/16	06:06	06:29-06:44/15	06:33	07:04	07:35	07:10	07:43
	17:20	17:56	19:30	20:02	20:34		21:01		21:07		20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:54	07:03	06:20		05:59	06:21-06:38/17	06:07	06:29-06:43/14	06:34	07:05	07:36	07:11	07:44
	17:21	17:58	19:31	20:03	20:35		21:02		21:06		20:40	19:52	19:01	17:19	17:03
10	07:56	07:33	07:53	07:01	06:19		05:59	06:21-06:39/18	06:08	06:30-06:43/13	06:35	07:06	07:37	07:12	07:45
	17:22	17:59	19:32	20:04	20:36		21:03		21:06		20:39	19:50	19:00	17:18	17:03
11	07:56	07:32	07:51	07:00	06:18		05:59	06:21-06:39/18	06:08	06:31-06:43/12	06:36	07:07	07:38	07:14	07:46
	17:23	18:00	19:33	20:05	20:37		21:03		21:06		20:38	19:49	18:58	17:17	17:03
12	07:56	07:31	07:49	06:58	06:17		05:58	06:21-06:40/19	06:09	06:32-06:44/12	06:37	07:08	07:39	07:15	07:47
	17:24	18:01	19:34	20:06	20:38		21:04		21:05		20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57	06:16		05:58	06:21-06:40/19	06:10	06:32-06:43/11	06:38	07:09	07:40	07:16	07:48
	17:25	18:03	19:35	20:08	20:39		21:04		21:05		20:35	19:45	18:55	17:15	17:03
14	07:55	07:28	07:46	06:55	06:15		05:58	06:21-06:40/19	06:11	06:33-06:43/10	06:39	07:10	07:41	07:17	07:48
	17:26	18:04	19:36	20:09	20:40		21:05		21:04		20:34	19:44	18:54	17:14	17:03
15	07:55	07:27	07:44	06:53	06:14		05:58	06:21-06:41/20	06:11	06:34-06:42/8	06:40	07:11	07:42	07:18	07:49
	17:27	18:05	19:37	20:10	20:41		21:05		21:04		20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52	06:13		05:58	06:21-06:41/20	06:12	06:35-06:42/7	06:41	07:12	07:43	07:20	07:50
	17:28	18:06	19:39	20:11	20:42		21:05		21:03		20:31	19:40	18:50	17:12	17:04
17	07:54	07:24	07:41	06:50	06:12		05:58	06:21-06:41/20	06:13	06:35-06:41/6	06:42	07:13	07:44	07:21	07:51
	17:29	18:07	19:40	20:12	20:43		21:06		21:02		20:30	19:38	18:49	17:12	17:04
18	07:54	07:23	07:40	06:49	06:11		05:58	06:21-06:41/20	06:14	06:36-06:40/4	06:43	07:14	07:46	07:22	07:51
	17:30	18:09	19:41	20:13	20:44		21:06		21:02		20:28	19:37	18:47	17:11	17:04
19	07:53	07:22	07:38	06:47	06:10		05:59	06:21-06:41/20	06:15	06:37-06:39/2	06:44	07:15	07:47	07:23	07:52
	17:32	18:10	19:42	20:14	20:45		21:07		21:01		20:27	19:35	18:46	17:10	17:05
20	07:52	07:20	07:36	06:46	06:10		05:59	06:21-06:41/20	06:15		06:45	07:16	07:48	07:24	07:52
	17:33	18:11	19:43	20:15	20:46		21:07		21:00		20:25	19:33	18:44	17:09	17:05
21	07:52	07:19	07:34	06:44	06:09		05:59	06:21-06:42/21	06:16		06:46	07:17	07:49	07:26	07:53
	17:34	18:12	19:44	20:16	20:47		21:07		21:00		20:24	19:32	18:43	17:09	17:06
22	07:51	07:17	07:33	06:43	06:08		05:59	06:22-06:42/20	06:17		06:47	07:18	07:50	07:27	07:53
	17:35	18:13	19:45	20:17	20:48		21:07		20:59		20:23	19:30	18:41	17:08	17:06
23	07:51	07:16	07:31	06:41	06:07		05:59	06:22-06:42/20	06:18		06:48	07:19	07:51	07:28	07:54
	17:36	18:15	19:46	20:18	20:49		21:08		20:58		20:21	19:28	18:40	17:07	17:07
24	07:50	07:14	07:29	06:40	06:06	06:28-06:29/1	06:00	06:22-06:42/20	06:19		06:49	07:20	07:52	07:29	07:54
	17:38	18:16	19:47	20:19	20:50		21:08		20:57		20:20	19:27	18:39	17:07	17:07
25	07:49	07:13	07:28	06:38	06:06	06:27-06:30/3	06:00	06:22-06:42/20	06:20		06:50	07:21	07:54	07:30	07:55
	17:39	18:17	19:48	20:20	20:51		21:08		20:56		20:18	19:25	18:37	17:06	17:08
26	07:48	07:12	07:26	06:37	06:05	06:26-06:31/5	06:00	06:23-06:43/20	06:21		06:51	07:22	07:55	07:31	07:55
	17:40	18:18	19:49	20:21	20:52		21:08		20:56		20:16	19:23	18:36	17:06	17:08
27	07:48	07:10	07:24	06:36	06:04	06:26-06:32/6	06:01	06:23-06:43/20	06:22		06:52	07:23	07:56	07:32	07:56
	17:41	18:19	19:50	20:22	20:52		21:08		20:55		20:15	19:21	18:34	17:05	17:09
28	07:47	07:09	07:23	06:34	06:04	06:25-06:33/8	06:01	06:24-06:43/19	06:23		06:53	07:24	07:57	07:33	07:56
	17:43	18:21	19:52	20:23	20:53		21:08		20:54		20:13	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33	06:03	06:25-06:34/9	06:01	06:24-06:43/19	06:24		06:54	07:25	07:58	07:34	07:56
	17:44		19:53	20:25	20:54		21:08		20:53		20:12	19:18	18:32	17:05	17:11
30	07:45		07:19	06:32	06:03	06:24-06:34/10	06:02	06:24-06:43/19	06:24		06:55	07:26	07:59	07:36	07:56
	17:45		19:54	20:26	20:55		21:08		20:52		20:10	19:16	18:31	17:04	17:11
31	07:44		07:18		06:02	06:24-06:35/11			06:25		06:56		08:01		07:57
	17:46		19:55		20:56				20:51		20:09		18:29		17:12
Potential sun hours	297	297	370	399	448		452		459		428	375	345	298	288
Sum of minutes with flicker	0	0	0	0	53		543		231		0	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T63 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (164)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57	07:43	07:07	07:16	06:31 06:54-07:43/49	06:02	06:03	06:27 07:06-07:51/45	06:58	07:28 07:47-08:10/23	07:02	07:37
	17:13	17:48	18:22	19:56	20:27	20:57	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57	07:42	07:06	07:15	06:29 06:54-07:43/49	06:01	06:03	06:28 07:05-07:50/45	06:59	07:29 07:49-08:11/22	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:57	21:08	20:49	20:06	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13	06:28 06:54-07:44/50	06:01	06:04	06:29 07:04-07:51/47	07:00	07:30 07:50-08:10/20	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:12	17:26	17:04
4	07:57	07:40	07:03	07:11	06:27 06:54-07:44/50	06:01	06:04	06:30 07:04-07:51/47	07:01	07:31 07:51-08:09/18	07:06	07:40
	17:16	17:52	18:25	19:59	20:30	20:59	21:08	20:47	20:02	19:10	17:25	17:03
5	07:57	07:39	07:01 07:20-07:24/4	07:10	06:25 06:53-07:42/49	06:00	06:05	06:31 07:04-07:52/48	07:02	07:32 07:52-08:08/16	07:07	07:41
	17:17	17:53	18:27	20:00	20:31	21:00	21:08	20:46	20:01	19:08	17:24	17:03
6	07:57	07:38	06:59 07:19-07:27/8	07:08	06:24 06:54-07:42/48	06:00	06:05	06:32 07:03-07:52/49	07:03	07:33 07:53-08:06/13	07:08	07:42
	17:18	17:54	18:28	20:00	20:32	21:00	21:07	20:44	19:57	19:07	17:22	17:03
7	07:57	07:37	06:58 07:17-07:29/12	07:06	06:23 06:54-07:42/48	06:00	06:06	06:33 07:03-07:52/49	07:04	07:34 07:54-08:04/10	07:09	07:43
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:56	19:05	17:21	17:03
8	07:57	07:36	07:56 08:16-08:30/14	07:05	06:22 06:54-07:42/48	05:59	06:07	06:34 07:03-07:52/49	07:04	07:35 07:55-08:01/6	07:10	07:44
	17:20	17:57	19:30	20:02	20:34	21:02	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:55 08:14-08:31/17	07:03	06:21 06:55-07:41/46	05:59	06:07	06:35 07:03-07:52/49	07:05	07:36	07:12	07:45
	17:21	17:58	19:31	20:04	20:35	21:02	21:07	20:41	19:52	19:02	17:19	17:03
10	07:57	07:34	07:53 08:12-08:31/19	07:02	06:20 06:55-07:41/46	05:59	06:08	06:36 07:03-07:52/49	07:06	07:37	07:13	07:45
	17:22	17:59	19:32	20:05	20:36	21:03	21:06	20:39	19:51	19:00	17:18	17:03
11	07:56	07:32	07:51 08:11-08:32/21	07:00	06:19 06:55-07:41/46	05:59	06:09	06:37 07:03-07:52/49	07:07	07:38	07:14	07:46
	17:23	18:00	19:33	20:06	20:37	21:03	21:06	20:38	19:49	18:59	17:17	17:03
12	07:56	07:31	07:50 08:09-08:32/23	06:58	06:17 06:56-07:40/44	05:59	06:09	06:38 07:03-07:52/49	07:08	07:39	07:15	07:47
	17:24	18:02	19:34	20:07	20:38	21:04	21:05	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48 08:07-08:31/24	06:57	06:16 06:56-07:39/43	05:59	06:10	06:39 07:03-07:52/49	07:09	07:40	07:16	07:48
	17:25	18:03	19:36	20:08	20:39	21:04	21:05	20:36	19:46	18:55	17:15	17:03
14	07:56	07:29	07:46 08:06-08:32/26	06:55 07:18-07:27/9	06:15 06:57-07:39/42	05:59	06:11	06:40 07:03-07:51/48	07:10	07:41	07:17	07:49
	17:26	18:04	19:37	20:09	20:40	21:05	21:04	20:34	19:44	18:54	17:14	17:04
15	07:55	07:27	07:45 08:04-08:31/27	06:54 07:13-07:32/19	06:14 06:57-07:38/41	05:59	06:12	06:41 07:03-07:51/48	07:11	07:43	07:19	07:49
	17:27	18:05	19:38	20:10	20:41	21:05	21:04	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43 08:03-08:30/27	06:52 07:11-07:34/23	06:13 06:58-07:37/39	05:59	06:12 07:24-07:31/7	06:42 07:03-07:51/48	07:12	07:44	07:20	07:50
	17:28	18:06	19:39	20:11	20:42	21:06	21:03	20:31	19:40	18:51	17:13	17:04
17	07:54	07:25	07:41 08:03-08:30/27	06:51 07:10-07:36/26	06:12 06:59-07:36/37	05:59	06:13 07:21-07:35/14	06:43 07:04-07:50/46	07:13	07:45	07:21	07:51
	17:30	18:08	19:40	20:12	20:43	21:06	21:03	20:30	19:39	18:49	17:12	17:04
18	07:54	07:23	07:40 08:04-08:28/24	06:49 07:08-07:37/29	06:12 06:59-07:35/36	05:59	06:14 07:18-07:36/18	06:44 07:05-07:49/44	07:14	07:46	07:22	07:51
	17:31	18:09	19:41	20:13	20:44	21:06	21:02	20:29	19:37	18:48	17:11	17:05
19	07:53	07:22	07:38 08:04-08:27/23	06:48 07:07-07:39/32	06:11 07:00-07:34/34	05:59	06:15 07:17-07:38/21	06:45 07:06-07:48/42	07:15	07:47	07:23	07:52
	17:32	18:10	19:42	20:14	20:45	21:07	21:01	20:27	19:35	18:46	17:10	17:05
20	07:53	07:21	07:36 08:06-08:26/20	06:46 07:05-07:40/35	06:10 07:02-07:34/32	05:59	06:16 07:16-07:40/24	06:46 07:07-07:48/41	07:16	07:48	07:25	07:53
	17:33	18:11	19:43	20:15	20:46	21:07	21:01	20:26	19:34	18:45	17:10	17:05
21	07:52	07:19	07:35 08:07-08:23/16	06:45 07:04-07:41/37	06:09 07:03-07:33/30	05:59	06:17 07:15-07:41/26	06:47 07:08-07:47/39	07:17 07:56-08:04/8	07:49	07:26	07:53
	17:34	18:13	19:44	20:16	20:47	21:07	21:00	20:24	19:32	18:43	17:09	17:06
22	07:51	07:18	07:33 08:09-08:20/11	06:43 07:02-07:41/39	06:08 07:04-07:32/28	05:59	06:17 07:14-07:43/29	06:48 07:09-07:45/36	07:18 07:52-08:07/15	07:50	07:27	07:54
	17:35	18:14	19:45	20:17	20:48	21:08	20:59	20:23	19:30	18:42	17:08	17:06
23	07:51	07:16	07:31	06:42 07:01-07:42/41	06:07 07:05-07:30/25	06:00	06:18 07:12-07:43/31	06:49 07:10-07:44/34	07:19 07:50-08:09/19	07:51	07:28	07:54
	17:37	18:15	19:46	20:18	20:49	21:08	20:58	20:21	19:28	18:40	17:08	17:07
24	07:50	07:15	07:30	06:40 07:00-07:43/43	06:07 07:07-07:30/23	06:00	06:19 07:11-07:44/33	06:50 07:10-07:42/32	07:20 07:48-08:10/22	07:53	07:29	07:55
	17:38	18:16	19:47	20:19	20:50	21:08	20:58	20:20	19:27	18:39	17:07	17:08
25	07:49	07:13	07:28	06:39 06:58-07:43/45	06:06 07:08-07:28/20	06:00	06:20 07:10-07:45/35	06:51 07:11-07:40/29	07:21 07:46-08:11/25	07:54	07:30	07:55
	17:39	18:17	19:49	20:21	20:51	21:08	20:57	20:18	19:25	18:37	17:07	17:08
26	07:49	07:12	07:26	06:37 06:57-07:43/46	06:05 07:10-07:27/17	06:00	06:21 07:10-07:46/36	06:52 07:12-07:38/26	07:22 07:45-08:11/26	07:55	07:31	07:55
	17:40	18:18	19:50	20:22	20:52	21:08	20:56	20:17	19:23	18:36	17:06	17:09
27	07:48	07:10	07:25	06:36 06:55-07:43/48	06:05 07:13-07:24/11	06:01	06:22 07:09-07:47/38	06:53 07:13-07:36/23	07:24 07:44-08:11/27	07:56	07:33	07:56
	17:42	18:20	19:51	20:23	20:53	21:08	20:55	20:15	19:22	18:35	17:06	17:09
28	07:47	07:09	07:23	06:35 06:55-07:43/48	06:04	06:01	06:23 07:08-07:48/40	06:54 07:14-07:32/18	07:25 07:44-08:11/27	07:57	07:34	07:56
	17:43	18:21	19:52	20:24	20:53	21:08	20:54	20:14	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33 06:55-07:44/49	06:03	06:02	06:24 07:08-07:49/41	06:55 07:19-07:27/8	07:26 07:45-08:11/26	07:58	07:35	07:56
	17:44		19:53	20:25	20:54	21:08	20:53	20:12	19:18	18:32	17:05	17:11
30	07:45		07:20	06:32 06:55-07:44/49	06:03	06:02	06:25 07:07-07:50/43	06:56	07:27 07:46-08:11/25	08:00	07:36	07:57
	17:45		19:54	20:26	20:55	21:08	20:52	20:10	19:17	18:31	17:04	17:12
31	07:44		07:18		06:02		06:26 07:07-07:50/43	06:57		08:01		07:57
	17:47		19:55		20:56		20:51	20:09		18:30		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	0	0	343	618	1031	0	479	1186	220	128	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T64a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (165)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June	
1	07:57	16:16-16:48/32	07:43		07:07	07:27-07:57/30	07:16	07:47-08:09/22	06:31	20:01-20:04/3	06:02	06:24-06:54/30
	17:14		17:48		18:22	17:21-17:58/37	19:56		20:27		20:57	19:53-20:16/23
2	07:57	16:16-16:48/32	07:42		07:06	07:25-07:55/30	07:15	07:49-08:07/18	06:29	19:57-20:06/9	06:02	06:23-06:54/31
	17:14		17:49		18:23	17:21-17:57/36	19:57		20:28		20:58	19:53-20:15/22
3	07:57	16:17-16:49/32	07:41		07:04	07:24-07:54/30	07:13	07:51-08:04/13	06:28	19:55-20:07/12	06:01	06:23-06:54/31
	17:15		17:50		18:24	17:22-17:57/35	19:58		20:29		20:58	19:55-20:15/20
4	07:57	16:17-16:50/33	07:40		07:03	07:22-07:51/29	07:11		06:27	19:53-20:08/15	06:01	06:23-06:55/32
	17:16		17:52		18:25	17:22-17:56/34	19:59		20:30		20:59	19:55-20:14/19
5	07:57	16:18-16:51/33	07:39		07:01	07:20-07:49/29	07:10	19:37-19:39/2	06:26	19:51-20:08/17	06:00	06:22-06:54/32
	17:17		17:53		18:27	17:22-17:55/33	20:00		20:31		21:00	19:56-20:14/18
6	07:57	16:18-16:50/32	07:38	17:24-17:30/6	06:59	07:20-07:47/27	07:08	19:30-19:40/10	06:24	19:50-20:09/19	06:00	06:22-06:55/33
	17:18		17:54		18:28	17:23-17:54/31	20:00		20:32		21:00	19:57-20:13/16
7	07:57	16:18-16:50/32	07:37	17:22-17:32/10	06:58	07:20-07:45/25	07:07	19:27-19:40/13	06:23	19:49-20:11/22	06:00	06:22-06:55/33
	17:19		17:55		18:29	17:24-17:52/28	20:01		20:33		21:01	19:59-20:13/14
8	07:57	16:19-16:51/32	07:36	17:20-17:33/13	07:56	08:21-08:45/24	07:05	19:25-19:42/17	06:22	19:48-20:12/24	06:00	06:22-06:55/33
	17:20		17:57		19:30	18:24-18:50/26	20:03		20:34		21:02	19:59-20:11/12
9	07:57	16:20-16:51/31	07:35	17:19-17:35/16	07:55	08:22-08:43/21	07:03	19:23-19:42/19	06:21	19:48-20:13/25	05:59	06:21-06:55/34
	17:21		17:58		19:31	18:27-18:49/22	20:04		20:35		21:02	20:01-20:10/9
10	07:57	16:21-16:52/31	07:34	17:18-17:36/18	07:53	08:22-08:41/19	07:02	19:22-19:44/22	06:20	19:47-20:14/27	05:59	06:22-06:55/33
	17:22		17:59		19:32	18:28-18:46/18	20:05		20:36		21:03	20:02-20:09/7
11	07:57	16:21-16:51/30	07:32	17:16-17:37/21	07:51	08:25-08:39/14	07:00	19:20-19:45/25	06:19	19:47-20:15/28	05:59	06:22-06:55/33
	17:23		18:00		19:33	18:32-18:43/11	20:06		20:37		21:03	20:04-20:08/4
12	07:56	16:22-16:52/30	07:31	17:16-17:38/22	07:50	08:28-08:35/7	06:58	19:19-19:45/26	06:18	19:46-20:16/30	05:59	06:23-06:55/32
	17:24		18:02		19:35		20:07		20:38		21:04	
13	07:56	16:23-16:52/29	07:30	17:15-17:40/25	07:48		06:57	19:19-19:47/28	06:17	06:37-06:41/4	05:59	06:23-06:56/33
	17:25		18:03		19:36		20:08		20:39	19:46-20:17/31	21:04	
14	07:56	16:24-16:52/28	07:29	17:14-17:41/27	07:46		06:55	19:18-19:47/29	06:15	06:36-06:43/7	05:59	06:23-06:56/33
	17:26		18:04	07:49-07:50/1	19:37		20:09		20:40	19:46-20:17/31	21:05	
15	07:55	16:25-16:52/27	07:27	17:14-17:42/28	07:45	08:04-08:06/2	06:54	19:18-19:49/31	06:14	06:35-06:45/10	05:59	06:23-06:56/33
	17:27		18:05	07:47-07:53/6	19:38		20:10		20:41	19:46-20:18/32	21:05	
16	07:55	16:26-16:51/25	07:26	17:14-17:44/30	07:43	08:02-08:10/8	06:52	19:17-19:50/33	06:14	06:34-06:46/12	05:59	06:24-06:56/32
	17:29		18:07	07:46-07:55/9	19:39		20:11		20:42	19:46-20:19/33	21:06	
17	07:54	16:28-16:51/23	07:25	17:13-17:45/32	07:42	08:01-08:13/12	06:51	19:17-19:51/34	06:13	06:33-06:47/14	05:59	06:24-06:56/32
	17:30		18:08	07:44-07:56/12	19:40		20:12		20:43	19:46-20:20/34	21:06	
18	07:54	16:28-16:50/22	07:23	17:14-17:46/32	07:40	07:59-08:14/15	06:49	19:17-19:50/33	06:12	06:32-06:48/16	05:59	06:24-06:56/32
	17:31		18:09	07:43-07:58/15	19:41		20:13		20:44	19:46-20:20/34	21:07	
19	07:53	16:30-16:49/19	07:22	17:14-17:48/34	07:38	07:57-08:15/18	06:48	19:17-19:50/33	06:11	06:32-06:50/18	05:59	06:24-06:56/32
	17:32		18:10	07:42-07:59/17	19:42		20:14		20:45	19:46-20:19/33	21:07	
20	07:53	16:32-16:49/17	07:21	17:14-17:49/35	07:36	07:56-08:16/20	06:46	19:17-19:49/32	06:10	06:31-06:50/19	05:59	06:25-06:57/32
	17:33		18:11	07:40-07:59/19	19:43		20:15		20:46	19:47-20:20/33	21:07	
21	07:52	16:34-16:47/13	07:19	17:15-17:51/36	07:35	07:54-08:16/22	06:45	19:18-19:49/31	06:09	06:30-06:51/21	05:59	06:25-06:57/32
	17:34		18:13	07:39-08:00/21	19:44		20:16		20:47	19:47-20:20/33	21:07	
22	07:52	16:36-16:45/9	07:18	17:15-17:51/36	07:33	07:52-08:16/24	06:43	19:17-19:48/31	06:08	06:29-06:51/22	05:59	06:25-06:57/32
	17:36		18:14	07:37-08:00/23	19:45		20:17		20:48	19:47-20:19/32	21:08	
23	07:51		07:16	17:16-17:53/37	07:31	07:51-08:17/26	06:42	19:18-19:47/29	06:07	06:29-06:52/23	06:00	06:25-06:57/32
	17:37		18:15	07:36-08:00/24	19:46		20:18		20:49	19:47-20:19/32	21:08	
24	07:50		07:15	17:16-17:54/38	07:30	07:49-08:17/28	06:40	19:20-19:46/26	06:07	06:28-06:52/24	06:00	06:26-06:58/32
	17:38		18:16	07:34-07:59/25	19:48		20:20		20:50	19:48-20:19/31	21:08	
25	07:49		07:13	17:17-17:55/38	07:28	07:47-08:16/29	06:39	19:20-19:44/24	06:06	06:27-06:52/25	06:00	06:26-06:58/32
	17:39		18:17	07:33-08:00/27	19:49		20:21		20:51	19:48-20:18/30	21:08	
26	07:49		07:12	17:18-17:56/38	07:26	07:45-08:15/30	06:37	19:22-19:43/21	06:05	06:27-06:53/26	06:01	06:26-06:58/32
	17:40		18:19	07:31-07:59/28	19:50		20:22		20:52	19:49-20:19/30	21:08	
27	07:48		07:10	17:19-17:58/39	07:25	07:45-08:15/30	06:36	19:23-19:40/17	06:05	06:26-06:53/27	06:01	06:27-06:59/32
	17:42		18:20	07:30-07:59/29	19:51		20:23		20:53	19:49-20:18/29	21:08	
28	07:47		07:09	17:20-17:58/38	07:23	07:45-08:14/29	06:35	19:25-19:38/13	06:04	06:26-06:54/28	06:01	06:26-06:59/33
	17:43		18:21	07:28-07:57/29	19:52		20:24		20:54	19:50-20:17/27	21:08	
29	07:46				07:21	07:45-08:13/28	06:33		06:04	06:25-06:53/28	06:02	06:26-06:59/33
	17:44				19:53		20:25		20:54	19:51-20:17/26	21:08	
30	07:45				07:20	07:46-08:12/26	06:32		06:03	06:25-06:54/29	06:02	06:27-06:59/32
	17:45				19:54		20:26		20:55	19:51-20:16/25	21:08	
31	07:44				07:18	07:46-08:11/25			06:02	06:24-06:54/30		
	17:47				19:55				20:56	19:52-20:16/24		
Potential sun hours	297		297		370		399		448		452	
Sum of minutes with flicker		592		934		968		632		1194		1132

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T64a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (165)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:03	06:26-06:59/33	06:27	19:57-20:26/29	06:58	19:19-19:44/25	07:28		07:02	16:47-17:05/18	07:37	16:03-16:33/30
	21:08		20:50		20:07		19:15		17:28		17:04	
2	06:03	06:27-07:00/33	06:28	19:58-20:25/27	06:59	19:20-19:42/22	07:29	08:05-08:17/12	07:03	16:49-17:04/15	07:38	16:03-16:34/31
	21:08	20:08-20:14/6	20:49		20:06		19:13	18:13-18:18/5	17:27		17:04	
3	06:04	06:27-07:00/33	06:29	19:57-20:23/26	07:00	19:21-19:41/20	07:30	08:02-08:19/17	07:04	16:50-17:03/13	07:39	16:03-16:34/31
	21:08	20:06-20:15/9	20:48		20:04		19:12	18:08-18:24/16	17:26		17:04	
4	06:04	06:27-07:01/34	06:30	19:57-20:22/25	07:01	19:22-19:39/17	07:31	08:00-08:20/20	07:06	16:52-17:01/9	07:40	16:03-16:35/32
	21:08	20:06-20:17/11	20:47		20:02		19:10	18:05-18:26/21	17:25		17:04	
5	06:05	06:27-07:00/33	06:31	19:58-20:21/23	07:02	19:24-19:37/13	07:32	07:58-08:21/23	07:07	16:55-17:00/5	07:41	16:04-16:36/32
	21:08	20:04-20:17/13	20:46		20:01		19:08	18:03-18:27/24	17:24		17:03	
6	06:05	06:28-07:01/33	06:32	19:59-20:20/21	07:03	19:26-19:36/10	07:33	07:57-08:22/25	07:08		07:42	16:04-16:36/32
	21:08	20:04-20:19/15	20:44		19:57		19:07	18:01-18:28/27	17:22		17:03	
7	06:06	06:29-07:02/33	06:33	20:00-20:19/19	07:04	19:31-19:34/3	07:34	07:56-08:22/26	07:09		07:43	16:04-16:37/33
	21:07	20:03-20:19/16	20:43		19:56		19:05	17:59-18:29/30	17:21		17:03	
8	06:07	06:29-07:01/32	06:34	20:01-20:18/17	07:05		07:35	07:55-08:23/28	07:10		07:44	16:04-16:37/33
	21:07	20:02-20:21/19	20:42		19:54		19:03	17:58-18:30/32	17:20		17:03	
9	06:07	06:30-07:02/32	06:35	20:02-20:16/14	07:06	07:46-07:57/11	07:36	07:56-08:25/29	07:12		07:45	16:05-16:37/32
	21:07	20:02-20:22/20	20:41		19:52		19:02	17:57-18:30/33	17:19		17:03	
10	06:08	06:30-07:01/31	06:36	20:04-20:15/11	07:07	07:43-08:00/17	07:37	07:57-08:26/29	07:13		07:46	16:05-16:38/33
	21:06	20:01-20:22/21	20:40		19:51		19:00	17:56-18:31/35	17:18		17:03	
11	06:09	06:31-07:02/31	06:37	20:06-20:14/8	07:08	07:41-08:01/20	07:38	07:58-08:28/30	07:14		07:46	16:06-16:38/32
	21:06	20:01-20:23/22	20:38		19:49		18:59	17:55-18:31/36	17:17		17:03	
12	06:09	06:32-07:02/30	06:38		07:09	07:39-08:03/24	07:39	07:59-08:29/30	07:15		07:47	16:07-16:38/31
	21:05	20:01-20:24/23	20:37		19:47		18:57	17:54-18:31/37	17:16		17:03	
13	06:10	06:33-07:02/29	06:39		07:10	07:37-08:03/26	07:40	17:53-18:30/37	07:16		07:48	16:06-16:37/31
	21:05	20:00-20:25/25	20:36		19:46		18:55	08:01-08:31/30	17:15		17:03	
14	06:11	06:33-07:02/29	06:40	19:37-19:43/6	07:11	07:36-08:04/28	07:41	17:53-18:31/38	07:18		07:49	16:07-16:38/31
	21:04	19:59-20:25/26	20:34		19:44		18:54	08:02-08:31/29	17:14		17:04	
15	06:12	06:34-07:02/28	06:41	19:32-19:46/14	07:12	07:35-08:04/29	07:43	17:51-18:30/39	07:19		07:49	16:08-16:38/30
	21:04	19:59-20:26/27	20:33		19:42		18:52	08:03-08:31/28	17:14		17:04	
16	06:12	06:35-07:02/27	06:42	19:30-19:49/19	07:13	07:34-08:04/30	07:44	17:50-18:28/38	07:20		07:50	16:08-16:39/31
	21:03	19:59-20:27/28	20:32		19:41		18:51	08:04-08:31/27	17:13		17:04	
17	06:13	06:36-07:02/26	06:43	19:28-19:50/22	07:14	07:34-08:04/30	07:45	17:49-18:26/37	07:21		07:51	16:08-16:38/30
	21:03	19:59-20:28/29	20:30		19:39		18:49	08:05-08:31/26	17:12		17:04	
18	06:14	06:36-07:02/26	06:44	19:27-19:51/24	07:15	07:35-08:04/29	07:46	17:47-18:25/38	07:22		07:52	16:09-16:39/30
	21:02	19:58-20:28/30	20:29		19:37		18:48	08:06-08:31/25	17:11		17:05	
19	06:15	06:37-07:02/25	06:45	19:25-19:52/27	07:16	07:35-08:03/28	07:47	17:46-18:23/37	07:23		07:52	16:09-16:39/30
	21:01	19:58-20:28/30	20:27		19:35		18:46	08:07-08:31/24	17:10		17:05	
20	06:16	06:38-07:02/24	06:46	19:24-19:53/29	07:17	07:36-08:02/26	07:48	17:46-18:22/36	07:25	16:11-16:20/9	07:53	16:10-16:40/30
	21:01	19:57-20:29/32	20:26		19:34		18:45	08:09-08:31/22	17:10		17:06	
21	06:17	06:39-07:01/22	06:47	19:23-19:54/31	07:18	07:37-08:02/25	07:49	17:45-18:21/36	07:26	16:10-16:23/13	07:53	16:10-16:39/29
	21:00	19:57-20:29/32	20:24		19:32		18:43	08:10-08:30/20	17:09		17:06	
22	06:18	06:40-07:01/21	06:48	19:22-19:54/32	07:19	07:38-08:01/23	07:50	17:44-18:19/35	07:27	16:08-16:25/17	07:54	16:11-16:40/29
	20:59	19:57-20:30/33	20:23		19:30		18:42	08:11-08:29/18	17:08		17:07	
23	06:18	06:41-07:01/20	06:49	19:22-19:54/32	07:20	07:39-08:00/21	07:52	17:44-18:17/33	07:28	16:07-16:26/19	07:54	16:11-16:41/30
	20:58	19:57-20:30/33	20:21		19:29		18:40	08:12-08:28/16	17:08		17:07	
24	06:19	06:41-06:59/18	06:50	19:20-19:53/33	07:21	07:40-07:59/19	07:53	17:43-18:16/33	07:29	16:06-16:27/21	07:55	16:12-16:42/30
	20:58	19:56-20:30/34	20:20		19:27		18:39	08:13-08:27/14	17:07		17:08	
25	06:20	06:42-06:59/17	06:51	19:19-19:53/34	07:22	07:41-07:57/16	07:54	17:44-18:15/31	07:30	16:05-16:28/23	07:55	16:12-16:42/30
	20:57	19:56-20:30/34	20:18		19:25		18:38	08:15-08:27/12	17:07		17:08	
26	06:21	06:43-06:58/15	06:52	19:19-19:53/34	07:23	07:42-07:55/13	07:55	17:44-18:13/29	07:32	16:05-16:30/25	07:56	16:12-16:42/30
	20:56	19:56-20:30/34	20:17		19:23		18:36	08:16-08:25/9	17:06		17:09	
27	06:22	06:44-06:57/13	06:53	19:19-19:51/32	07:24	07:43-07:53/10	07:56	17:44-18:12/28	07:33	16:04-16:31/27	07:56	16:13-16:44/31
	20:55	19:56-20:30/34	20:15		19:22		18:35	08:17-08:22/5	17:06		17:10	
28	06:23	06:45-06:56/11	06:54	19:19-19:50/31	07:25	07:44-07:49/5	07:57	17:44-18:10/26	07:34	16:04-16:32/28	07:56	16:13-16:44/31
	20:54	19:56-20:29/33	20:14		19:20		18:34		17:05		17:10	
29	06:24	06:46-06:55/9	06:55	19:19-19:48/29	07:26		07:58	17:44-18:08/24	07:35	16:04-16:32/28	07:56	16:14-16:44/30
	20:53	19:56-20:29/33	20:12		19:18		18:32		17:05		17:11	
30	06:25	06:47-06:53/6	06:56	19:19-19:47/28	07:27		08:00	17:45-18:08/23	07:36	16:03-16:33/30	07:57	16:14-16:45/31
	20:52	19:57-20:28/31	20:10		19:17		18:31		17:05		17:12	
31	06:26	06:48-06:49/1	06:57	19:19-19:45/26			08:01	17:46-18:06/20			07:57	16:14-16:46/32
	20:51	19:57-20:27/30	20:09				18:30				17:12	
Potential sun hours	459		428		375		345		298		288	
Sum of minutes with flicker		1518		703		540		1488		300		958

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T65 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (166)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June
1	07:57	08:20-09:14/54	07:43	08:29-08:52/23	07:07	07:29-07:50/21	07:16		06:31	07:12-07:56/44	06:02
	17:13		17:48		18:22		19:56		20:27		20:57
2	07:57	08:20-09:14/54	07:42	08:31-08:51/20	07:06	07:25-07:52/27	07:15		06:29	07:13-07:55/42	06:01
	17:14		17:49		18:23		19:57		20:28		20:57
3	07:57	08:20-09:14/54	07:41	08:34-08:48/14	07:04	07:24-07:54/30	07:13		06:28	07:14-07:54/40	06:01
	17:15		17:50		18:24		19:58		20:29		20:58
4	07:57	08:20-09:14/54	07:40	08:38-08:44/6	07:03	07:22-07:56/34	07:11		06:27	07:15-07:53/38	06:01
	17:16		17:52		18:25		19:59		20:30		20:59
5	07:57	08:20-09:13/53	07:39		07:01	07:20-07:57/37	07:10	07:33-07:49/16	06:25	07:15-07:51/36	06:00
	17:17		17:53		18:27		20:00		20:31		21:00
6	07:57	08:19-09:12/53	07:38		06:59	07:19-07:58/39	07:08	07:29-07:52/23	06:24	07:16-07:50/34	06:00
	17:18		17:54		18:28		20:00		20:32		21:00
7	07:57	08:19-09:12/53	07:37		06:58	07:17-07:59/42	07:06	07:26-07:54/28	06:23	07:18-07:49/31	06:00
	17:19		17:55		18:29		20:01		20:33		21:01
8	07:57	08:19-09:12/53	07:36		07:56	08:15-08:59/44	07:05	07:24-07:56/32	06:22	07:19-07:47/28	05:59
	17:20		17:57		19:30		20:02		20:34		21:02
9	07:57	08:19-09:11/52	07:35		07:55	08:14-09:00/46	07:03	07:22-07:57/35	06:21	07:21-07:46/25	05:59
	17:21		17:58		19:31		20:03		20:35		21:02
10	07:57	08:19-09:12/53	07:34		07:53	08:13-09:00/47	07:02	07:21-07:59/38	06:20	07:23-07:43/20	05:59
	17:22		17:59		19:32		20:05		20:36		21:03
11	07:56	08:18-09:11/53	07:32		07:51	08:13-09:01/48	07:00	07:19-07:59/40	06:19	07:26-07:41/15	05:59
	17:23		18:00		19:33		20:06		20:37		21:03
12	07:56	08:18-09:11/53	07:31		07:50	08:12-09:01/49	06:58	07:17-08:00/43	06:17	07:30-07:36/6	05:59
	17:24		18:02		19:34		20:07		20:38		21:04
13	07:56	08:17-09:10/53	07:30		07:48	08:11-09:01/50	06:57	07:16-08:01/45	06:16		05:59
	17:25		18:03		19:36		20:08		20:39		21:04
14	07:56	08:17-09:09/52	07:29		07:46	08:11-09:01/50	06:55	07:15-08:01/46	06:15		05:59
	17:26		18:04		19:37		20:09		20:40		21:05
15	07:55	08:17-09:09/52	07:27		07:45	08:10-09:01/51	06:54	07:14-08:02/48	06:14		05:59
	17:27		18:05		19:38		20:10		20:41		21:05
16	07:55	08:17-09:08/51	07:26		07:43	08:10-09:00/50	06:52	07:13-08:01/48	06:13		05:59
	17:28		18:06		19:39		20:11		20:42		21:06
17	07:54	08:18-09:07/49	07:25		07:41	08:10-09:00/50	06:51	07:13-08:02/49	06:12		05:59
	17:30		18:08		19:40		20:12		20:43		21:06
18	07:54	08:18-09:05/47	07:23		07:40	08:10-08:59/49	06:49	07:12-08:02/50	06:12		05:59
	17:31		18:09		19:41		20:13		20:44		21:06
19	07:53	08:18-08:56/38	07:22		07:38	08:09-08:58/49	06:48	07:12-08:02/50	06:11		05:59
	17:32	08:57-09:00/3	18:10		19:42		20:14		20:45		21:07
20	07:53	08:19-08:57/38	07:20		07:36	08:09-08:57/48	06:46	07:11-08:01/50	06:10		05:59
	17:33		18:11		19:43		20:15		20:46		21:07
21	07:52	08:19-08:57/38	07:19		07:35	08:10-08:57/47	06:45	07:11-08:02/51	06:09		05:59
	17:34		18:13		19:44		20:16		20:47		21:07
22	07:51	08:19-08:57/38	07:18		07:33	08:10-08:56/46	06:43	07:10-08:01/51	06:08		05:59
	17:36		18:14		19:45		20:17		20:48		21:08
23	07:51	08:21-08:57/36	07:16		07:31	08:10-08:54/44	06:42	07:11-08:01/50	06:07		06:00
	17:37		18:15		19:46		20:18		20:49		21:08
24	07:50	08:21-08:57/36	07:15		07:30	08:11-08:54/43	06:40	07:11-08:01/50	06:07		06:00
	17:38		18:16		19:47		20:19		20:50		21:08
25	07:49	08:21-08:57/36	07:13		07:28	08:12-08:52/40	06:39	07:10-08:00/50	06:06		06:00
	17:39		18:17		19:49		20:21		20:51		21:08
26	07:49	08:22-08:56/34	07:12		07:26	08:12-08:50/38	06:37	07:11-08:00/49	06:05		06:01
	17:40		18:18		19:50		20:22		20:52		21:08
27	07:48	08:23-08:56/33	07:10		07:25	08:14-08:49/35	06:36	07:10-07:58/48	06:05		06:01
	17:42		18:20		19:51		20:23		20:53		21:08
28	07:47	08:24-08:56/32	07:09	07:33-07:45/12	07:23	08:15-08:47/32	06:35	07:11-07:58/47	06:04		06:01
	17:43		18:21		19:52		20:24		20:53		21:08
29	07:46	08:25-08:55/30			07:21	08:17-08:44/27	06:33	07:11-07:58/47	06:03		06:02
	17:44				19:53		20:25		20:54		21:08
30	07:45	08:26-08:55/29			07:20	08:19-08:41/22	06:32	07:12-07:57/45	06:03		06:02
	17:45				19:54		20:26		20:55		21:08
31	07:44	08:28-08:54/26			07:18	08:23-08:37/14			06:02		
	17:47				19:55				20:56		
Potential sun hours	297		297		370		399		448		452
Sum of minutes with flicker		1390		75		1249		1129		359	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T65 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (166)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August		September		October		November		December	
1	06:03	06:27	07:38-07:49/11	06:58	07:18-07:58/40	07:28	07:50-08:40/50	07:02		07:37	08:00-08:53/53
	21:08	20:50		20:07		19:15		17:28		17:04	
2	06:03	06:28	07:35-07:52/17	06:59	07:19-07:57/38	07:29	07:50-08:39/49	07:03		07:38	08:01-08:54/53
	21:08	20:49		20:06		19:13		17:27		17:04	
3	06:04	06:29	07:32-07:54/22	07:00	07:20-07:55/35	07:30	07:51-08:39/48	07:04		07:39	08:02-08:54/52
	21:08	20:48		20:04		19:12		17:26		17:04	
4	06:04	06:30	07:30-07:56/26	07:01	07:21-07:53/32	07:31	07:52-08:38/46	07:06		07:40	08:03-08:56/53
	21:08	20:47		20:02		19:10		17:25		17:03	
5	06:05	06:31	07:28-07:57/29	07:02	07:23-07:51/28	07:32	07:52-08:37/45	07:07		07:41	08:04-08:57/53
	21:08	20:46		20:01		19:08		17:24		17:03	
6	06:05	06:32	07:27-07:59/32	07:03	07:25-07:48/23	07:33	07:53-08:36/43	07:08		07:42	08:05-08:58/53
	21:07	20:44		19:57		19:07		17:22		17:03	
7	06:06	06:33	07:25-08:00/35	07:04	07:28-07:44/16	07:34	07:54-08:34/40	07:09	08:07-08:15/8	07:43	08:06-08:59/53
	21:07	20:43		19:56		19:05		17:21		17:03	
8	06:07	06:34	07:24-08:01/37	07:05		07:35	07:55-08:33/38	07:10	08:03-08:19/16	07:44	08:07-09:01/54
	21:07	20:42		19:54		19:03		17:20		17:03	
9	06:07	06:35	07:23-08:02/39	07:05		07:36	07:56-08:31/35	07:11	08:01-08:21/20	07:45	08:08-09:02/54
	21:07	20:41		19:52		19:02		17:19		17:03	
10	06:08	06:36	07:22-08:03/41	07:06		07:37	07:57-08:29/32	07:13	08:00-08:23/23	07:45	08:09-09:03/54
	21:06	20:39		19:51		19:00		17:18		17:03	
11	06:09	06:37	07:21-08:04/43	07:07		07:38	07:58-08:27/29	07:14	07:59-08:25/26	07:46	08:10-09:04/54
	21:06	20:38		19:49		18:59		17:17		17:03	
12	06:09	06:38	07:20-08:04/44	07:08	08:15-08:28/13	07:39	08:00-08:24/24	07:15	07:57-08:26/29	07:47	08:11-09:05/54
	21:05	20:37		19:47		18:57		17:16		17:03	
13	06:10	06:39	07:20-08:05/45	07:09	08:11-08:32/21	07:40	08:03-08:20/17	07:16	07:57-08:27/30	07:48	08:11-09:05/54
	21:05	20:36		19:46		18:55		17:15		17:03	
14	06:11	06:40	07:19-08:06/47	07:10	08:08-08:35/27	07:41	08:09-08:15/6	07:17	07:56-08:28/32	07:49	08:12-09:05/53
	21:04	20:34		19:44		18:54		17:14		17:04	
15	06:12	06:41	07:18-08:06/48	07:11	08:05-08:35/30	07:42		07:19	07:56-08:29/33	07:49	08:13-09:06/53
	21:04	20:33		19:42		18:52		17:13		17:04	
16	06:12	06:42	07:18-08:06/48	07:12	08:03-08:37/34	07:44		07:20	07:55-08:29/34	07:50	08:14-09:07/53
	21:03	20:31		19:40		18:51		17:13		17:04	
17	06:13	06:43	07:17-08:06/49	07:13	08:01-08:38/37	07:45		07:21	07:55-08:31/36	07:51	08:14-09:07/53
	21:03	20:30		19:39		18:49		17:12		17:04	
18	06:14	06:44	07:17-08:07/50	07:14	07:59-08:39/40	07:46		07:22	07:55-08:31/36	07:51	08:15-09:08/53
	21:02	20:29		19:37		18:48		17:11		17:05	
19	06:15	06:45	07:17-08:07/50	07:15	07:58-08:40/42	07:47		07:23	07:55-08:31/36	07:52	08:15-09:08/53
	21:01	20:27		19:35		18:46		17:10		17:05	
20	06:16	06:46	07:16-08:07/51	07:16	07:57-08:40/43	07:48		07:25	07:54-08:32/38	07:53	08:16-09:09/53
	21:01	20:26		19:34		18:45		17:10		17:06	
21	06:17	06:47	07:16-08:07/51	07:17	07:56-08:41/45	07:49		07:26	07:55-08:33/38	07:53	08:16-09:09/53
	21:00	20:24		19:32		18:43		17:09		17:06	
22	06:17	06:48	07:16-08:06/50	07:18	07:55-08:41/46	07:50		07:27	07:55-08:33/38	07:54	08:17-09:10/53
	20:59	20:23		19:30		18:42		17:08		17:06	
23	06:18	06:49	07:16-08:06/50	07:19	07:54-08:42/48	07:51		07:28	07:55-08:33/38	07:54	08:17-09:10/53
	20:58	20:21		19:28		18:40		17:08	08:34-08:37/3	17:07	
24	06:19	06:50	07:15-08:05/50	07:20	07:53-08:42/49	07:53		07:29	07:55-08:42/47	07:55	08:18-09:11/53
	20:58	20:20		19:27		18:39		17:07		17:08	
25	06:20	06:51	07:15-08:04/49	07:21	07:52-08:42/50	07:54		07:30	07:55-08:44/49	07:55	08:18-09:11/53
	20:57	20:18		19:25		18:38		17:07		17:08	
26	06:21	06:52	07:15-08:04/49	07:22	07:52-08:42/50	07:55		07:31	07:56-08:47/51	07:55	08:18-09:11/53
	20:56	20:17		19:23		18:36		17:06		17:09	
27	06:22	06:53	07:15-08:03/48	07:24	07:51-08:41/50	07:56		07:33	07:56-08:48/52	07:56	08:19-09:12/53
	20:55	20:15		19:22		18:35		17:06		17:09	
28	06:23	06:54	07:15-08:02/47	07:25	07:51-08:41/50	07:57		07:34	07:57-08:49/52	07:56	08:19-09:12/53
	20:54	20:14		19:20		18:33		17:05		17:10	
29	06:24	06:55	07:16-08:02/46	07:26	07:51-08:41/50	07:58		07:35	07:58-08:51/53	07:56	08:19-09:12/53
	20:53	20:12		19:18		18:32		17:05		17:11	
30	06:25	06:56	07:16-08:01/45	07:27	07:50-08:40/50	08:00		07:36	07:59-08:52/53	07:57	08:19-09:13/54
	20:52	20:10		19:17		18:31		17:04		17:12	
31	06:26	06:57	07:17-08:00/43			08:01				07:57	08:19-09:13/54
	20:51	20:09				18:30				17:12	
Potential sun hours	459	428		375		345		298		288	
Sum of minutes with flicker	0		1292		987		502		871		1650

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T66a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (177)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June	
1	07:57	08:37-09:56/79	07:43	08:47-10:02/75	07:07	17:04-17:42/38	07:16	19:13-19:33/20	06:30	19:29-19:48/19	06:02	19:49-20:32/43
	17:13	15:54-16:45/51	17:48		18:22		19:56		20:27	19:10-19:23/13	20:56	
2	07:57	08:37-09:57/80	07:42	08:48-10:01/73	07:05	17:05-17:41/36	07:15	19:10-19:35/25	06:29	19:31-19:47/16	06:01	19:50-20:33/43
	17:14	15:55-16:46/51	17:49		18:23		19:57		20:28		20:57	
3	07:57	08:37-09:57/80	07:41	08:48-10:00/72	07:04	17:06-17:40/34	07:13	19:08-19:37/29	06:28	19:34-19:44/10	06:01	19:50-20:34/44
	17:15	15:57-16:46/49	17:50		18:24		19:58		20:29		20:58	
4	07:57	08:38-09:58/80	07:40	08:48-10:00/72	07:02	17:07-17:39/32	07:11	19:06-19:37/31	06:27		06:00	19:50-20:34/44
	17:16	15:58-16:47/49	17:51		18:25		19:59		20:30		20:59	
5	07:57	08:38-09:58/80	07:39	08:49-09:59/70	07:01	17:08-17:37/29	07:10	19:04-19:38/34	06:25		06:00	19:50-20:35/45
	17:17	16:00-16:47/47	17:53		18:26		20:00		20:31		20:59	
6	07:57	08:39-09:58/79	07:38	08:50-09:59/69	06:59	17:10-17:34/24	07:08	19:03-19:40/37	06:24		06:00	19:50-20:36/46
	17:18	16:02-16:48/46	17:54		18:28		20:00		20:32		21:00	
7	07:57	08:39-09:59/80	07:37	08:51-09:58/67	06:58	17:13-17:32/19	07:06	19:01-19:40/39	06:23		06:00	19:50-20:36/46
	17:19	16:05-16:48/43	17:55	17:17-17:31/14	18:29		20:01		20:33		21:01	
8	07:57	08:39-10:00/81	07:36	08:52-09:57/65	07:56	18:17-18:27/10	07:05	19:01-19:42/41	06:22		05:59	19:50-20:36/46
	17:20	16:08-16:49/41	17:56	17:14-17:33/19	19:30		20:02		20:34		21:01	
9	07:57	08:40-10:00/80	07:35	08:53-09:56/63	07:54		07:03	18:59-19:42/43	06:21		05:59	19:51-20:37/46
	17:21	16:09-16:50/41	17:58	17:12-17:35/23	19:31		20:03		20:35		21:02	
10	07:57	08:39-10:00/81	07:33	08:53-09:55/62	07:53		07:01	18:58-19:42/44	06:19	20:06-20:12/6	05:59	19:51-20:38/47
	17:22	16:09-16:49/40	17:59	17:10-17:35/25	19:32		20:04		20:36		21:03	
11	07:56	08:40-10:00/80	07:32	08:55-09:54/59	07:51		07:00	18:58-19:45/47	06:18	20:02-20:15/13	05:59	19:52-20:38/46
	17:23	16:09-16:50/41	18:00	17:09-17:37/28	19:33		20:05		20:37		21:03	
12	07:56	08:41-10:01/80	07:31	08:56-09:53/57	07:50		06:58	18:57-19:45/48	06:17	19:59-20:16/17	05:59	19:52-20:39/47
	17:24	16:10-16:51/41	18:01	17:08-17:38/30	19:34		20:07		20:38		21:04	
13	07:56	08:40-10:00/80	07:30	08:57-09:51/54	07:48		06:57	18:57-19:47/50	06:16	19:58-20:17/19	05:59	19:52-20:39/47
	17:25	16:10-16:50/40	18:03	17:06-17:39/33	19:35		20:08		20:39		21:04	
14	07:55	08:41-10:01/80	07:28	08:58-09:49/51	07:46		06:55	18:56-19:47/51	06:15	19:56-20:17/21	05:58	19:52-20:40/48
	17:26	16:11-16:51/40	18:04	17:05-17:41/36	19:36		20:09		20:40		21:05	
15	07:55	08:41-10:01/80	07:27	09:00-09:47/47	07:45		06:54	18:57-19:49/52	06:14	19:55-20:18/23	05:58	19:53-20:40/47
	17:27	16:11-16:51/40	18:05	17:05-17:42/37	19:38		20:10		20:41		21:05	
16	07:55	08:41-10:01/80	07:26	09:02-09:46/44	07:43		06:52	18:56-19:50/54	06:13	19:54-20:19/25	05:58	19:53-20:41/48
	17:28	16:12-16:52/40	18:06	17:03-17:43/40	19:39		20:11		20:42		21:06	
17	07:54	08:41-10:01/80	07:24	09:03-09:43/40	07:41		06:50	18:55-19:50/55	06:12	19:53-20:20/27	05:59	19:53-20:41/48
	17:29	16:12-16:51/39	18:08	17:03-17:45/42	19:40		20:12		20:43		21:06	
18	07:54	08:42-10:01/79	07:23	09:06-09:40/34	07:40		06:49	18:56-19:52/56	06:11	19:52-20:21/29	05:59	19:53-20:41/48
	17:31	16:13-16:52/39	18:09	17:03-17:46/43	19:41		20:13		20:44		21:06	
19	07:53	08:42-10:01/79	07:22	09:09-09:36/27	07:38		06:47	18:57-19:52/55	06:11	19:51-20:21/30	05:59	19:53-20:41/48
	17:32	16:14-16:51/37	18:10	17:02-17:45/43	19:42		20:14		20:45		21:07	
20	07:53	08:43-10:02/79	07:20	09:13-09:32/19	07:36		06:46	18:56-19:53/57	06:10	19:50-20:22/32	05:59	19:53-20:41/48
	17:33	16:15-16:52/37	18:11	17:02-17:46/44	19:43		20:15		20:46		21:07	
21	07:52	08:43-10:02/79	07:19	17:02-17:46/44	07:35		06:44	18:57-19:55/58	06:09	19:51-20:24/33	05:59	19:53-20:41/48
	17:34	16:15-16:52/37	18:12		19:44		20:16		20:47		21:07	
22	07:51	08:43-10:01/78	07:17	17:02-17:46/44	07:33		06:43	18:57-19:55/58	06:08	19:50-20:24/34	05:59	19:54-20:42/48
	17:35	16:16-16:51/35	18:14		19:45		20:17		20:48		21:07	
23	07:51	08:43-10:01/78	07:16	17:02-17:46/44	07:31		06:41	18:58-19:56/58	06:07	19:49-20:25/36	05:59	19:54-20:42/48
	17:37	16:16-16:50/34	18:15		19:46		20:18		20:49		21:08	
24	07:50	08:44-10:02/78	07:15	17:02-17:45/43	07:30		06:40	18:58-19:55/57	06:07	19:50-20:26/36	06:00	19:54-20:42/48
	17:38	16:18-16:51/33	18:16		19:47		20:19		20:50		21:08	
25	07:49	08:44-10:02/78	07:13	17:03-17:46/43	07:28		06:39	18:59-19:54/55	06:06	19:49-20:27/38	06:00	19:54-20:42/48
	17:39	16:19-16:50/31	18:17		19:48		20:20		20:51		21:08	
26	07:48	08:44-10:02/78	07:12	17:02-17:45/43	07:26		06:37	19:01-19:54/53	06:05	19:49-20:27/38	06:00	19:55-20:43/48
	17:40	16:20-16:49/29	18:18		19:49		20:21		20:52		21:08	
27	07:48	08:44-10:02/78	07:10	17:03-17:45/42	07:25		06:36	19:01-19:53/52	06:04	19:49-20:29/40	06:01	19:55-20:42/47
	17:41	16:21-16:48/27	18:19		19:51		20:22		20:52		21:08	
28	07:47	08:45-10:02/77	07:09	17:03-17:43/40	07:23		06:34	19:03-19:52/49	06:04	19:49-20:29/40	06:01	19:55-20:43/48
	17:43	16:23-16:47/24	18:21		19:52		20:24		20:53		21:08	
29	07:46	08:45-10:02/77			07:21		06:33	19:05-19:51/46	06:03	19:49-20:30/41	06:02	19:55-20:43/48
	17:44	16:25-16:46/21			19:53		20:25		20:54		21:08	
30	07:45	08:46-10:02/76			07:19		06:32	19:27-19:49/22	06:03	19:49-20:30/41	06:02	19:55-20:42/47
	17:45	16:27-16:44/17			19:54		20:26	19:06-19:26/20	20:55		21:08	
31	07:44	08:47-10:02/75			07:18	19:18-19:30/12			06:02	19:49-20:32/43		
	17:46	16:31-16:40/9			19:55				20:56			
Potential sun hours	297		297		370		399		448		452	
Sum of minutes with flicker		3598		1920		234		1396		720		1403

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T66a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (177)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:02	19:56-20:43/47	06:27	20:10-20:25/15	06:57	18:57-19:43/46	07:27		07:02	08:23-09:25/62	07:37	08:22-09:42/80
	21:08		20:50		20:07		19:15		17:28	16:40-17:05/25	17:04	15:52-16:32/40
2	06:03	19:55-20:42/47	06:27	20:13-20:24/11	06:58	18:57-19:41/44	07:28		07:03	08:22-09:25/63	07:38	08:22-09:43/81
	21:08		20:49		20:05		19:13		17:27	16:41-17:03/22	17:04	15:52-16:32/40
3	06:03	19:56-20:42/46	06:28		06:59	18:57-19:40/43	07:30		07:04	08:22-09:27/65	07:39	08:23-09:43/80
	21:08		20:48		20:04		19:11		17:26	16:44-17:03/19	17:03	15:52-16:33/41
4	06:04	19:56-20:42/46	06:29		07:00	18:58-19:39/41	07:31		07:05	08:21-09:28/67	07:40	08:23-09:44/81
	21:08		20:46		20:02		19:10		17:25	16:47-17:00/13	17:03	15:52-16:33/41
5	06:05	19:56-20:42/46	06:30		07:01	18:58-19:37/39	07:32		07:07	08:20-09:29/69	07:41	08:24-09:44/80
	21:07		20:45		20:00		19:08		17:23		17:03	15:50-16:33/43
6	06:05	19:57-20:42/45	06:31		07:02	18:59-19:36/37	07:33	17:50-18:06/16	07:08	08:19-09:29/70	07:42	08:25-09:45/80
	21:07		20:44		19:57		19:06		17:22		17:03	15:48-16:34/46
7	06:06	19:56-20:41/45	06:32		07:03	19:00-19:34/34	07:34	17:48-18:09/21	07:09	08:19-09:31/72	07:43	08:25-09:45/80
	21:07		20:43		19:55		19:05		17:21		17:03	15:47-16:34/47
8	06:06	19:57-20:41/44	06:33		07:04	19:01-19:32/31	07:35	17:45-18:11/26	07:10	08:18-09:31/73	07:43	08:26-09:46/80
	21:07		20:42		19:54		19:03		17:20		17:03	15:46-16:35/49
9	06:07	19:56-20:40/44	06:34	19:46-19:49/3	07:05	19:01-19:30/29	07:36	17:43-18:13/30	07:11	08:18-09:31/73	07:44	08:26-09:46/80
	21:06		20:41		19:52		19:02		17:19		17:03	15:46-16:35/49
10	06:08	19:57-20:40/43	06:35	19:41-19:54/13	07:06	19:03-19:28/25	07:37	17:41-18:14/33	07:13	08:18-09:33/75	07:45	08:27-09:47/80
	21:06		20:39		19:50		19:00		17:18		17:03	15:45-16:36/51
11	06:08	19:57-20:40/43	06:36	19:39-19:56/17	07:07	19:05-19:26/21	07:38	17:39-18:15/36	07:14	08:18-09:33/75	07:46	08:28-09:47/79
	21:06		20:38	19:22-19:28/6	19:49		18:58		17:17	16:02-16:13/11	17:03	15:45-16:36/51
12	06:09	19:58-20:40/42	06:37	19:37-19:57/20	07:08	19:08-19:22/14	07:39	17:38-18:15/37	07:15	08:17-09:33/76	07:47	08:28-09:47/79
	21:05		20:37	19:17-19:33/16	19:47		18:57		17:16	15:59-16:16/17	17:03	15:44-16:36/52
13	06:10	19:57-20:39/42	06:38	19:36-19:58/22	07:09		07:40	17:37-18:16/39	07:16	08:17-09:34/77	07:48	08:28-09:48/80
	21:05		20:35	19:14-19:35/21	19:45		18:55		17:15	15:57-16:18/21	17:03	15:45-16:36/51
14	06:11	19:58-20:39/41	06:39	19:12-19:59/47	07:10		07:41	17:36-18:16/40	07:17	08:18-09:35/77	07:48	08:29-09:48/79
	21:04		20:34		19:44		18:54		17:14	15:56-16:20/24	17:03	15:45-16:37/52
15	06:11	19:58-20:39/41	06:40	19:10-20:00/50	07:11		07:42	17:35-18:16/41	07:18	08:17-09:35/78	07:49	08:30-09:49/79
	21:04		20:33		19:42		18:52		17:13	15:54-16:21/27	17:04	15:45-16:38/53
16	06:12	19:59-20:38/39	06:41	19:09-20:01/52	07:12		07:43	17:35-18:17/42	07:20	08:17-09:35/78	07:50	08:30-09:49/79
	21:03		20:31		19:40		18:51		17:12	15:53-16:22/29	17:04	15:45-16:37/52
17	06:13	19:58-20:37/39	06:42	19:07-20:01/54	07:13		07:45	17:34-18:17/43	07:21	08:17-09:35/78	07:51	08:31-09:50/79
	21:02		20:30		19:39		18:49		17:12	15:52-16:23/31	17:04	15:45-16:38/53
18	06:14	19:59-20:37/38	06:43	19:06-20:00/54	07:14		07:46	17:33-18:17/44	07:22	08:18-09:36/78	07:51	08:32-09:50/78
	21:02		20:28		19:37		18:47		17:11	15:52-16:25/33	17:05	15:46-16:39/53
19	06:15	19:59-20:36/37	06:44	19:04-20:00/56	07:15		07:47	17:33-18:17/44	07:23	08:18-09:36/78	07:52	08:32-09:50/78
	21:01		20:27		19:35		18:46		17:10	15:51-16:25/34	17:05	15:46-16:39/53
20	06:16	20:00-20:36/36	06:45	19:03-20:00/57	07:16		07:48	17:32-18:16/44	07:24	08:18-09:37/79	07:52	08:33-09:51/78
	21:00		20:26		19:33		18:44		17:09	15:51-16:26/35	17:05	15:47-16:40/53
21	06:16	20:00-20:35/35	06:46	19:02-20:00/58	07:17		07:49	09:48-09:56/8	07:26	08:18-09:37/79	07:53	08:33-09:51/78
	21:00		20:24		19:32		18:43	17:32-18:16/44	17:09	15:50-16:27/37	17:06	15:47-16:39/52
22	06:17	20:00-20:34/34	06:47	19:01-19:59/58	07:18		07:50	09:42-10:04/22	07:27	08:19-09:38/79	07:54	08:34-09:52/78
	20:59		20:23		19:30		18:42	17:33-18:17/44	17:08	15:51-16:28/37	17:06	15:48-16:40/52
23	06:18	20:01-20:33/32	06:48	19:00-19:57/57	07:19		07:51	09:38-10:08/30	07:28	08:19-09:38/79	07:54	08:34-09:52/78
	20:58		20:21		19:28		18:40	17:33-18:16/43	17:08	15:51-16:28/37	17:07	15:48-16:40/52
24	06:19	20:01-20:32/31	06:49	18:59-19:56/57	07:20		07:52	09:35-10:11/36	07:29	08:19-09:38/79	07:54	08:35-09:53/78
	20:57		20:20		19:27		18:39	17:33-18:15/42	17:07	15:50-16:29/39	17:07	15:49-16:42/53
25	06:20	20:02-20:32/30	06:50	18:59-19:54/55	07:21		07:54	09:33-10:13/40	07:30	08:19-09:39/80	07:55	08:35-09:53/78
	20:57		20:18		19:25		18:37	17:33-18:14/41	17:06	15:50-16:29/39	17:08	15:49-16:42/53
26	06:21	20:03-20:31/28	06:51	18:58-19:53/55	07:22		07:55	09:31-10:16/45	07:31	08:19-09:39/80	07:55	08:35-09:54/79
	20:56		20:16		19:23		18:36	17:34-18:13/39	17:06	15:50-16:30/40	17:09	15:49-16:42/53
27	06:22	20:04-20:30/26	06:52	18:58-19:51/53	07:23		07:56	09:29-10:18/49	07:32	08:21-09:41/80	07:56	08:36-09:55/79
	20:55		20:15		19:21		18:35	17:35-18:12/37	17:05	15:51-16:31/40	17:09	15:50-16:42/52
28	06:23	20:05-20:29/24	06:53	18:58-19:50/52	07:24		07:57	09:28-10:19/51	07:33	08:21-09:41/80	07:56	08:36-09:55/79
	20:54		20:13		19:20		18:33	17:35-18:10/35	17:05	15:51-16:31/40	17:10	15:51-16:43/52
29	06:24	20:06-20:29/23	06:54	18:57-19:48/51	07:25		07:58	09:26-10:20/54	07:35	08:21-09:41/80	07:56	08:36-09:55/79
	20:53		20:12		19:18		18:32	17:36-18:09/33	17:05	15:51-16:32/41	17:11	15:52-16:44/52
30	06:25	20:07-20:28/21	06:55	18:57-19:47/50	07:26		07:59	09:25-10:23/58	07:36	08:22-09:42/80	07:56	08:36-09:56/80
	20:52		20:10		19:16		18:31	17:37-18:07/30	17:04	15:51-16:32/41	17:11	15:52-16:44/52
31	06:26	20:08-20:26/18	06:56	18:57-19:45/48			08:01	09:24-10:24/60			07:57	08:37-09:56/79
	20:51		20:09				18:29	17:39-18:06/27			17:12	15:53-16:44/51
Potential sun hours	459		428		375		345		298		288	
Sum of minutes with flicker		1153		1108		404		1404		2991		3999

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T67 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (167)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June
1	07:57 08:19-08:36/17 17:13	07:43 16:58-17:21/23 17:48 08:24-08:40/16	07:07 07:27-07:52/25 18:22	07:16 07:35-08:18/43 19:56	06:30 19:39-20:04/25 20:27 06:50-07:24/34	06:02 20:07-20:27/20 20:57
2	07:57 08:19-08:37/18 17:14	07:42 16:59-17:20/21 17:49 08:27-08:38/11	07:06 07:25-07:52/27 18:23	07:15 07:34-08:17/43 19:57	06:29 19:41-20:06/25 20:28 06:49-07:24/35	06:01 20:08-20:27/19 20:57
3	07:57 08:19-08:37/18 17:15	07:41 17:00-17:20/20 17:50	07:04 07:23-07:52/29 18:24	07:13 07:32-08:15/43 19:58	06:28 19:45-20:07/22 20:29 06:49-07:24/35	06:01 20:09-20:27/18 20:58
4	07:57 08:19-08:38/19 17:16	07:40 17:02-17:19/17 17:51	07:02 07:22-07:52/30 18:25	07:11 07:30-08:12/42 19:59	06:27 19:45-20:07/22 20:30 06:48-07:23/35	06:01 20:09-20:26/17 20:59
5	07:57 08:19-08:39/20 17:17	07:39 07:59-08:04/5 17:53 17:03-17:18/15	07:01 07:20-07:52/32 18:26	07:10 07:30-08:10/40 20:00	06:25 19:45-20:08/23 20:31 06:48-07:22/34	06:00 20:10-20:26/16 20:59
6	07:57 08:19-08:40/21 17:18	07:38 07:58-08:07/9 17:54 17:06-17:16/10	06:59 07:19-07:52/33 18:28	07:08 07:29-07:59/30 19:35-19:40/5 20:00 08:01-08:03/2	06:24 19:45-20:09/24 20:32 06:49-07:22/33	06:00 20:11-20:26/15 21:00
7	07:57 08:19-08:40/21 17:19	07:37 07:57-08:09/12 17:55	06:58 07:17-07:51/34 18:29	07:06 07:29-07:58/29 20:01 19:32-19:40/8	06:23 19:46-20:09/23 20:33 06:50-07:21/31	06:00 20:11-20:25/14 21:01
8	07:57 08:19-08:41/22 17:20	07:36 07:56-08:11/15 17:56	07:56 08:15-08:50/35 19:30	07:05 07:30-07:57/27 20:02 19:31-19:42/11	06:22 19:47-20:08/21 20:34 06:50-07:20/30	05:59 20:12-20:25/13 21:01
9	07:57 08:19-08:42/23 17:21	07:35 07:55-08:13/18 17:58	07:54 08:14-08:50/36 19:31	07:03 07:30-07:56/26 20:03 19:29-19:42/13	06:21 19:48-20:07/19 20:12-20:13/1 20:35 06:51-07:19/28	05:59 20:14-20:24/10 21:02
10	07:57 08:18-08:42/24 17:22	07:33 07:53-08:13/20 17:59	07:53 08:12-08:49/37 19:32	07:01 07:31-07:54/23 20:04 19:28-19:43/15	06:20 19:49-20:06/17 20:10-20:14/4 20:36 06:52-07:18/26	05:59 20:15-20:24/9 21:03
11	07:56 08:18-08:43/25 17:23	07:32 07:52-08:14/22 18:00	07:51 08:10-08:47/37 19:33	07:00 07:33-07:53/20 20:05 19:28-19:45/17	06:18 19:50-20:05/15 20:09-20:15/6 20:37 06:53-07:17/24	05:59 20:16-20:23/7 21:03
12	07:56 08:18-08:44/26 17:24	07:31 07:51-08:15/24 18:01 17:34-17:38/4	07:50 08:09-08:46/37 19:34	06:58 07:34-07:50/16 07:17-07:22/5 20:07 19:27-19:45/18	06:17 19:52-20:03/11 20:07-20:16/9 20:38 06:54-07:15/21	05:59 20:18-20:22/4 21:04
13	07:56 08:17-08:44/27 17:25	07:30 07:50-08:16/26 18:03 17:32-17:39/7	07:48 08:08-08:44/36 19:35 19:13-19:14/1	06:57 07:37-07:47/10 07:16-07:25/9 20:08 19:27-19:47/20	06:16 19:54-20:01/7 20:06-20:17/11 20:39 06:56-07:13/17	05:59 21:04
14	07:55 08:17-08:45/28 17:26	07:28 07:48-08:16/28 18:04 17:31-17:41/10	07:46 08:05-08:41/36 19:36 19:09-19:15/6	06:55 07:14-07:27/13 20:09 19:26-19:47/21	06:15 06:57-07:11/14 20:40 20:06-20:17/11	05:59 21:05
15	07:55 08:16-08:44/28 17:27	07:27 07:47-08:16/29 18:05 17:30-17:42/12	07:45 08:04-08:39/35 19:38 19:07-19:17/10	06:54 07:13-07:28/15 20:10 19:27-19:49/22	06:14 07:00-07:08/8 20:41 20:05-20:18/13	05:58 21:05
16	07:55 17:00-17:03/3 17:28 08:16-08:45/29	07:26 07:46-08:17/31 18:06 17:28-17:43/15	07:43 08:02-08:38/36 19:39 19:05-19:17/12	06:52 07:11-07:29/18 20:11 19:26-19:50/24	06:13 20:04-20:19/15 20:42	05:58 21:06
17	07:54 16:59-17:04/5 17:29 08:15-08:45/30	07:24 07:44-08:16/32 18:08 17:28-17:45/17	07:41 08:00-08:37/37 19:40 19:03-19:18/15	06:50 07:10-07:30/20 20:12 19:26-19:50/24	06:12 20:04-20:20/16 20:43	05:59 21:06
18	07:54 16:59-17:05/6 17:31 08:15-08:46/31	07:23 07:45-08:16/31 18:09 17:28-17:46/18	07:40 07:59-08:36/37 19:41 19:03-19:20/17	06:49 07:08-07:30/22 20:13 19:27-19:52/25	06:11 20:04-20:21/17 20:44	05:59 21:06
19	07:53 16:58-17:06/8 17:32 08:14-08:46/32	07:22 07:44-08:15/31 18:10 17:27-17:47/20	07:38 07:57-08:34/37 19:42 19:01-19:21/20	06:47 07:07-07:31/24 20:14 19:29-19:53/24	06:11 20:03-20:21/18 20:45	05:59 21:07
20	07:53 16:58-17:08/10 17:33 08:14-08:47/33	07:20 07:45-08:15/30 18:11 17:27-17:49/22	07:36 07:55-08:32/37 19:43 19:01-19:21/20	06:46 07:05-07:31/26 20:15 19:29-19:53/24	06:10 20:03-20:22/19 20:46	05:59 21:07
21	07:52 16:57-17:09/12 17:34 08:14-08:46/32	07:19 07:46-08:15/29 18:12 17:27-17:50/23	07:35 07:54-08:30/36 19:44 19:01-19:23/22	06:44 07:04-07:31/27 20:16 19:30-19:55/25	06:09 20:04-20:24/20 20:47	05:59 21:07
22	07:51 16:57-17:10/13 17:35 08:14-08:46/32	07:17 07:46-08:13/27 17:28-17:51/23 18:14 07:37-07:42/5	07:33 07:52-08:25/33 19:45 19:00-19:24/24	06:43 07:02-07:30/28 20:17 19:30-19:55/25	06:08 20:04-20:24/20 20:48	05:59 21:07
23	07:51 16:56-17:11/15 17:37 08:15-08:46/31	07:16 07:47-08:13/26 17:28-17:52/24 18:15 07:36-07:46/10	07:31 07:50-08:24/34 19:46 19:00-19:25/25	06:41 19:31-19:57/26 20:18 07:01-07:31/30	06:07 20:03-20:25/22 20:49	06:00 21:08
24	07:50 16:57-17:13/16 17:38 08:16-08:46/30	07:15 07:48-08:11/23 17:28-17:51/23 18:16 07:34-07:47/13	07:30 07:49-08:25/36 19:47 19:00-19:24/24	06:40 19:31-19:57/26 20:19 06:59-07:30/31	06:07 20:04-20:26/22 20:50	06:00 21:08
25	07:49 16:57-17:14/17 17:39 08:16-08:45/29	07:13 07:50-08:09/19 17:30-17:50/20 18:17 07:33-07:49/16	07:28 07:47-08:24/37 19:48 19:01-19:24/23	06:39 19:33-19:59/26 20:20 06:58-07:30/32	06:06 20:04-20:27/23 20:51	06:00 21:08
26	07:48 16:57-17:15/18 17:40 08:16-08:45/29	07:12 07:52-08:06/14 17:31-17:49/18 18:18 07:31-07:50/19	07:26 07:45-08:23/38 19:49 19:01-19:23/22	06:37 19:35-20:00/25 20:21 06:57-07:29/32	06:05 20:04-20:27/23 20:52	06:00 21:08
27	07:48 16:57-17:16/19 17:41 08:17-08:44/27	07:10 07:56-08:02/6 17:33-17:47/14 18:19 07:30-07:51/21	07:25 07:44-08:24/40 19:51 19:02-19:21/19	06:36 19:35-20:00/25 20:23 06:55-07:28/33	06:05 20:05-20:29/24 20:52	06:01 21:08
28	07:47 16:57-17:18/21 17:43 08:18-08:43/25	07:09 07:28-07:51/23 18:21 17:35-17:44/9	07:23 07:42-08:23/41 19:52 19:04-19:19/15	06:34 19:36-20:02/26 20:24 06:54-07:28/34	06:04 20:05-20:28/23 20:53	06:01 21:08
29	07:46 16:57-17:19/22 17:44 08:20-08:44/24		07:21 07:40-08:21/41 19:53 19:06-19:16/10	06:33 19:37-20:03/26 20:25 06:53-07:27/34	06:03 20:06-20:29/23 20:54	06:02 21:08
30	07:45 16:57-17:20/23 17:45 08:21-08:43/22		07:20 07:39-08:21/42 19:54	06:32 19:37-20:03/26 20:26 06:51-07:25/34	06:03 20:06-20:28/22 20:55	06:02 20:21-20:24/3 21:08
31	07:44 16:58-17:21/23 17:46 08:23-08:42/19		07:18 07:37-08:20/43 19:55		06:02 20:07-20:28/21 20:56	
Potential sun hours	297	297	370	399	448	452
Sum of minutes with flicker	1023	1026	1389	1388	1042	165

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T67 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (167)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August	September	October	November	December
1	06:02 20:21-20:27/6 21:08	06:27 20:01-20:14/13 20:17-20:25/8 20:50 07:03-07:25/22	06:57 07:31-07:52/21 20:07 19:27-19:44/17	07:27 07:47-08:24/37 19:15	07:02 07:23-07:43/20 17:28	07:37 08:00-08:25/25 17:04
2	06:03 20:19-20:27/8 21:08	06:28 19:59-20:15/16 20:19-20:24/5 20:49 07:02-07:27/25	06:58 07:30-07:53/23 20:05 19:27-19:42/15	07:29 07:48-08:25/37 19:13	07:03 07:24-07:41/17 17:27	07:38 08:01-08:25/24 17:04
3	06:03 20:19-20:29/10 21:08	06:28 19:58-20:16/18 20:20-20:23/3 20:48 07:01-07:28/27	06:59 07:28-07:54/26 20:04 19:27-19:40/13	07:30 07:49-08:26/37 19:11	07:04 07:26-07:41/15 17:26	07:39 08:02-08:25/23 17:03
4	06:04 20:18-20:29/11 21:08	06:29 19:57-20:17/20 20:47 07:00-07:29/29	07:00 07:27-07:54/27 20:02 19:28-19:39/11	07:31 07:50-08:26/36 19:10	07:05 07:27-07:39/12 17:25	07:40 08:03-08:25/22 17:03
5	06:05 20:18-20:31/13 21:08	06:30 19:56-20:18/22 20:45 07:00-07:30/30	07:01 07:26-07:55/29 20:01 19:29-19:37/8	07:32 07:52-08:28/36 19:08	07:07 07:28-07:37/9 17:23 16:35-16:46/11	07:41 08:04-08:26/22 17:03
6	06:05 20:18-20:32/14 21:07	06:31 19:55-20:19/24 20:44 06:59-07:31/32	07:02 07:25-07:55/30 19:57 19:31-19:36/5	07:33 07:53-08:28/35 19:06	07:08 07:29-07:33/4 17:22 16:33-16:48/15	07:42 08:05-08:26/21 17:03
7	06:06 20:17-20:32/15 21:07	06:32 19:55-20:19/24 20:43 06:58-07:31/33	07:03 07:25-08:05/40 19:56	07:34 07:54-08:28/34 19:05	07:09 16:32-16:50/18 17:21	07:43 08:06-08:26/20 17:03
8	06:06 20:17-20:33/16 21:07	06:33 19:54-20:18/24 20:42 06:58-07:32/34	07:04 07:25-08:07/42 19:54	07:35 07:55-08:28/33 19:03	07:10 16:31-16:51/20 17:20	07:44 08:07-08:26/19 17:03
9	06:07 20:17-20:34/17 21:06	06:34 19:54-20:16/22 20:41 06:58-07:32/34	07:05 07:26-08:09/43 19:52	07:36 07:56-08:27/31 19:02	07:11 16:30-16:51/21 17:19 07:57-08:08/11	07:44 08:08-08:26/18 17:03
10	06:08 20:16-20:34/18 21:06	06:35 19:53-20:15/22 20:39 06:57-07:33/36	07:06 07:27-08:10/43 19:50	07:37 07:57-08:27/30 19:00	07:13 16:29-16:52/23 17:18 07:55-08:11/16	07:45 08:09-08:27/18 17:03
11	06:08 20:16-20:35/19 21:06	06:36 19:49-20:14/25 20:38 06:58-07:33/35	07:07 07:28-08:11/43 19:49	07:38 07:58-08:26/28 18:58	07:14 16:30-16:53/23 17:17 07:53-08:13/20	07:46 08:10-08:27/17 17:03
12	06:09 20:16-20:36/20 21:05	06:37 19:47-20:13/26 20:37 06:59-07:33/34	07:08 07:28-08:11/43 19:47	07:39 07:59-08:25/26 18:57	07:15 16:29-16:52/23 17:16 07:52-08:14/22	07:47 08:10-08:27/17 17:03
13	06:10 20:15-20:36/21 21:05	06:38 19:46-20:12/26 20:35 07:00-07:34/34	07:09 07:29-08:11/42 19:45	07:40 08:00-08:24/24 18:55	07:16 16:29-16:51/22 17:15 07:51-08:15/24	07:48 08:11-08:27/16 17:03
14	06:11 20:15-20:37/22 21:04	06:39 19:44-20:10/26 20:34 07:01-07:35/34	07:10 07:30-08:12/42 19:44 18:57-19:05/8	07:41 08:01-08:23/22 18:54 18:06-18:17/11	07:17 16:30-16:51/21 17:14 07:51-08:16/25	07:48 08:12-08:27/15 17:03
15	06:11 20:15-20:38/23 21:04	06:40 19:43-20:09/26 20:33 07:02-07:36/34	07:11 07:31-08:12/41 19:42 18:54-19:08/14	07:42 08:27-08:37/10 18:03-18:19/16 18:52 08:03-08:23/20	07:18 16:29-16:49/20 17:13 07:50-08:17/27	07:49 08:13-08:28/15 17:04
16	06:12 20:15-20:38/23 21:03	06:41 19:42-20:08/26 20:31 07:03-07:36/33	07:12 07:32-08:12/40 19:40 18:51-19:10/19	07:43 08:23-08:40/17 18:02-18:22/20 18:51 08:04-08:22/18	07:20 16:29-16:48/19 17:12 07:49-08:18/29	07:50 08:13-08:27/14 17:04
17	06:13 20:14-20:37/23 21:02	06:42 19:41-20:06/25 20:30 07:04-07:36/32	07:13 07:33-08:12/39 19:39 18:50-19:11/21	07:45 08:21-08:42/21 18:01-18:22/21 18:49 08:05-08:20/15	07:21 16:30-16:47/17 17:12 07:50-08:19/29	07:51 08:14-08:28/14 17:04
18	06:14 20:14-20:36/22 21:02	06:43 19:39-20:05/26 20:28 07:05-07:36/31	07:14 07:34-08:11/37 19:37 18:48-19:11/23	07:46 08:19-08:43/24 18:00-18:23/23 18:47 08:06-08:18/12	07:22 16:31-16:47/16 17:11 07:49-08:20/31	07:51 08:15-08:29/14 17:05
19	06:15 20:14-20:36/22 21:01	06:44 19:37-20:03/26 20:27 07:06-07:36/30	07:15 07:35-08:11/36 19:35 18:47-19:12/25	07:47 08:18-08:44/26 17:59-18:23/24 18:46 08:07-08:16/9	07:23 16:31-16:46/15 17:10 07:49-08:20/31	07:52 08:15-08:28/13 17:05
20	06:16 20:14-20:36/22 21:00	06:45 19:36-20:01/25 20:26 07:07-07:36/29	07:16 07:36-08:10/34 19:33 18:46-19:11/25	07:48 08:16-08:44/28 17:58-18:21/23 18:45 08:08-08:11/3	07:24 16:32-16:45/13 17:09 07:49-08:21/32	07:52 08:16-08:29/13 17:05
21	06:16 20:14-20:35/21 21:00	06:46 07:08-07:36/28 20:24 19:35-20:00/25	07:17 07:37-08:10/33 19:32 18:46-19:10/24	07:49 08:16-08:46/30 18:43 17:57-18:20/23	07:26 16:32-16:44/12 17:09 07:49-08:21/32	07:53 08:16-08:29/13 17:06
22	06:17 20:13-20:34/21 20:59	06:47 07:08-07:35/27 20:23 19:34-19:59/25	07:18 07:38-08:13/35 19:30 18:45-19:08/23	07:50 08:15-08:46/31 18:42 17:58-18:19/21	07:27 16:34-16:44/10 17:08 07:50-08:23/33	07:54 08:17-08:30/13 17:06
23	06:18 20:13-20:33/20 20:58	06:48 07:09-07:34/25 20:21 19:33-19:57/24	07:19 07:39-08:16/37 19:28 18:45-19:06/21	07:51 08:15-08:46/31 18:40 17:58-18:17/19	07:28 16:35-16:43/8 17:08 07:51-08:23/32	07:54 08:17-08:30/13 17:07
24	06:19 20:14-20:32/18 20:57	06:49 07:10-07:34/24 20:20 19:31-19:56/25	07:20 07:40-08:17/37 19:27 18:45-19:05/20	07:52 08:14-08:46/32 18:39 17:58-18:16/18	07:29 16:36-16:42/6 17:07 07:52-08:23/31	07:54 08:18-08:31/13 17:07
25	06:20 20:14-20:32/18 20:57	06:50 07:11-07:33/22 20:18 19:30-19:54/24	07:21 07:41-08:18/37 19:25 18:45-19:03/18	07:54 08:14-08:46/32 18:37 17:58-18:14/16	07:30 16:37-16:42/5 17:06 07:53-08:23/30	07:55 08:18-08:32/14 17:08
26	06:21 20:14-20:31/17 20:56	06:51 07:12-07:32/20 20:17 19:29-19:53/24	07:22 07:42-08:19/37 19:23 18:45-19:01/16	07:55 08:16-08:46/30 18:36 17:59-18:13/14	07:31 16:38-16:41/3 17:06 07:54-08:23/29	07:55 08:18-08:32/14 17:09
27	06:22 20:15-20:30/15 20:55	06:52 07:13-07:31/18 20:15 19:28-19:51/23	07:23 07:43-08:19/36 19:22 18:46-18:59/13	07:56 08:17-08:46/29 18:35 18:00-18:12/12	07:32 07:56-08:25/29 17:05	07:56 08:19-08:33/14 17:09
28	06:23 20:15-20:29/14 20:54	06:53 07:14-07:29/15 20:13 19:28-19:50/22	07:24 07:44-08:20/36 19:20 18:47-18:58/11	07:57 08:18-08:45/27 18:33 18:01-18:10/9	07:33 07:57-08:25/28 17:05	07:56 08:19-08:34/15 17:10
29	06:24 07:09-07:20/11 20:53 20:16-20:29/13	06:54 07:15-07:27/12 20:12 19:27-19:48/21	07:25 07:45-08:20/35 19:18 18:48-18:56/8	07:58 08:19-08:45/26 18:32 18:02-18:09/7	07:35 07:58-08:25/27 17:05	07:56 08:19-08:34/15 17:11
30	06:25 07:07-07:23/16 20:52 20:17-20:28/11	06:55 07:37-07:47/10 07:16-07:25/9 20:10 19:27-19:47/20	07:26 07:47-08:22/35 19:16 18:51-18:54/3	07:59 08:21-08:45/24 18:31 18:04-18:07/3	07:36 07:59-08:25/26 17:04	07:56 08:19-08:35/16 17:11
31	06:26 20:03-20:11/8 20:16-20:26/10 20:51 07:06-07:25/19	06:56 07:34-07:50/16 07:17-07:21/4 20:09 19:27-19:45/18		08:01 08:22-08:44/22 18:29		07:57 08:19-08:35/16 17:12
Potential sun hours	459	428	375	345	298	288
Sum of minutes with flicker	577	1587	1440	1243	1012	516

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T68 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (168)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May		June	
1	07:57	08:22-09:37/75	07:43	08:14-09:27/73	07:07	07:31-08:01/30	07:16	08:21-08:50/29	06:30	06:57-08:13/76	06:02	19:42-20:32/50
	17:13	15:56-16:40/44	17:48		18:22	08:08-09:15/67	19:56	07:46-07:58/12	20:27		20:57	07:01-08:05/64
2	07:57	08:21-09:37/76	07:42	08:13-09:26/73	07:06	07:28-08:02/34	07:15	08:24-08:48/24	06:29	06:57-08:13/76	06:01	19:43-20:33/50
	17:14	15:57-16:41/44	17:49		18:23	08:08-09:13/65	19:57	07:41-08:04/23	20:28		20:57	07:02-08:05/63
3	07:57	08:21-09:37/76	07:41	08:11-09:25/74	07:04	07:26-08:04/38	07:13	08:27-08:44/17	06:28	06:57-08:14/77	06:01	19:43-20:34/51
	17:15	15:58-16:41/43	17:50		18:24	08:08-09:12/64	19:58	07:37-08:06/29	20:29		20:58	07:03-08:05/62
4	07:57	08:21-09:36/75	07:40	08:11-09:23/72	07:02	07:25-08:06/41	07:11	07:33-08:08/35	06:27	19:58-20:06/8	06:01	19:43-20:34/51
	17:16	15:59-16:41/42	17:51		18:25	08:09-09:11/62	19:59		20:30	06:56-08:13/77	20:59	07:02-08:04/62
5	07:57	08:20-09:35/75	07:39	08:10-09:21/71	07:01	07:23-08:06/43	07:10	07:32-08:11/39	06:25	19:54-20:08/14	06:00	19:44-20:35/51
	17:17	16:00-16:42/42	17:53		18:26	08:09-09:09/60	20:00		20:31	06:56-08:13/77	20:59	07:03-08:04/61
6	07:57	08:20-09:33/73	07:38	08:10-09:20/70	06:59	07:22-08:08/46	07:08	07:29-08:12/43	06:24	19:52-20:09/17	06:00	19:44-20:36/52
	17:18	16:01-16:42/41	17:54		18:28	08:11-09:08/57	20:00		20:32	06:55-08:13/78	21:00	07:04-08:04/60
7	07:57	08:20-09:25/65	07:37	08:09-09:18/69	06:58	07:20-08:08/48	07:06	07:27-08:13/46	06:23	19:50-20:11/21	06:00	19:44-20:36/52
	17:19	16:03-16:43/40	17:55		18:29	08:12-09:06/54	20:01		20:33	06:55-08:13/78	21:01	07:05-08:04/59
8	07:57	08:20-09:26/66	07:36	08:09-09:18/69	07:56	08:18-09:09/51	07:05	07:26-08:14/48	06:22	19:48-20:12/24	05:59	19:44-20:36/52
	17:20	16:04-16:43/39	17:56		19:30	09:12-10:04/52	20:02		20:34	06:55-08:13/78	21:01	07:04-08:03/59
9	07:57	08:20-09:27/67	07:35	08:08-09:18/70	07:54	08:18-09:10/52	07:03	07:24-08:15/51	06:21	19:47-20:13/26	05:59	19:45-20:37/52
	17:21	16:06-16:44/38	17:58		19:31	09:14-10:02/48	20:03		20:35	06:55-08:13/78	21:02	07:05-08:03/58
10	07:57	08:19-09:26/67	07:33	08:07-09:18/71	07:53	08:17-09:10/53	07:01	07:22-08:15/53	06:20	19:46-20:14/28	05:59	19:45-20:38/53
	17:22	16:07-16:43/36	17:59		19:32	09:15-10:00/45	20:04		20:36	06:55-08:13/78	21:03	07:06-08:03/57
11	07:56	08:19-09:27/68	07:32	08:07-09:19/72	07:51	08:16-09:10/54	07:00	07:21-08:16/55	06:18	19:45-20:15/30	05:59	19:46-20:38/52
	17:23	16:09-16:43/34	18:00		19:33	09:17-09:57/40	20:06		20:37	06:55-08:12/77	21:03	07:06-08:03/57
12	07:56	08:19-09:28/69	07:31	08:07-09:19/72	07:50	08:16-09:11/55	06:58	07:19-08:16/57	06:17	19:44-20:16/32	05:59	19:46-20:39/53
	17:24	16:10-16:44/34	18:01		19:34	09:19-09:55/36	20:07		20:38	06:55-08:12/77	21:04	07:07-08:03/56
13	07:56	08:18-09:28/70	07:30	08:07-09:20/73	07:48	08:15-09:10/55	06:57	07:18-08:17/59	06:16	19:44-20:17/33	05:59	19:47-20:39/52
	17:25	16:10-16:43/33	18:03		19:35	09:22-09:51/29	20:08		20:39	06:55-08:12/77	21:04	07:07-08:03/56
14	07:55	08:18-09:28/70	07:28	08:06-09:19/73	07:46	08:14-09:10/56	06:55	07:17-08:17/60	06:15	19:43-20:17/34	05:59	19:47-20:40/53
	17:26	16:12-16:44/32	18:04		19:37	09:25-09:46/21	20:09		20:40	06:55-08:12/77	21:05	07:08-08:03/55
15	07:55	08:17-09:28/71	07:27	08:06-09:20/74	07:45	08:14-09:11/57	06:54	07:16-08:18/62	06:14	19:43-20:18/35	05:59	19:47-20:40/53
	17:27	16:12-16:43/31	18:05		19:38	09:32-09:39/7	20:10		20:41	06:55-08:11/76	21:05	07:08-08:03/55
16	07:55	08:18-09:29/71	07:26	08:06-09:20/74	07:43	08:13-09:10/57	06:52	07:15-08:17/62	06:13	19:42-20:19/37	05:59	19:48-20:41/53
	17:28	16:13-16:43/30	18:06		19:39		20:11		20:42	06:55-08:11/76	21:06	07:08-08:03/55
17	07:54	08:17-09:29/72	07:24	08:05-09:20/75	07:41	08:12-09:09/57	06:50	07:14-08:18/64	06:12	19:42-20:20/38	05:59	19:48-20:41/53
	17:30	16:14-16:42/28	18:08		19:40		20:12		20:43	06:56-08:10/74	21:06	07:09-08:03/54
18	07:54	08:17-09:30/73	07:23	08:06-09:20/74	07:40	08:13-09:10/57	06:49	07:12-08:17/65	06:11	19:41-20:21/40	05:59	19:48-20:41/53
	17:31	16:16-16:42/26	18:09		19:41		20:13		20:44	06:56-08:10/74	21:06	07:09-08:03/54
19	07:53	08:17-09:29/72	07:22	08:05-09:19/74	07:38	08:12-09:09/57	06:47	07:11-08:18/67	06:11	19:41-20:21/40	05:59	19:48-20:41/53
	17:32	16:17-16:41/24	18:10		19:42		20:14		20:45	06:56-08:09/73	21:07	07:09-08:03/54
20	07:53	08:17-09:30/73	07:20	08:05-09:20/75	07:36	08:12-09:08/56	06:46	07:08-08:17/69	06:10	19:41-20:23/42	05:59	19:48-20:41/53
	17:33	16:19-16:41/22	18:11		19:43		20:15		20:46	06:57-08:10/73	21:07	07:09-08:03/54
21	07:52	08:17-09:30/73	07:19	08:06-09:20/74	07:35	08:13-09:08/55	06:44	07:07-08:17/70	06:09	19:41-20:24/43	05:59	19:48-20:41/53
	17:34	16:20-16:40/20	18:12		19:44		20:16		20:47	06:57-08:09/72	21:07	07:10-08:04/54
22	07:51	08:16-09:30/74	07:18	08:05-09:19/74	07:33	08:13-09:07/54	06:43	07:05-08:17/72	06:08	19:41-20:24/43	05:59	19:49-20:42/53
	17:35	16:22-16:38/16	18:14		19:45		20:17		20:48	06:57-08:09/72	21:07	07:10-08:04/54
23	07:51	08:17-09:30/73	07:16	08:06-09:19/73	07:31	08:13-09:05/52	06:42	07:05-08:17/72	06:07	19:40-20:23/43	06:00	19:49-20:42/53
	17:37	16:24-16:36/12	18:15		19:46		20:18		20:49	06:57-08:08/71	21:08	07:10-08:04/54
24	07:50	08:17-09:30/73	07:15	08:05-09:18/73	07:30	08:14-09:05/51	06:40	07:03-08:16/73	06:07	19:41-20:24/43	06:00	19:49-20:42/53
	17:38		18:16		19:47		20:19		20:50	06:58-08:08/70	21:08	07:10-08:04/54
25	07:49	08:16-09:30/74	07:13	08:06-09:18/72	07:28	08:14-09:03/49	06:39	07:02-08:16/74	06:06	19:41-20:27/46	06:00	19:50-20:43/53
	17:39		18:17		19:48		20:20		20:51	06:58-08:08/70	21:08	07:11-08:05/54
26	07:48	08:16-09:29/73	07:12	08:06-09:17/71	07:26	08:14-09:02/48	06:37	07:01-08:16/75	06:05	19:41-20:27/46	06:00	19:50-20:43/53
	17:40		18:18		19:50		20:21		20:52	06:58-08:07/69	21:08	07:10-08:05/55
27	07:48	08:16-09:29/73	07:10	07:38-07:54/16	07:25	08:15-09:01/46	06:36	07:00-08:14/74	06:05	19:41-20:29/48	06:01	19:49-20:42/53
	17:41		18:19	08:07-09:16/69	19:51		20:23		20:52	06:59-08:07/68	21:08	07:10-08:05/55
28	07:47	08:16-09:28/72	07:09	07:34-07:57/23	07:23	08:16-08:59/43	06:34	06:59-08:14/75	06:04	19:41-20:29/48	06:01	19:50-20:43/53
	17:43		18:21	08:07-09:15/68	19:52		20:24		20:53	06:59-08:06/67	21:08	07:11-08:06/55
29	07:46	08:17-09:29/72			07:21	08:16-08:57/41	06:33	06:59-08:14/75	06:03	19:42-20:30/48	06:02	19:50-20:43/53
	17:44				19:53		20:25		20:54	07:00-08:06/66	21:08	07:10-08:06/56
30	07:45	08:15-09:28/73			07:20	08:18-08:56/38	06:32	06:58-08:13/75	06:03	19:42-20:30/48	06:02	19:51-20:43/52
	17:45				19:54		20:26		20:55	07:00-08:06/66	21:08	07:11-08:07/56
31	07:44	08:15-09:28/73			07:18	08:19-08:53/34			06:02	19:42-20:32/50		
	17:46				19:55				20:56	07:01-08:06/65		
Potential sun hours	297		297		370		399		448		452	
Sum of minutes with flicker		2978		2061		2215		1804		3288		3273

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T68 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (168)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:03	19:50-20:43/53	06:27	19:54-20:25/31	06:57	07:20-08:15/55	07:27	07:54-08:49/55	07:02	07:37-08:48/71	07:37	08:01-09:09/68
	21:08	07:10-08:07/57	20:50	07:05-08:22/77	20:07		19:15	08:59-09:32/33	17:28		17:04	15:51-16:25/34
2	06:03	19:50-20:42/52	06:28	19:55-20:24/29	06:58	07:21-08:14/53	07:29	07:54-08:49/55	07:03	07:37-08:47/70	07:38	08:02-09:09/67
	21:08	07:11-08:08/57	20:49	07:05-08:22/77	20:05		19:13	08:56-09:35/39	17:27		17:04	15:51-16:26/35
3	06:04	19:50-20:42/52	06:29	19:56-20:23/27	06:59	07:22-08:13/51	07:30	07:54-08:48/54	07:04	07:39-08:48/69	07:39	08:03-09:10/67
	21:08	07:10-08:08/58	20:48	07:05-08:22/77	20:04		19:11	08:54-09:37/43	17:26		17:04	15:49-16:27/38
4	06:04	19:51-20:43/52	06:29	19:57-20:22/25	07:00	07:23-08:11/48	07:31	07:54-08:47/53	07:05	07:39-08:48/69	07:40	08:04-09:10/66
	21:08	07:11-08:09/58	20:47	07:05-08:22/77	20:02		19:10	08:52-09:38/46	17:25		17:03	15:49-16:27/38
5	06:05	19:50-20:42/52	06:30	19:59-20:21/22	07:01	07:24-08:10/46	07:32	07:56-08:47/51	07:07	07:39-08:50/71	07:41	08:05-09:10/65
	21:08	07:10-08:09/59	20:45	07:05-08:23/78	20:01		19:08	08:51-09:41/50	17:23		17:03	15:48-16:28/40
6	06:05	19:51-20:42/51	06:31	20:00-20:20/20	07:02	07:25-08:08/43	07:33	07:56-08:46/50	07:08	07:40-08:51/71	07:42	08:06-09:19/73
	21:07	07:10-08:10/60	20:44	07:05-08:23/78	19:57		19:06	08:49-09:42/53	17:22		17:03	15:48-16:28/40
7	06:06	19:50-20:41/51	06:32	20:02-20:19/17	07:03	07:27-08:06/39	07:34	07:57-08:44/47	07:09	07:42-08:54/72	07:43	08:07-09:22/75
	21:07	07:10-08:10/60	20:43	07:05-08:23/78	19:56		19:05	08:47-09:43/56	17:21		17:03	15:47-16:29/42
8	06:06	19:50-20:41/51	06:33	20:05-20:18/13	07:04	07:28-08:03/35	07:35	07:58-08:43/45	07:10	07:42-08:55/73	07:44	08:09-09:24/75
	21:07	07:10-08:11/61	20:42	07:05-08:23/78	19:54		19:03	08:46-09:44/58	17:20		17:03	15:47-16:29/42
9	06:07	19:51-20:41/50	06:34	20:11-20:12/1	07:05	08:21-08:37/16	07:36	07:59-08:41/42	07:11	07:43-08:56/73	07:44	08:10-09:25/75
	21:06	07:10-08:12/62	20:41	07:05-08:22/77	19:52	07:31-08:01/30	19:02	08:44-09:45/61	17:19		17:03	15:47-16:30/43
10	06:08	19:50-20:40/50	06:35	07:06-08:22/76	07:06	08:17-08:41/24	07:37	08:00-08:39/39	07:13	07:45-08:58/73	07:45	08:11-09:27/76
	21:06	07:09-08:12/63	20:39		19:51	07:33-07:57/24	19:00	08:43-09:46/63	17:18		17:03	15:47-16:31/44
11	06:09	19:50-20:40/50	06:36	07:06-08:22/76	07:07	08:14-08:43/29	07:38	08:01-08:37/36	07:14	07:46-08:59/73	07:46	08:13-09:28/75
	21:06	07:09-08:13/64	20:38		19:49	07:38-07:52/14	18:58	08:42-09:46/64	17:17		17:03	15:48-16:31/43
12	06:09	19:51-20:40/49	06:37	07:06-08:22/76	07:08	08:11-08:44/33	07:39	08:03-08:35/32	07:15	07:46-08:59/73	07:47	08:13-09:29/76
	21:05	07:09-08:14/65	20:37		19:47		18:57	08:41-09:47/66	17:16		17:03	15:47-16:31/44
13	06:10	19:50-20:39/49	06:38	07:07-08:21/74	07:09	08:09-08:46/37	07:40	08:05-08:32/27	07:16	07:48-09:00/72	07:48	08:15-09:30/75
	21:05	07:08-08:14/66	20:35		19:45		18:55	08:40-09:47/67	17:15		17:03	15:47-16:32/45
14	06:11	19:50-20:39/49	06:39	07:07-08:22/75	07:10	08:07-08:47/40	07:41	08:08-08:28/20	07:17	07:49-09:01/72	07:49	08:15-09:31/76
	21:04	07:08-08:14/66	20:34		19:44		18:54	08:39-09:48/69	17:14		17:03	15:48-16:32/44
15	06:12	19:50-20:39/49	06:40	07:07-08:22/75	07:11	08:05-08:48/43	07:42	08:14-08:24/10	07:19	07:49-09:02/73	07:49	08:16-09:32/76
	21:04	07:09-08:15/66	20:33		19:42		18:52	08:39-09:49/70	17:13		17:04	15:48-16:33/45
16	06:12	19:51-20:38/47	06:41	07:08-08:22/74	07:12	08:04-08:49/45	07:43	08:38-09:49/71	07:20	07:49-09:02/73	07:50	08:16-09:32/76
	21:03	07:09-08:16/67	20:31		19:40		18:51		17:13		17:04	15:48-16:33/45
17	06:13	19:50-20:37/47	06:42	07:08-08:22/74	07:13	08:02-08:50/48	07:45	08:37-09:49/72	07:21	07:50-09:04/74	07:51	08:17-09:33/76
	21:03	07:08-08:16/68	20:30		19:39		18:49		17:12		17:04	15:48-16:34/46
18	06:14	19:50-20:37/47	06:43	07:09-08:22/73	07:14	08:01-08:51/50	07:46	08:37-09:50/73	07:22	07:51-09:04/73	07:51	08:18-09:35/77
	21:02	07:08-08:17/69	20:28		19:37		18:48		17:11		17:05	15:49-16:35/46
19	06:15	19:51-20:36/45	06:44	07:10-08:22/72	07:15	08:00-08:51/51	07:47	08:36-09:50/74	07:23	07:51-09:04/73	07:52	08:18-09:35/77
	21:01	07:07-08:17/70	20:27		19:35		18:46		17:10	15:59-16:11/12	17:05	15:49-16:35/46
20	06:16	19:51-20:34/43	06:45	07:10-08:22/72	07:16	07:59-08:51/52	07:48	08:36-09:50/74	07:24	07:51-09:05/74	07:52	08:19-09:36/77
	21:01	07:07-08:18/71	20:26		19:33		18:45		17:09	15:57-16:13/16	17:05	15:50-16:35/45
21	06:16	19:51-20:34/43	06:46	07:11-08:22/71	07:17	07:58-08:52/54	07:49	08:36-09:50/74	07:26	07:52-09:05/73	07:53	08:19-09:36/77
	21:00	07:07-08:19/72	20:24		19:32		18:43		17:09	15:55-16:15/20	17:06	15:50-16:35/45
22	06:17	19:50-20:33/43	06:47	07:11-08:21/70	07:18	07:57-08:52/55	07:50	08:36-09:50/74	07:27	07:53-09:06/73	07:54	08:20-09:37/77
	20:59	07:07-08:19/72	20:23		19:30		18:42		17:08	15:55-16:17/22	17:06	15:51-16:36/45
23	06:18	19:51-20:33/42	06:48	07:12-08:21/69	07:19	07:57-08:52/55	07:51	08:36-09:50/74	07:28	07:54-09:06/72	07:54	08:20-09:37/77
	20:58	07:06-08:19/73	20:21		19:28		18:40		17:08	15:54-16:18/24	17:07	15:51-16:36/45
24	06:19	19:51-20:32/41	06:49	07:14-08:21/67	07:20	07:56-08:52/56	07:52	08:35-09:50/75	07:29	07:54-09:07/73	07:55	08:21-09:38/77
	20:57	07:06-08:20/74	20:20		19:27		18:39		17:07	15:53-16:19/26	17:07	15:52-16:37/45
25	06:20	19:51-20:32/41	06:50	07:15-08:20/65	07:21	07:55-08:52/57	07:54	08:35-09:49/74	07:30	07:55-09:07/72	07:55	08:21-09:38/77
	20:57	07:06-08:20/74	20:18		19:25		18:37		17:06	15:52-16:20/28	17:08	15:52-16:38/46
26	06:21	19:52-20:31/39	06:51	07:16-08:20/64	07:22	07:55-08:52/57	07:55	08:36-09:50/74	07:31	07:56-09:07/71	07:55	08:21-09:38/77
	20:56	07:06-08:21/75	20:17		19:23		18:36		17:06	15:51-16:21/30	17:09	15:52-16:38/46
27	06:22	19:52-20:30/38	06:52	07:17-08:19/62	07:23	07:55-08:51/56	07:56	08:36-09:50/74	07:32	07:57-09:08/71	07:56	08:22-09:38/76
	20:55	07:06-08:21/75	20:15		19:22		18:35		17:06	15:52-16:23/31	17:09	15:54-16:39/45
28	06:23	19:53-20:29/36	06:53	07:17-08:19/62	07:24	07:54-08:51/57	07:57	08:36-09:49/73	07:33	07:58-09:08/70	07:56	08:22-09:38/76
	20:54	07:06-08:22/76	20:13		19:20		18:33		17:05	15:52-16:24/32	17:10	15:54-16:39/45
29	06:24	19:53-20:29/36	06:54	07:18-08:18/60	07:25	07:54-08:51/57	07:58	08:36-09:49/73	07:35	07:59-09:09/70	07:56	08:22-09:38/76
	20:53	07:06-08:22/76	20:12		19:18	09:07-09:25/18	18:32		17:05	15:51-16:24/33	17:11	15:54-16:39/45
30	06:25	19:54-20:28/34	06:55	07:18-08:17/59	07:26	07:54-08:50/56	07:59	08:37-09:49/72	07:36	08:00-09:09/69	07:56	08:23-09:38/75
	20:52	07:06-08:22/76	20:10		19:16	09:02-09:29/27	18:31		17:04	15:51-16:25/34	17:11	15:55-16:40/45
31	06:26	19:54-20:26/32	06:56	07:19-08:16/57			08:01	08:37-09:48/71			07:57	08:22-09:38/76
	20:51	07:06-08:23/77	20:09				18:29				17:12	15:56-16:40/44
Potential sun hours	459		428		375		345		298		288	
Sum of minutes with flicker		3501		2405		1511		2626		2464		3650

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T69 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (169)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June
1	07:57 14:58-16:28/90 17:13	07:43 15:46-17:13/87 17:48	07:07 15:54-17:01/67 18:22	07:16 17:44-19:27/103 19:56	06:31 18:00-19:18/78 20:27	06:02 20:57
2	07:57 14:59-16:29/90 17:14 16:32-16:35/3	07:42 15:45-17:13/88 17:49	07:06 15:55-16:59/64 18:23	07:15 17:44-19:28/104 19:57	06:29 18:01-19:17/76 20:28	06:01 20:57
3	07:57 15:00-16:39/99 17:15	07:41 15:45-17:13/88 17:50	07:04 15:56-16:57/61 18:24	07:13 17:44-19:29/105 19:58	06:28 18:03-19:16/73 20:29	06:01 20:58
4	07:57 15:01-16:42/101 17:16	07:40 15:44-17:13/89 17:52	07:02 15:58-16:56/58 18:25	07:11 17:43-19:29/106 19:59	06:27 18:03-19:14/71 20:30	06:01 20:59
5	07:57 15:02-16:44/102 17:17	07:39 15:44-17:13/89 17:53	07:01 15:59-16:54/55 18:26	07:10 17:44-19:29/105 20:00	06:25 18:05-19:13/68 20:31	06:00 21:00
6	07:57 15:03-16:46/103 17:18	07:38 15:44-17:13/89 17:54	06:59 16:01-16:53/52 18:28	07:08 17:43-19:29/106 20:00	06:24 18:07-19:12/65 20:32	06:00 21:00
7	07:57 15:05-16:48/103 17:19	07:37 15:44-17:13/89 17:55	06:58 16:03-16:51/48 18:29 17:23-17:46/23	07:06 17:43-19:29/106 20:01	06:23 18:09-19:11/62 20:33	06:00 21:01
8	07:57 15:06-16:49/103 17:20	07:36 15:44-17:14/90 17:57	07:56 17:05-17:48/43 19:30 18:18-18:50/32	07:05 17:44-19:30/106 20:02	06:22 18:11-19:10/59 20:34	05:59 21:01
9	07:57 15:08-16:51/103 17:21	07:35 15:45-17:14/89 17:58	07:54 17:08-17:46/38 19:31 18:14-18:54/40	07:03 17:44-19:29/105 20:03	06:21 18:14-19:08/54 20:35	05:59 21:02
10	07:57 15:09-16:52/103 17:22	07:33 15:44-17:13/89 17:59	07:53 17:10-17:43/33 19:32 18:11-18:57/46	07:02 17:43-19:29/106 20:04	06:20 18:16-19:07/51 20:36	05:59 21:03
11	07:56 15:12-16:54/102 17:23	07:32 15:44-17:12/88 18:00	07:51 17:14-17:38/24 19:33 18:08-18:59/51	07:00 17:44-19:30/106 20:06	06:18 18:20-19:05/45 20:37	05:59 21:03
12	07:56 15:15-16:55/100 17:24	07:31 15:44-17:12/88 18:01	07:50 17:21-17:33/12 19:34 18:06-19:01/55	06:58 17:44-19:29/105 20:07	06:17 18:33-19:03/30 20:38 18:27-18:31/4	05:59 21:04
13	07:56 15:17-16:56/99 17:25	07:30 15:45-17:12/87 18:03	07:48 18:04-19:02/58 19:35	06:57 17:45-19:29/104 20:08	06:16 18:36-19:00/24 20:39	05:59 21:04
14	07:55 15:24-16:58/94 17:26	07:29 15:44-17:11/87 18:04	07:46 18:01-19:04/63 19:37	06:55 17:45-19:29/104 20:09	06:15 18:39-18:57/18 20:40	05:59 21:05
15	07:55 15:25-16:58/93 17:27	07:27 15:45-17:10/85 18:05	07:45 18:00-19:05/65 19:38	06:54 17:46-19:29/103 20:10	06:14 18:45-18:51/6 20:41	05:59 21:05
16	07:55 15:26-17:00/94 17:28	07:26 15:45-17:10/85 18:06	07:43 17:58-19:06/68 19:39	06:52 17:46-19:28/102 20:11	06:13 20:42	05:59 21:06
17	07:54 15:27-17:01/94 17:30	07:25 15:45-17:08/83 18:08	07:41 17:56-19:07/71 19:40	06:51 17:47-19:28/101 20:12	06:12 20:43	05:59 21:06
18	07:54 15:29-17:02/93 17:31	07:23 15:46-17:08/82 18:09	07:40 17:55-19:11/76 19:41	06:49 17:47-19:27/100 20:13	06:12 20:44	05:59 21:06
19	07:53 15:30-17:03/93 17:32	07:22 15:46-17:07/81 18:10	07:38 17:54-19:13/79 19:42	06:47 17:49-19:27/98 20:14	06:11 20:45	05:59 21:07
20	07:53 15:32-17:05/93 17:33	07:20 15:47-17:07/80 18:11	07:36 17:52-19:15/83 19:43	06:46 17:49-19:26/97 20:15	06:10 20:46	05:59 21:07
21	07:52 15:33-17:05/92 17:34	07:19 15:47-17:07/80 18:12	07:35 17:52-19:17/85 19:44	06:45 17:50-19:26/96 20:16	06:09 20:47	05:59 21:07
22	07:51 15:34-17:06/92 17:35	07:18 15:48-17:06/78 18:14	07:33 17:50-19:18/88 19:45	06:43 17:51-19:25/94 20:17	06:08 20:48	05:59 21:07
23	07:51 15:37-17:08/91 17:37	07:16 15:49-17:06/77 18:15	07:31 17:49-19:19/90 19:46	06:42 17:52-19:25/93 20:18	06:07 20:49	06:00 21:08
24	07:50 15:39-17:08/89 17:38	07:15 15:49-17:05/76 18:16	07:30 17:49-19:21/92 19:47	06:40 17:52-19:24/92 20:19	06:07 20:50	06:00 21:08
25	07:49 15:41-17:09/88 17:39	07:13 15:50-17:04/74 18:17	07:28 17:48-19:22/94 19:48	06:39 17:54-19:23/89 20:20	06:06 20:51	06:00 21:08
26	07:49 15:44-17:09/85 17:40	07:12 15:50-17:03/73 18:18	07:26 17:47-19:22/95 19:50	06:37 17:55-19:23/88 20:22	06:05 20:52	06:00 21:08
27	07:48 15:47-17:10/83 17:42	07:10 15:52-17:03/71 18:20	07:25 17:47-19:24/97 19:51	06:36 17:55-19:22/87 20:23	06:05 20:52	06:01 21:08
28	07:47 15:46-17:10/84 17:43	07:09 15:52-17:01/69 18:21	07:23 17:46-19:24/98 19:52	06:35 17:56-19:21/85 20:24	06:04 20:53	06:01 21:08
29	07:46 15:47-17:12/85 17:44		07:21 17:45-19:25/100 19:53	06:33 17:58-19:20/82 20:25	06:03 20:54	06:02 21:08
30	07:45 15:46-17:12/86 17:45		07:20 17:45-19:26/101 19:54	06:32 17:58-19:19/81 20:26	06:03 20:55	06:02 21:08
31	07:44 15:46-17:13/87 17:47		07:18 17:45-19:27/102 19:55		06:02 20:56	
Potential sun hours	297	297	370	399	448	452
Sum of minutes with flicker	2917	2331	2407	2959	784	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T69 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (169)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:03		06:27	18:33-19:13/40	06:57	17:43-19:29/106	07:28	17:44-18:40/56	07:02	15:14-16:42/88	07:37	14:54-16:36/102
	21:08		20:50		20:07		19:15		17:28		17:04	
2	06:03		06:28	18:28-19:15/47	06:58	17:42-19:28/106	07:29	16:55-17:15/20	07:03	15:13-16:42/89	07:38	14:53-16:35/102
	21:08		20:49		20:05		19:13	17:45-18:38/53	17:27		17:04	
3	06:04		06:29	18:25-19:17/52	06:59	17:42-19:27/105	07:30	16:50-17:19/29	07:04	15:14-16:43/89	07:39	14:51-16:34/103
	21:08		20:48		20:04		19:12	17:47-18:35/48	17:26		17:04	
4	06:04		06:30	18:22-19:18/56	07:00	17:41-19:27/106	07:31	16:46-17:22/36	07:05	15:14-16:43/89	07:40	14:51-16:34/103
	21:08		20:47		20:02		19:10	17:50-18:32/42	17:25		17:03	
5	06:05		06:31	18:20-19:20/60	07:01	17:40-19:26/106	07:32	16:43-17:25/42	07:07	15:14-16:43/89	07:41	14:50-16:33/103
	21:08		20:45		20:01		19:08	17:53-18:30/37	17:23		17:03	
6	06:05		06:32	18:18-19:21/63	07:02	17:39-19:25/106	07:33	16:41-17:27/46	07:08	15:14-16:43/89	07:42	14:49-16:32/103
	21:07		20:44		19:57		19:07	17:57-18:25/28	17:22		17:03	
7	06:06		06:33	18:16-19:22/66	07:03	17:39-19:25/106	07:34	16:38-17:28/50	07:09	15:15-16:44/89	07:43	14:49-16:31/102
	21:07		20:43		19:56		19:05	18:03-18:19/16	17:21		17:03	
8	06:07		06:33	18:14-19:23/69	07:04	17:38-19:24/106	07:35	16:36-17:29/53	07:10	15:15-16:43/88	07:44	14:49-16:30/101
	21:07		20:42		19:54		19:03		17:20		17:03	
9	06:07		06:34	18:12-19:24/72	07:05	17:38-19:23/105	07:36	16:33-17:30/57	07:11	15:15-16:43/88	07:44	14:49-16:28/99
	21:06		20:41		19:52		19:02		17:19		17:03	
10	06:08		06:35	18:11-19:25/74	07:06	17:37-19:22/105	07:37	16:31-17:31/60	07:13	15:17-16:44/87	07:45	14:49-16:20/91
	21:06		20:39		19:51		19:00		17:18		17:03	16:21-16:26/5
11	06:09		06:36	18:09-19:26/77	07:07	17:37-19:20/103	07:38	16:29-17:32/63	07:14	15:17-16:43/86	07:46	14:49-16:19/90
	21:06		20:38		19:49		18:58		17:17		17:03	
12	06:09		06:37	18:08-19:27/79	07:08	17:36-19:18/102	07:39	16:28-17:33/65	07:15	15:17-16:43/86	07:47	14:48-16:18/90
	21:05		20:37		19:47		18:57		17:16		17:03	
13	06:10		06:38	18:07-19:28/81	07:09	17:35-19:17/102	07:40	16:26-17:34/68	07:16	15:18-16:43/85	07:48	14:48-16:17/89
	21:05		20:35		19:45		18:55		17:15		17:03	
14	06:11		06:39	18:05-19:28/83	07:10	17:35-19:15/100	07:41	16:24-17:34/70	07:17	15:19-16:43/84	07:49	14:49-16:17/88
	21:04		20:34		19:44		18:54		17:14		17:04	
15	06:12		06:40	18:04-19:29/85	07:11	17:35-19:14/99	07:42	16:24-17:36/72	07:19	15:20-16:43/83	07:49	14:49-16:17/88
	21:04		20:33		19:42		18:52		17:13		17:04	
16	06:12		06:41	18:03-19:29/86	07:12	17:35-19:12/97	07:44	16:23-17:36/73	07:20	15:16-16:42/86	07:50	14:49-16:16/87
	21:03		20:31		19:40		18:51		17:13		17:04	
17	06:13		06:42	18:01-19:30/89	07:13	17:35-19:11/96	07:45	16:21-17:36/75	07:21	15:15-16:42/87	07:51	14:49-16:16/87
	21:03		20:30		19:39		18:49		17:12		17:04	
18	06:14		06:43	18:00-19:30/90	07:14	17:35-19:09/94	07:46	16:20-17:36/76	07:22	15:13-16:42/89	07:51	14:50-16:16/86
	21:02		20:29		19:37		18:48		17:11		17:05	
19	06:15		06:44	17:59-19:31/92	07:15	17:35-19:08/93	07:47	16:19-17:37/78	07:23	15:11-16:42/91	07:52	14:50-16:15/85
	21:01		20:27		19:35		18:46		17:10		17:05	
20	06:16		06:45	17:58-19:31/93	07:16	17:35-19:06/91	07:48	16:18-17:37/79	07:24	15:09-16:41/92	07:53	14:50-16:15/85
	21:01		20:26		19:34		18:45		17:10		17:05	
21	06:16		06:46	17:56-19:31/95	07:17	17:36-19:04/88	07:49	16:18-17:38/80	07:26	15:08-16:40/92	07:53	14:50-16:15/85
	21:00		20:24		19:32		18:43		17:09		17:06	
22	06:17		06:47	17:54-19:30/96	07:18	17:36-19:02/86	07:50	16:17-17:38/81	07:27	15:08-16:41/93	07:54	14:51-16:16/85
	20:59		20:23		19:30		18:42		17:08		17:06	
23	06:18		06:48	17:53-19:30/97	07:19	17:36-19:00/84	07:51	16:16-17:38/82	07:28	15:07-16:40/93	07:54	14:51-16:16/85
	20:58		20:21		19:28		18:40		17:08		17:07	
24	06:19		06:49	17:51-19:30/99	07:20	17:37-18:57/80	07:53	16:15-17:38/83	07:29	15:06-16:40/94	07:55	14:52-16:18/86
	20:57		20:20		19:27		18:39		17:07		17:08	
25	06:20		06:50	17:50-19:30/100	07:21	17:37-18:54/77	07:54	16:15-17:38/83	07:30	15:05-16:39/94	07:55	14:53-16:18/85
	20:57		20:18		19:25		18:37		17:07		17:08	
26	06:21		06:51	17:49-19:30/101	07:22	17:38-18:50/72	07:55	16:15-17:40/85	07:31	15:04-16:38/94	07:55	14:53-16:19/86
	20:56		20:17		19:23		18:36		17:06		17:09	
27	06:22		06:52	17:48-19:30/102	07:23	17:39-18:48/69	07:56	16:14-17:40/86	07:32	15:05-16:39/94	07:56	14:54-16:21/87
	20:55		20:15		19:22		18:35		17:06		17:09	
28	06:23		06:53	17:47-19:30/103	07:24	17:40-18:46/66	07:57	16:14-17:41/87	07:34	15:04-16:38/94	07:56	14:55-16:22/87
	20:54		20:13		19:20		18:33		17:05		17:10	
29	06:24	18:53-19:05/12	06:54	17:46-19:30/104	07:25	17:41-18:45/64	07:58	16:14-17:41/87	07:35	14:58-16:37/99	07:56	14:55-16:24/89
	20:53		20:12		19:18		18:32		17:05		17:11	
30	06:25	18:48-19:09/21	06:55	17:45-19:29/104	07:27	17:42-18:43/61	07:59	16:14-17:42/88	07:36	14:56-16:36/100	07:57	14:56-16:25/89
	20:52		20:10		19:17		18:31		17:04		17:12	
31	06:26	18:46-19:12/26	06:56	17:44-19:29/105			08:01	16:14-17:42/88			07:57	14:57-16:26/89
	20:51		20:09				18:29				17:12	
Potential sun hours	459		428		375		345		298		288	
Sum of minutes with flicker		59		2560		2781		2322		2701		2842

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T7 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (147)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March	April	May		June	
1	07:58	08:30-09:32/62	07:44	08:43-09:38/55	07:07	07:16	06:30		06:01	06:23-06:35/12
	17:13		17:47		18:22	19:56	20:27		20:57	
2	07:58	08:31-09:32/61	07:43	08:44-09:38/54	07:06	07:14	06:29		06:01	06:22-06:36/14
	17:14		17:49		18:23	19:57	20:28		20:58	
3	07:58	08:31-09:33/62	07:42	08:45-09:37/52	07:04	07:13	06:27		06:00	06:22-06:38/16
	17:14		17:50		18:24	19:58	20:29		20:59	
4	07:58	08:31-09:34/63	07:41	08:46-09:36/50	07:03	07:11	06:26		06:00	06:22-06:39/17
	17:15		17:51		18:25	19:59	20:30		21:00	
5	07:58	08:32-09:34/62	07:40	08:48-09:35/47	07:01	07:09	06:25		05:59	06:21-06:39/18
	17:16		17:52		18:26	20:00	20:32		21:00	
6	07:58	08:32-09:35/63	07:39	08:49-09:34/45	06:59	07:08	06:24		05:59	06:21-06:41/20
	17:17		17:54		18:27	20:00	20:33		21:01	
7	07:58	08:33-09:36/63	07:37	08:51-09:33/42	06:58	07:06	06:22		05:59	06:21-06:42/21
	17:18		17:55		18:29	20:01	20:34		21:02	
8	07:58	08:33-09:36/63	07:36	08:51-09:31/40	07:56	07:05	06:21		05:59	06:21-06:42/21
	17:19		17:56		19:30	20:03	20:35		21:02	
9	07:57	08:33-09:36/63	07:35	08:53-09:29/36	07:55	07:03	06:20		05:58	06:21-06:43/22
	17:20		17:57		19:31	20:04	20:36		21:03	
10	07:57	08:33-09:37/64	07:34	08:55-09:27/32	07:53	07:01	06:19		05:58	06:20-06:43/23
	17:21		17:59		19:32	20:05	20:37		21:03	
11	07:57	08:34-09:38/64	07:33	08:58-09:25/27	07:51	07:00	06:18		05:58	06:20-06:44/24
	17:22		18:00		19:33	20:06	20:38		21:04	
12	07:57	08:35-09:38/63	07:31	09:01-09:21/20	07:50	06:58	06:17		05:58	06:20-06:44/24
	17:23		18:01		19:34	20:07	20:39		21:04	
13	07:56	08:34-09:38/64	07:30	09:06-09:16/10	07:48	06:56	06:16		05:58	06:20-06:45/25
	17:24		18:02		19:35	20:08	20:40		21:05	
14	07:56	08:35-09:39/64	07:29		07:46	06:55	06:15		05:58	06:20-06:45/25
	17:26		18:04		19:36	20:09	20:41		21:05	
15	07:56	08:35-09:39/64	07:28		07:45	06:53	06:14		05:58	06:20-06:46/26
	17:27		18:05		19:38	20:10	20:42		21:06	
16	07:55	08:36-09:40/64	07:26		07:43	06:52	06:13		05:58	06:20-06:46/26
	17:28		18:06		19:39	20:11	20:43		21:06	
17	07:55	08:36-09:40/64	07:25		07:41	06:50	06:12		05:58	06:20-06:46/26
	17:29		18:07		19:40	20:12	20:44		21:07	
18	07:54	08:36-09:40/64	07:23		07:40	06:49	06:11		05:58	06:20-06:46/26
	17:30		18:08		19:41	20:13	20:45		21:07	
19	07:54	08:36-09:40/64	07:22		07:38	06:47	06:10		05:58	06:21-06:48/27
	17:31		18:10		19:42	20:14	20:46		21:07	
20	07:53	08:36-09:40/64	07:21		07:36	06:46	06:09		05:58	06:21-06:48/27
	17:32		18:11		19:43	20:15	20:47		21:08	
21	07:53	08:38-09:41/63	07:19		07:35	06:44	06:08		05:58	06:21-06:48/27
	17:34		18:12		19:44	20:17	20:48		21:08	
22	07:52	08:38-09:41/63	07:18		07:33	06:43	06:07		05:59	06:21-06:48/27
	17:35		18:13		19:45	20:18	20:49		21:08	
23	07:51	08:38-09:41/63	07:16		07:31	06:41	06:07		05:59	06:21-06:48/27
	17:36		18:15		19:46	20:19	20:50		21:08	
24	07:51	08:38-09:40/62	07:15		07:30	06:40	06:06		05:59	06:22-06:48/26
	17:37		18:16		19:47	20:20	20:50		21:09	
25	07:50	08:39-09:41/62	07:13		07:28	06:38	06:05		05:59	06:22-06:48/26
	17:39		18:17		19:49	20:21	20:51		21:09	
26	07:49	08:40-09:41/61	07:12		07:26	06:37	06:05		06:00	06:22-06:48/26
	17:40		18:18		19:50	20:22	20:52		21:09	
27	07:48	08:40-09:41/61	07:10		07:25	06:35	06:04		06:00	06:23-06:49/26
	17:41		18:19		19:51	20:23	20:53		21:09	
28	07:47	08:41-09:40/59	07:09		07:23	06:34	06:03		06:00	06:23-06:48/25
	17:42		18:20		19:52	20:24	20:54		21:09	
29	07:47	08:41-09:40/59			07:21	06:33	06:03		06:01	06:24-06:49/25
	17:43				19:53	20:25	20:55		21:09	
30	07:46	08:42-09:39/57			07:19	06:31	06:02		06:01	06:24-06:48/24
	17:45				19:54	20:26	20:56		21:09	
31	07:45	08:43-09:39/56			07:18		06:02	06:23-06:32/9		
	17:46				19:55		20:56			
Potential sun hours	297		297		370	399	449		453	
Sum of minutes with flicker		1931		510	0	0	9			699

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T7 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (147)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August	September	October		November		December	
1	06:02	06:24-06:48/24	06:26	06:57	07:28		07:02	08:25-08:58/33	07:37	08:16-09:20/64
	21:09		20:50	20:07	19:15		17:28		17:03	
2	06:02	06:25-06:48/23	06:27	06:58	07:29		07:03	08:23-08:59/36	07:38	08:16-09:20/64
	21:09		20:49	20:06	19:13		17:27		17:03	
3	06:03	06:25-06:48/23	06:28	06:59	07:30		07:05	08:21-09:01/40	07:39	08:17-09:20/63
	21:09		20:48	20:04	19:11		17:25		17:03	
4	06:03	06:26-06:48/22	06:29	07:00	07:31		07:06	08:19-09:02/43	07:40	08:17-09:20/63
	21:09		20:47	20:02	19:10		17:24		17:03	
5	06:04	06:27-06:48/21	06:30	07:01	07:32		07:07	08:19-09:04/45	07:41	08:18-09:21/63
	21:08		20:46	20:01	19:08		17:23		17:03	
6	06:05	06:27-06:47/20	06:31	07:02	07:33		07:08	08:17-09:05/48	07:42	08:18-09:21/63
	21:08		20:45	19:57	19:06		17:22		17:02	
7	06:05	06:28-06:47/19	06:32	07:03	07:34		07:09	08:16-09:06/50	07:43	08:19-09:21/62
	21:08		20:44	19:56	19:05		17:21		17:02	
8	06:06	06:28-06:46/18	06:33	07:04	07:35		07:11	08:16-09:08/52	07:44	08:19-09:22/63
	21:08		20:42	19:54	19:03		17:20		17:02	
9	06:06	06:29-06:45/16	06:34	07:05	07:36		07:12	08:15-09:09/54	07:45	08:20-09:22/62
	21:07		20:41	19:52	19:01		17:19		17:02	
10	06:07	06:30-06:45/15	06:35	07:06	07:37		07:13	08:14-09:09/55	07:46	08:21-09:22/61
	21:07		20:40	19:51	19:00		17:18		17:02	
11	06:08	06:30-06:43/13	06:36	07:07	07:38		07:14	08:13-09:10/57	07:47	08:21-09:23/62
	21:06		20:39	19:49	18:58		17:17		17:02	
12	06:09	06:31-06:42/11	06:37	07:08	07:39		07:15	08:14-09:11/57	07:48	08:21-09:22/61
	21:06		20:37	19:47	18:57		17:16		17:02	
13	06:09	06:33-06:40/7	06:38	07:09	07:40		07:17	08:13-09:12/59	07:48	08:22-09:23/61
	21:05		20:36	19:46	18:55		17:15		17:03	
14	06:10		06:39	07:10	07:42		07:18	08:13-09:12/59	07:49	08:23-09:24/61
	21:05		20:35	19:44	18:53		17:14		17:03	
15	06:11		06:40	07:11	07:43		07:19	08:13-09:13/60	07:50	08:24-09:24/60
	21:04		20:33	19:42	18:52		17:13		17:03	
16	06:12		06:41	07:12	07:44		07:20	08:13-09:14/61	07:51	08:23-09:24/61
	21:04		20:32	19:40	18:50		17:12		17:03	
17	06:12		06:42	07:13	07:45		07:21	08:12-09:14/62	07:51	08:24-09:25/61
	21:03		20:30	19:39	18:49		17:11		17:04	
18	06:13		06:43	07:14	07:46		07:23	08:12-09:14/62	07:52	08:25-09:26/61
	21:03		20:29	19:37	18:47		17:10		17:04	
19	06:14		06:44	07:15	07:47		07:24	08:13-09:16/63	07:53	08:25-09:25/60
	21:02		20:27	19:35	18:46		17:10		17:04	
20	06:15		06:45	07:16	07:48		07:25	08:13-09:16/63	07:53	08:26-09:26/60
	21:01		20:26	19:34	18:44		17:09		17:05	
21	06:16		06:46	07:17	07:49		07:26	08:13-09:16/63	07:54	08:26-09:26/60
	21:00		20:25	19:32	18:43		17:08		17:05	
22	06:17		06:47	07:18	07:51		07:27	08:12-09:16/64	07:54	08:27-09:27/60
	21:00		20:23	19:30	18:41		17:08		17:06	
23	06:18		06:48	07:19	07:52		07:29	08:13-09:17/64	07:55	08:27-09:27/60
	20:59		20:22	19:28	18:40		17:07		17:06	
24	06:18		06:49	07:20	07:53		07:30	08:13-09:17/64	07:55	08:27-09:27/60
	20:58		20:20	19:27	18:38		17:06		17:07	
25	06:19		06:50	07:21	07:54		07:31	08:14-09:18/64	07:56	08:28-09:28/60
	20:57		20:18	19:25	18:37		17:06		17:07	
26	06:20		06:51	07:22	07:55		07:32	08:14-09:18/64	07:56	08:28-09:29/61
	20:56		20:17	19:23	18:36		17:05		17:08	
27	06:21		06:52	07:23	07:56		07:33	08:14-09:18/64	07:56	08:28-09:29/61
	20:55		20:15	19:22	18:34		17:05		17:09	
28	06:22		06:53	07:24	07:57		07:34	08:15-09:19/64	07:57	08:29-09:30/61
	20:54		20:14	19:20	18:33		17:04		17:09	
29	06:23		06:54	07:26	07:59	09:34-09:47/13	07:35	08:15-09:19/64	07:57	08:30-09:31/61
	20:53		20:12	19:18	18:32		17:04		17:10	
30	06:24		06:55	07:27	08:00	09:30-09:52/22	07:36	08:16-09:19/63	07:57	08:30-09:31/61
	20:52		20:11	19:16	18:30		17:04		17:11	
31	06:25		06:56		08:01	09:26-09:54/28			07:57	08:30-09:31/61
	20:51		20:09		18:29				17:12	
Potential sun hours	460		429	375	345		297		287	
Sum of minutes with flicker		232	0	0		63		1697		1902

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:

2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T70 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (170)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57 14:31-15:04/33	07:43	07:07	07:16 07:56-08:05/9	06:31	06:02	06:03	06:27	06:58 07:18-07:50/32	07:28 07:47-08:06/19	07:02	07:37
	17:14	17:48	18:22	19:56 07:35-07:52/17	20:27	20:57	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57 14:32-15:04/32	07:42	07:06	07:15 07:34-07:54/20	06:29	06:02	06:03	06:28	06:59 07:19-07:50/31	07:29 07:49-08:06/17	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:57	21:08	20:49	20:06	19:13	17:27	17:04
3	07:57 14:34-15:03/29	07:41	07:04	07:13 07:32-07:54/22	06:28	06:01	06:04	06:29	07:00 07:20-07:50/30	07:30 07:50-08:04/14	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:12	17:26	17:04
4	07:57 14:35-15:03/28	07:40	07:03	07:11 07:30-07:53/23	06:27	06:01	06:04	06:30	07:01 07:21-07:50/29	07:31 07:51-08:03/12	07:06	07:40 14:30-14:39/9
	17:16	17:52	18:25	19:59	20:30	20:59	21:08	20:47	20:02	19:10	17:25	17:04
5	07:57 14:36-15:01/25	07:39	07:01	07:10 07:29-07:54/25	06:26	06:00	06:05	06:31	07:02 07:22-07:50/28	07:32 07:52-08:00/8	07:07	07:41 14:27-14:43/16
	17:17	17:53	18:27	20:00	20:31	21:00	21:08	20:46	20:01	19:08	17:24	17:03
6	07:57 14:39-15:00/21	07:38	06:59	07:08 07:27-07:54/27	06:24	06:00	06:05	06:32	07:03 07:23-07:50/27	07:33 07:53-07:56/3	07:08	07:42 14:25-14:46/21
	17:18	17:54	18:28	20:00	20:32	21:00	21:07	20:44	19:57	19:07	17:22	17:03
7	07:57 14:42-14:58/16	07:37	06:58	07:07 07:26-07:54/28	06:23	06:00	06:06	06:33	07:04 07:24-07:49/25	07:34	07:09	07:43 14:24-14:48/24
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:56	19:05	17:21	17:03
8	07:57 14:46-14:56/10	07:36	07:56 08:16-08:22/6	07:05 07:24-07:53/29	06:22	06:00	06:07	06:34	07:05 07:25-07:49/24	07:35	07:10	07:44 14:23-14:50/27
	17:20	17:57	19:30	20:02	20:34	21:02	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:55 08:14-08:24/10	07:03 07:22-07:52/30	06:21	05:59	06:07	06:35	07:06 07:26-07:48/22	07:36	07:12	07:45 14:22-14:51/29
	17:21	17:58	19:31	20:04	20:35	21:02	21:07	20:41	19:52	19:02	17:19	17:03
10	07:57	07:34	07:53 08:12-08:25/13	07:02 07:21-07:52/31	06:20	05:59	06:08	06:36	07:07 07:27-07:47/20	07:37	07:13	07:45 14:21-14:53/32
	17:22	17:59	19:32	20:05	20:36	21:03	21:06	20:39	19:51	19:00	17:18	17:03
11	07:56	07:32	07:51 08:11-08:27/16	07:00 07:19-07:51/32	06:19	05:59	06:09	06:37	07:08 07:49-07:57/8	07:38	07:14	07:46 14:21-14:54/33
	17:23	18:00	19:33	20:06	20:37	21:03	21:06	20:38	19:49 07:28-07:46/18	18:59	17:17	17:03
12	07:56	07:31	07:50 08:09-08:27/18	06:58 07:18-07:50/32	06:18	05:59	06:09	06:38	07:09 07:45-08:01/16	07:39	07:15	07:47 14:21-14:55/34
	17:24	18:02	19:34	20:07	20:38	21:04	21:05	20:37	19:47 07:29-07:44/15	18:57	17:16	17:03
13	07:56	07:30	07:48 08:07-08:27/20	06:57 07:16-07:48/32	06:16	05:59	06:10	06:39	07:10 07:43-08:02/19	07:40	07:16	07:48 14:20-14:56/36
	17:25	18:03	19:36	20:08	20:39	21:04	21:05	20:36	19:46 07:30-07:42/12	18:55	17:15	17:03
14	07:56	07:29	07:46 08:06-08:28/22	06:55 07:14-07:46/32	06:15	05:59	06:11	06:40	07:11 07:41-08:04/23	07:41	07:17	07:49 14:20-14:57/37
	17:26	18:04	19:37	20:09	20:40	21:05	21:04	20:34	19:44 07:31-07:40/9	18:54	17:14	17:04
15	07:55	07:27	07:45 08:04-08:28/24	06:54 07:13-07:45/32	06:14	05:59	06:12	06:41	07:11 07:40-08:05/25	07:43	07:19	07:49 14:20-14:58/38
	17:27	18:05	19:38	20:10	20:41	21:05	21:04	20:33	19:42 07:32-07:36/4	18:52	17:14	17:04
16	07:55	07:26	07:43 08:02-08:27/25	06:52 07:11-07:41/30	06:13	05:59	06:12	06:42 07:19-07:30/11	07:12 07:38-08:05/27	07:44	07:20	07:50 14:21-14:59/38
	17:29	18:07	19:39	20:11	20:42	21:06	21:03	20:31	19:40	18:51	17:13	17:04
17	07:54	07:25	07:41 08:01-08:28/27	06:51 07:10-07:34/24	06:13	05:59	06:13	06:43 07:17-07:32/15	07:13 07:36-08:04/28	07:45	07:21	07:51 14:20-14:59/39
	17:30	18:08	19:40	20:12	20:43	21:06	21:03	20:30	19:39	18:49	17:12	17:04
18	07:54	07:23	07:40 07:59-08:27/28	06:49 07:08-07:33/25	06:12	05:59	06:14	06:44 07:15-07:34/19	07:14 07:36-08:05/29	07:46	07:22	07:51 14:21-15:00/39
	17:31	18:09	19:41	20:13	20:44	21:06	21:02	20:29	19:37	18:48	17:11	17:05
19	07:53	07:22	07:38 07:57-08:26/29	06:48 07:07-07:33/26	06:11	05:59	06:15	06:45 07:13-07:35/22	07:15 07:35-08:05/30	07:47	07:23	07:52 14:20-15:00/40
	17:32	18:10	19:42	20:14	20:45	21:07	21:01	20:27	19:35	18:46	17:10	17:05
20	07:53	07:21	07:36 07:56-08:26/30	06:46 07:05-07:32/27	06:10	05:59	06:16	06:46 07:12-07:36/24	07:16 07:36-08:06/30	07:48	07:25	07:53 14:21-15:02/41
	17:33	18:11	19:43	20:15	20:46	21:07	21:01	20:26	19:34	18:45	17:10	17:06
21	07:52	07:19	07:35 07:54-08:24/30	06:45 07:06-07:32/26	06:09	05:59	06:17	06:47 07:11-07:36/25	07:17 07:37-08:07/30	07:49	07:26	07:53 14:21-15:02/41
	17:34	18:13	19:44	20:16	20:47	21:07	21:00	20:24	19:32	18:43	17:09	17:06
22	07:51	07:18	07:33 07:52-08:22/30	06:43 07:06-07:30/24	06:08	05:59	06:17	06:48 07:10-07:37/27	07:18 07:38-08:08/30	07:50	07:27	07:54 14:22-15:03/41
	17:36	18:14	19:45	20:17	20:48	21:08	20:59	20:23	19:30	18:42	17:08	17:07
23	07:51	07:16	07:31 07:50-08:20/30	06:42 07:07-07:30/23	06:07	06:00	06:18	06:49 07:10-07:37/27	07:19 07:39-08:09/30	07:51	07:28	07:54 14:22-15:03/41
	17:37	18:15	19:46	20:18	20:49	21:08	20:58	20:21	19:29	18:40	17:08	17:07
24	07:50	07:15	07:30 07:49-08:19/30	06:40 07:08-07:29/21	06:07	06:00	06:19	06:50 07:11-07:37/26	07:21 07:40-08:09/29	07:53	07:29	07:55 14:23-15:03/40
	17:38	18:16	19:48	20:19	20:50	21:08	20:58	20:20	19:27	18:39	17:07	17:08
25	07:49	07:13	07:28 07:48-08:17/29	06:39 07:08-07:27/19	06:06	06:00	06:20	06:51 07:12-07:37/25	07:22 07:41-08:09/28	07:54	07:30	07:55 14:23-15:03/40
	17:39	18:17	19:49	20:21	20:51	21:08	20:57	20:18	19:25	18:38	17:07	17:08
26	07:49	07:12	07:26 07:48-08:16/28	06:37 07:10-07:25/15	06:05	06:01	06:21	06:52 07:12-07:36/24	07:23 07:42-08:09/27	07:55	07:31	07:55 14:24-15:03/39
	17:40	18:18	19:50	20:22	20:52	21:08	20:56	20:17	19:23	18:36	17:06	17:09
27	07:48	07:10	07:25 07:49-08:16/27	06:36 07:13-07:22/9	06:05	06:01	06:22	06:53 07:13-07:43/30	07:24 07:43-08:09/26	07:56	07:33	07:56 14:25-15:04/39
	17:42	18:20	19:51	20:23	20:53	21:08	20:55	20:15	19:22	18:35	17:06	17:10
28	07:47	07:09	07:23 07:49-08:14/25	06:35	06:04	06:01	06:23	06:54 07:14-07:46/32	07:25 07:44-08:09/25	07:57	07:34	07:56 14:26-15:04/38
	17:43	18:21	19:52 07:42-07:44/2	20:24	20:53	21:08	20:54	20:14	19:20	18:33	17:05	17:10
29	07:46		07:21 07:50-08:13/23	06:33	06:04	06:02	06:24	06:55 07:15-07:47/32	07:26 07:45-08:08/23	07:58	07:35	07:56 14:27-15:04/37
	17:44		19:53 07:40-07:48/8	20:25	20:54	21:08	20:53	20:12	19:18	18:32	17:05	17:11
30	07:45		07:20 07:52-08:12/20	06:32	06:03	06:02	06:25	06:56 07:16-07:48/32	07:27 07:46-08:07/21	08:00	07:36	07:57 14:28-15:04/36
	17:45		19:54 07:39-07:51/12	20:26	20:55	21:08	20:52	20:10	19:17	18:31	17:05	17:12
31	07:44		07:18 07:53-08:09/16		06:02		06:26	06:57 07:17-07:49/32		08:01		07:57 14:29-15:04/35
	17:47		19:55 07:37-07:52/15		20:56		20:51	20:09		18:30		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	194	0	593	690	0	0	0	403	830	73	0	960

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T71a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (171)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June
1	07:57 08:30-09:34/64	07:43	07:07 17:09-17:57/48	07:16 07:37-09:03/86	06:30 19:01-19:44/43 06:50-07:16/26	06:02 06:23-07:22/59
	17:13	17:48	18:22	19:56 18:34-19:22/48	20:27 19:50-20:04/14 07:39-08:12/33	20:57 19:57-20:32/35
2	07:57 08:31-09:34/63	07:42	07:06 17:09-17:58/49	07:15 07:37-09:04/87	06:29 19:02-19:44/42 06:49-07:15/26	06:01 06:23-07:23/60
	17:14	17:49	18:23	19:57 18:34-19:21/47	20:28 19:49-20:06/17 07:41-08:10/29	20:57 19:59-20:33/34
3	07:57 08:31-09:35/64	07:41	07:04 17:09-17:57/48	07:13 07:35-09:03/88	06:28 19:03-19:43/40 06:48-07:13/25	06:01 06:23-07:24/61
	17:15	17:50	18:24	19:58 18:35-19:21/46	20:29 19:49-20:07/18 07:43-08:08/25	20:58 20:01-20:34/33
4	07:57 08:32-09:35/63	07:40	07:02 17:09-17:58/49	07:11 07:34-09:02/88	06:27 19:03-19:41/38 06:47-07:11/24	06:01 06:22-07:24/62
	17:16	17:51	18:25	19:59 18:35-19:19/44	20:30 19:48-20:07/19 07:45-08:04/19	20:59 20:01-20:34/33
5	07:57 08:32-09:35/63	07:39	07:01 17:09-17:57/48	07:10 19:22-19:36/14 18:36-19:19/43	06:25 19:04-19:40/36 06:45-07:09/24	06:00 06:22-07:24/62
	17:17	17:53	18:26	20:00 07:34-09:02/88	20:31 19:49-20:08/19 07:51-07:58/7	20:59 20:02-20:35/33
6	07:57 08:33-09:36/63	07:38	06:59 17:09-17:57/48	07:08 18:36-19:39/63	06:24 19:06-19:39/33 06:46-07:08/22	06:00 06:22-07:25/63
	17:18	17:54	18:28	20:00 07:33-09:01/88	20:32 19:48-20:09/21	21:00 20:03-20:36/33
7	07:57 08:34-09:36/62	07:37	06:58 17:09-17:56/47	07:06 18:37-19:40/63	06:23 19:07-19:38/31 06:47-07:08/21	06:00 06:22-07:26/64
	17:19	17:55	18:29	20:01 07:31-08:59/88	20:33 19:47-20:10/23	21:01 20:02-20:36/34
8	07:57 08:34-09:36/62	07:36	07:56 18:09-18:55/46	07:05 18:38-19:42/64	06:22 19:09-19:36/27 06:48-07:07/19	05:59 06:21-07:25/64
	17:20	17:56	19:30	20:02 07:31-08:59/88	20:34 19:47-20:12/25	21:01 20:02-20:36/34
9	07:57 08:35-09:36/61	07:35	07:54 18:10-18:55/45	07:03 18:39-19:42/63	06:21 19:10-19:34/24 06:49-07:06/17	05:59 06:21-07:26/65
	17:21	17:58	19:31 08:30-08:41/11	20:03 07:31-08:58/87	20:35 19:47-20:13/26	21:02 20:03-20:37/34
10	07:57 08:35-09:36/61	07:33 17:26-17:35/9	07:53 18:10-18:54/44	07:01 18:40-19:43/63	06:20 19:13-19:32/19 06:51-07:04/13	05:59 06:21-07:27/66
	17:22	17:59	19:32 08:23-08:47/24	20:04 07:30-08:56/86	20:36 19:46-20:14/28	21:03 20:03-20:38/35
11	07:56 08:36-09:36/60	07:32 17:22-17:37/15	07:51 18:10-18:52/42	07:00 18:42-19:45/63	06:18 19:16-19:29/13 06:53-07:02/9	05:59 06:22-07:27/65
	17:23	18:00	19:33 08:19-08:50/31	20:05 07:30-08:56/86	20:37 19:46-20:15/29	21:03 20:03-20:38/35
12	07:56 08:37-09:36/59	07:31 17:20-17:38/18	07:50 18:12-18:52/40	06:58 18:44-19:45/61	06:17 19:46-20:16/30	05:59 06:22-07:27/65
	17:24	18:01	19:34 08:16-08:54/38	20:07 07:29-08:54/85	20:38	21:04 20:03-20:39/36
13	07:56 08:37-09:35/58	07:30 17:18-17:40/22	07:48 18:12-18:50/38	06:57 19:04-19:47/43 18:48-19:03/15	06:16 19:46-20:17/31	05:59 06:22-07:28/66
	17:25	18:03	19:35 08:13-08:55/42	20:08 07:29-08:54/85	20:39	21:04 20:04-20:39/35
14	07:55 08:38-09:36/58	07:28 17:16-17:41/25	07:46 18:13-18:48/35 18:55-19:11/16	06:55 19:03-19:47/44	06:15 19:46-20:17/31	05:59 06:22-07:28/66
	17:26	18:04	19:37 08:11-08:57/46	20:09 07:29-08:52/83	20:40 06:36-06:45/9	21:05 20:04-20:40/36
15	07:55 08:38-09:35/57	07:27 17:15-17:42/27	07:45 18:15-18:47/32 18:52-19:15/23	06:54 19:02-19:49/47	06:14 06:35-06:58/23	05:59 06:23-07:28/65
	17:27	18:05	19:38 08:09-08:59/50	20:10 07:29-08:51/82	20:41 19:46-20:18/32	21:05 20:04-20:40/36
16	07:55 08:40-09:35/55	07:26 17:14-17:44/30	07:43 18:16-18:45/29 18:48-19:17/29	06:52 19:01-19:49/48 07:11-07:15/4	06:13 06:34-07:03/29	05:59 06:23-07:29/66
	17:28	18:06	19:39 08:07-09:00/53	20:11 07:29-08:49/80	20:42 19:46-20:19/33	21:06 20:04-20:41/37
17	07:54 08:40-09:34/54	07:24 17:12-17:45/33	07:41 18:18-18:42/24 18:46-19:18/32	06:50 19:01-19:50/49 07:10-07:18/8	06:12 06:33-07:05/32	05:59 06:23-07:29/66
	17:30	18:08	19:40 08:05-09:01/56	20:12 07:29-08:48/79	20:43 19:46-20:20/34	21:06 20:04-20:41/37
18	07:54 08:41-09:34/53	07:23 17:12-17:46/34	07:40 18:22-18:39/17 18:45-19:20/35	06:49 19:00-19:49/49 07:08-07:18/10	06:11 06:32-07:08/36	05:59 06:23-07:29/66
	17:31	18:09	19:41 08:04-09:02/58	20:13 07:29-08:46/77	20:44 19:46-20:21/35	21:06 20:04-20:41/37
19	07:53 08:42-09:33/51	07:22 17:10-17:47/37	07:38 18:28-18:32/4 18:43-19:21/38	06:47 19:00-19:50/50 07:07-07:20/13	06:11 06:31-07:09/38	05:59 06:23-07:29/66
	17:32	18:10	19:42 08:02-09:03/61	20:14 07:30-08:44/74	20:45 19:46-20:21/35	21:07 20:04-20:41/37
20	07:53 08:43-09:32/49	07:20 17:10-17:49/39	07:36 08:01-09:03/62	06:46 18:59-19:49/50 07:05-07:20/15	06:10 06:31-07:12/41	05:59 06:23-07:29/66
	17:33	18:11	19:43 18:41-19:21/40	20:15 07:29-08:42/73	20:46 19:47-20:23/36	21:07 20:05-20:41/36
21	07:52 08:44-09:31/47	07:19 17:10-17:51/41	07:35 08:00-09:04/64	06:44 18:59-19:50/51 07:04-07:21/17	06:09 06:30-07:13/43	05:59 06:24-07:30/66
	17:34	18:12	19:44 18:40-19:23/43	20:16 07:30-08:40/70	20:47 19:48-20:24/36	21:07 20:05-20:41/36
22	07:51 08:45-09:29/44	07:18 17:09-17:51/42	07:33 07:59-09:04/65	06:43 18:59-19:49/50 07:02-07:20/18	06:08 06:29-07:14/45	05:59 06:24-07:30/66
	17:35	18:14	19:45 18:39-19:23/44	20:17 07:30-08:37/67	20:48 19:48-20:24/36	21:07 20:06-20:42/36
23	07:51 08:47-09:28/41	07:16 17:09-17:53/44	07:31 07:58-09:04/66	06:42 18:59-19:49/50 07:01-07:21/20	06:07 06:28-07:15/47	06:00 06:24-07:30/66
	17:37	18:15	19:46 18:38-19:23/45	20:18 07:31-08:35/64	20:49 19:48-20:25/37	21:08 20:06-20:42/36
24	07:50 08:48-09:27/39	07:15 17:09-17:54/45	07:30 07:56-09:05/69	06:40 18:58-19:48/50 06:59-07:20/21	06:07 06:28-07:16/48	06:00 06:24-07:30/66
	17:38	18:16	19:47 18:37-19:24/47	20:19 07:31-08:30/59	20:50 19:50-20:26/36	21:08 20:05-20:42/37
25	07:49 08:50-09:26/36	07:13 17:09-17:56/47	07:28 07:52-09:05/73	06:39 18:59-19:48/49 06:58-07:20/22	06:06 06:27-07:17/50	06:00 06:25-07:31/66
	17:39	18:17	19:48 18:36-19:24/48	20:20 07:32-08:25/53 19:58-19:59/1	20:51 19:50-20:27/37	21:08 20:06-20:43/37
26	07:48 08:51-09:24/33	07:12 17:08-17:56/48	07:26 07:48-09:05/77	06:37 18:59-19:48/49 07:33-08:20/47	06:05 06:26-07:18/52	06:00 06:25-07:31/66
	17:40	18:18	19:50 18:35-19:24/49	20:21 06:57-07:20/23 19:56-20:00/4	20:52 19:50-20:27/37	21:08 20:06-20:43/37
27	07:48 08:53-09:23/30	07:10 17:09-17:58/49	07:25 07:47-09:05/78	06:36 18:59-19:47/48 07:33-08:18/45	06:05 06:26-07:19/53	06:01 06:25-07:31/66
	17:42	18:20	19:51 18:35-19:23/48	20:23 06:55-07:19/24 19:53-20:00/7	20:52 19:52-20:29/37	21:08 20:06-20:42/36
28	07:47 08:56-09:20/24	07:09 17:09-17:57/48	07:23 07:44-09:05/81	06:34 19:00-19:46/46 07:35-08:17/42	06:04 06:25-07:19/54	06:01 06:25-07:31/66
	17:43	18:21	19:52 18:35-19:24/49	20:24 06:54-07:19/25 19:52-20:02/10	20:53 19:52-20:29/37	21:08 20:07-20:43/36
29	07:46 09:03-09:17/14		07:21 07:42-09:05/83	06:33 19:00-19:46/46 07:36-08:16/40	06:03 06:25-07:21/56	06:02 06:25-07:31/66
	17:44		19:53 18:34-19:23/49	20:25 06:53-07:18/25 19:52-20:03/11	20:54 19:54-20:30/36	21:08 20:07-20:43/36
30	07:45		07:20 07:41-09:05/84	06:32 19:00-19:45/45 06:51-07:17/26	06:03 06:24-07:21/57	06:02 06:26-07:32/66
	17:45		19:54 18:34-19:23/49	20:26 19:50-20:03/13 07:37-08:14/37	20:55 19:54-20:30/36	21:08 20:08-20:43/35
31	07:44		07:18 07:39-09:04/85		06:02 06:24-07:22/58	
	17:46		19:55 18:34-19:23/49		20:56 19:56-20:32/36	
Potential sun hours	297	297	370	399	448	452
Sum of minutes with flicker	1488	653	2823	4080	2393	3005

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T71a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (171)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August	September	October	November	December
1	06:03 06:26-07:31/65	06:27 19:28-19:36/8 07:06-07:10/4	06:57 18:41-19:44/63	07:27 17:51-18:30/39	07:02 16:57-17:03/6	07:37 08:18-09:18/60
	21:08 20:07-20:43/36	20:50 19:56-20:25/29	20:07 07:29-08:55/86	19:15 07:54-08:33/39	17:28	17:04
2	06:03 06:26-07:32/66	06:28 19:24-19:40/16 07:02-07:12/10	06:58 18:39-19:42/63	07:29 17:49-18:31/42	07:03	07:38 08:18-09:19/61
	21:08 20:07-20:42/35	20:49 19:56-20:24/28	20:05 07:29-08:55/86	19:13 07:56-08:30/34	17:27	17:04
3	06:04 06:26-07:31/65	06:29 19:21-19:43/22 07:00-07:14/14	06:59 18:37-19:40/63	07:30 17:48-18:31/43	07:04	07:39 08:18-09:19/61
	21:08 20:08-20:42/34	20:48 19:56-20:23/27	20:04 07:29-08:56/87	19:11 07:59-08:26/27	17:26	17:04
4	06:04 06:27-07:32/65	06:30 19:19-19:45/26 06:58-07:16/18	07:00 18:35-19:39/64	07:31 17:47-18:31/44	07:05	07:40 08:19-09:20/61
	21:08 20:08-20:43/35	20:47 19:56-20:22/26	20:02 07:28-08:56/88	19:10 08:03-08:21/18	17:25	17:03
5	06:05 06:27-07:31/64	06:30 19:18-19:46/28 06:57-07:17/20	07:01 18:34-19:37/63	07:32 17:46-18:32/46	07:07	07:41 08:19-09:21/62
	21:08 20:08-20:42/34	20:45 19:57-20:21/24	20:01 07:29-08:56/87	19:08	17:23	17:03
6	06:05 06:28-07:31/63	06:31 19:16-19:48/32 06:56-07:18/22	07:02 18:32-19:36/64	07:33 17:46-18:33/47	07:08	07:42 08:19-09:22/63
	21:07 20:09-20:42/33	20:44 19:57-20:20/23	19:57 07:29-08:57/88	19:06	17:22	17:03
7	06:06 06:28-07:31/63	06:32 19:15-19:49/34 06:56-07:18/22	07:03 19:16-19:32/16 18:31-19:14/43	07:34 17:45-18:33/48	07:09	07:43 08:19-09:22/63
	21:07 20:09-20:41/32	20:43 19:58-20:19/21	19:56 07:29-08:57/88	19:05	17:21	17:03
8	06:07 06:29-07:31/62	06:33 19:14-19:50/36 06:55-07:19/24	07:04 07:29-08:57/88	07:35 17:44-18:33/49	07:10	07:44 08:20-09:23/63
	21:07 20:09-20:41/32	20:42 19:58-20:18/20 07:58-08:10/12	19:54 18:30-19:14/44	19:03	17:20	17:03
9	06:07 06:30-07:31/61	06:34 19:12-19:51/39 06:56-07:20/24	07:05 07:29-08:57/88	07:36 17:44-18:32/48	07:11	07:44 08:20-09:24/64
	21:06 20:09-20:41/32	20:41 19:58-20:16/18 07:54-08:14/20	19:52 18:29-19:15/46	19:02	17:19	17:03
10	06:08 06:30-07:30/60	06:35 19:11-19:52/41 06:57-07:22/25	07:06 07:30-08:57/87	07:37 17:43-18:32/49	07:13	07:45 08:21-09:25/64
	21:06 20:07-20:40/33	20:39 19:58-20:15/17 07:51-08:17/26	19:51 18:28-19:15/47	19:00	17:18	17:03
11	06:09 06:31-07:30/59	06:36 19:10-19:52/42 06:58-07:24/26	07:07 07:30-08:57/87	07:38 17:43-18:32/49	07:14	07:46 08:21-09:25/64
	21:06 20:06-20:40/34	20:38 19:58-20:14/16 07:49-08:19/30	19:49 18:26-19:14/48	18:58	17:17	17:03
12	06:09 06:32-07:30/58	06:37 19:10-19:53/43 06:59-07:25/26	07:08 07:30-08:55/85	07:39 17:43-18:31/48	07:15	07:47 08:21-09:25/64
	21:05 20:05-20:40/35	20:37 19:58-20:13/15 07:47-08:21/34	19:47 18:26-19:14/48	18:57	17:16	17:03
13	06:10 06:32-07:29/57	06:38 19:09-19:54/45 07:00-07:26/26	07:09 07:31-08:55/84	07:40 17:42-18:30/48	07:16 08:34-08:49/15	07:48 08:22-09:26/64
	21:05 20:03-20:39/36	20:35 19:59-20:12/13 07:45-08:23/38	19:45 18:25-19:14/49	18:55	17:15	17:03
14	06:11 06:33-07:29/56	06:39 19:08-19:54/46 07:44-08:24/40	07:10 07:32-08:55/83	07:41 17:41-18:30/49	07:17 08:29-08:53/24	07:48 08:22-09:27/65
	21:04 20:02-20:39/37	20:34 07:01-07:26/25 19:59-20:10/11	19:44 18:25-19:13/48	18:54	17:14	17:04
15	06:12 06:34-07:29/55	06:40 19:07-19:54/47 07:42-08:25/43	07:11 07:33-08:54/81	07:42 17:40-18:29/49	07:19 08:26-08:56/30	07:49 08:23-09:27/64
	21:04 20:02-20:39/37	20:33 07:02-07:27/25 20:00-20:09/9	19:42 18:24-19:13/49	18:52	17:13	17:04
16	06:12 06:35-07:29/54	06:41 19:07-19:55/48 07:41-08:26/45	07:12 07:35-08:54/79	07:43 17:41-18:28/47	07:20 08:24-08:57/33	07:50 08:23-09:27/64
	21:03 20:01-20:38/37	20:31 07:03-07:27/24 20:01-20:08/7	19:40 18:24-19:13/49	18:51	17:13	17:04
17	06:13 06:35-07:27/52	06:42 19:06-19:55/49 07:40-08:27/47	07:13 07:36-08:53/77	07:45 17:40-18:27/47	07:21 08:23-08:59/36	07:51 08:24-09:28/64
	21:03 20:00-20:37/37	20:30 07:04-07:27/23 20:03-20:06/3	19:39 18:24-19:12/48	18:49	17:12	17:04
18	06:14 06:36-07:27/51	06:43 19:06-19:55/49 07:05-07:27/22	07:14 07:38-08:53/75	07:46 17:40-18:25/45	07:22 08:22-09:01/39	07:51 08:24-09:29/65
	21:02 20:00-20:36/36	20:28 07:39-08:33/54	19:37 18:24-19:11/47	18:48	17:11	17:05
19	06:15 06:37-07:26/49	06:44 19:05-19:55/50 07:06-07:27/21	07:15 07:41-08:52/71	07:47 17:40-18:23/43	07:23 08:21-09:02/41	07:52 08:24-09:29/65
	21:01 19:59-20:36/37	20:27 07:38-08:38/60	19:35 18:24-19:11/47	18:46	17:10	17:05
20	06:16 06:38-07:26/48	06:45 19:04-19:54/50 07:07-07:26/19	07:16 07:44-08:51/67	07:48 17:40-18:21/41	07:24 08:20-09:04/44	07:52 08:25-09:30/65
	21:00 19:59-20:36/37	20:26 07:37-08:41/64	19:33 18:24-19:10/46	18:45	17:09	17:05
21	06:16 06:39-07:25/46	06:46 19:04-19:54/50 07:08-07:26/18	07:17 07:44-08:50/66	07:49 17:40-18:20/40	07:26 08:19-09:06/47	07:53 08:25-09:30/65
	21:00 19:59-20:35/36	20:24 07:36-08:43/67	19:32 18:24-19:09/45	18:43	17:09	17:06
22	06:17 06:40-07:24/44	06:47 19:03-19:53/50 07:09-07:25/16	07:18 07:44-08:49/65	07:50 17:41-18:19/38	07:27 08:19-09:08/49	07:54 08:26-09:31/65
	20:59 19:57-20:33/36	20:23 07:34-08:44/70	19:30 18:24-19:08/44	18:42	17:08	17:06
23	06:18 06:40-07:22/42	06:48 19:03-19:53/50 07:09-07:23/14	07:19 07:45-08:48/63	07:51 17:41-18:17/36	07:28 08:19-09:10/51	07:54 08:26-09:31/65
	20:58 19:57-20:33/36	20:21 07:33-08:46/73	19:28 18:25-19:06/41	18:40	17:08	17:07
24	06:19 06:41-07:21/40	06:49 19:03-19:53/50 07:10-07:22/12	07:20 07:46-08:46/60	07:52 17:41-18:16/35	07:29 08:18-09:11/53	07:54 08:27-09:32/65
	20:57 19:57-20:32/35	20:20 07:32-08:47/75	19:27 18:26-19:05/39	18:39	17:07	17:07
25	06:20 06:42-07:19/37	06:50 19:03-19:52/49 07:11-07:21/10	07:21 18:06-18:20/14 18:27-19:03/36	07:54 17:42-18:14/32	07:30 08:18-09:12/54	07:55 08:27-09:32/65
	20:57 19:57-20:32/35	20:18 07:32-08:49/77	19:25 07:46-08:45/59	18:37	17:06	17:08
26	06:21 06:43-07:17/34	06:51 19:03-19:52/49 07:12-07:19/7	07:22 18:02-18:23/21 18:28-19:01/33	07:55 17:44-18:13/29	07:31 08:18-09:13/55	07:55 08:27-09:32/65
	20:56 19:57-20:31/34	20:17 07:31-08:50/79	19:23 07:47-08:44/57	18:36	17:06	17:09
27	06:22 06:44-07:15/31	06:52 19:03-19:51/48 07:13-07:17/4	07:23 17:59-18:26/27 18:29-18:59/30	07:56 17:45-18:12/27	07:32 08:18-09:15/57	07:56 08:29-09:33/64
	20:55 19:57-20:30/33	20:15 07:31-08:51/80	19:22 07:48-08:42/54	18:35	17:06	17:09
28	06:23 06:45-07:12/27	06:53 19:03-19:50/47	07:24 17:56-18:27/31 18:31-18:57/26	07:57 17:46-18:10/24	07:33 08:18-09:16/58	07:56 08:29-09:33/64
	20:54 19:56-20:29/33	20:13 07:30-08:52/82	19:20 07:49-08:40/51	18:33	17:05	17:10
29	06:24 07:01-07:05/4 06:46-06:57/11	06:54 19:04-19:48/44	07:25 17:54-18:28/34 18:34-18:53/19	07:58 17:47-18:09/22	07:35 08:18-09:16/58	07:56 08:29-09:34/65
	20:53 19:56-20:28/32	20:12 07:30-08:53/83	19:18 07:50-08:38/48	18:32	17:05	17:11
30	06:25 19:56-20:28/32	06:55 19:04-19:47/43 18:48-19:03/15	07:26 17:52-18:29/37 18:38-18:48/10	07:59 17:50-18:08/18	07:36 08:18-09:17/59	07:56 08:29-09:34/65
	20:52 06:47-06:54/7	20:10 07:29-08:54/85	19:16 07:52-08:36/44	18:31	17:04	17:12
31	06:26 19:56-20:26/30	06:56 18:44-19:45/61		08:01 17:52-18:06/14		07:57 08:30-09:34/64
	20:51	20:09 07:29-08:54/85		18:29		17:12
Potential sun hours	459	428	375	345	298	288
Sum of minutes with flicker	2567	3484	3771	1354	809	1978

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T72 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (172)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:58	07:44	07:07	07:16	06:30 06:50-06:51/1	06:01 06:42-06:57/15	06:02	06:26 06:48-07:14/26	06:57	07:28	07:02	07:37
	17:13	17:47	18:22	19:56	20:27	20:57	21:09	20:50	20:07	19:15	17:28	17:03
2	07:58	07:43	07:06	07:14	06:29 06:49-06:56/7	06:01 06:43-06:55/12	06:02	06:27 06:49-07:14/25	06:58	07:29	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:58	21:09	20:49	20:06	19:13	17:27	17:03
3	07:58	07:42	07:04	07:13	06:27 06:47-06:57/10	06:00 06:45-06:54/9	06:03	06:28 06:50-07:13/23	06:59	07:30	07:05	07:39
	17:14	17:50	18:24	19:58	20:29	20:59	21:09	20:48	20:04	19:11	17:25	17:03
4	07:58	07:41	07:03	07:11	06:26 06:46-06:59/13	06:00 06:48-06:52/4	06:03	06:29 06:51-07:13/22	07:00	07:31	07:06	07:40
	17:15	17:51	18:25	19:59	20:30	21:00	21:09	20:47	20:02	19:10	17:24	17:03
5	07:58	07:40	07:01	07:09	06:25 06:45-07:00/15	06:00	06:04	06:30 06:52-07:12/20	07:01	07:32	07:07	07:41
	17:16	17:52	18:26	20:00	20:32	21:00	21:08	20:46	20:01	19:08	17:23	17:03
6	07:58	07:39	06:59	07:08	06:24 06:44-07:01/17	05:59	06:05	06:31 06:53-07:12/19	07:02	07:33	07:08	07:42
	17:17	17:54	18:27	20:00	20:33	21:01	21:08	20:45	19:57	19:06	17:22	17:02
7	07:58	07:37	06:58	07:06	06:23 06:43-07:02/19	05:59	06:05	06:32 06:54-07:11/17	07:03	07:34	07:09	07:43
	17:18	17:55	18:29	20:01	20:34	21:02	21:08	20:44	19:56	19:05	17:21	17:02
8	07:58	07:36	07:56	07:05	06:21 06:42-07:03/21	05:59	06:06	06:33 06:55-07:10/15	07:04	07:35	07:11	07:44
	17:19	17:56	19:30	20:03	20:35	21:02	21:08	20:42	19:54	19:03	17:20	17:02
9	07:57	07:35	07:55	07:03	06:20 06:40-07:02/22	05:58	06:06 06:53-07:00/7	06:34 06:56-07:08/12	07:05	07:36	07:12	07:45
	17:20	17:57	19:31	20:04	20:36	21:03	21:07	20:41	19:52	19:02	17:19	17:02
10	07:57	07:34	07:53	07:01	06:19 06:39-07:03/24	05:58	06:07 06:52-07:03/11	06:35 06:57-07:06/9	07:06	07:37	07:13	07:46
	17:21	17:59	19:32	20:05	20:37	21:03	21:07	20:40	19:51	19:00	17:18	17:02
11	07:57	07:33	07:51	07:00	06:18 06:38-07:03/25	05:58	06:08 06:50-07:03/13	06:36 06:58-07:04/6	07:07	07:38	07:14	07:47
	17:22	18:00	19:33	20:06	20:38	21:04	21:06	20:39	19:49	18:58	17:17	17:02
12	07:57	07:31	07:50	06:58	06:17 06:37-07:03/26	05:58	06:09 06:50-07:05/15	06:37	07:08	07:39	07:15	07:48
	17:23	18:01	19:34	20:07	20:39	21:05	21:06	20:37	19:47	18:57	17:16	17:02
13	07:56	07:30	07:48	06:57	06:16 06:36-07:03/27	05:58	06:09 06:49-07:06/17	06:38	07:09	07:40	07:17	07:49
	17:24	18:02	19:35	20:08	20:40	21:05	21:05	20:36	19:46	18:55	17:15	17:03
14	07:56	07:29	07:46	06:55	06:15 06:35-07:04/29	05:58	06:10 06:49-07:08/19	06:39	07:10	07:42	07:18	07:49
	17:26	18:04	19:37	20:09	20:41	21:05	21:05	20:35	19:44	18:53	17:14	17:03
15	07:56	07:28	07:45	06:53	06:14 06:34-07:03/29	05:58	06:11 06:47-07:08/21	06:40	07:11	07:43	07:19	07:50
	17:27	18:05	19:38	20:10	20:42	21:06	21:04	20:33	19:42	18:52	17:13	17:03
16	07:55	07:26	07:43	06:52	06:13 06:33-07:03/30	05:58	06:12 06:47-07:09/22	06:41	07:12	07:44	07:20	07:51
	17:28	18:06	19:39	20:11	20:43	21:06	21:04	20:32	19:40	18:50	17:12	17:03
17	07:55	07:25	07:41	06:50	06:12 06:33-07:04/31	05:58	06:12 06:46-07:10/24	06:42	07:13	07:45	07:21	07:51
	17:29	18:07	19:40	20:12	20:44	21:07	21:03	20:30	19:39	18:49	17:11	17:04
18	07:54	07:24	07:40	06:49	06:11 06:33-07:04/31	05:58	06:13 06:46-07:11/25	06:43	07:14	07:46	07:23	07:52
	17:30	18:09	19:41	20:13	20:45	21:07	21:03	20:29	19:37	18:47	17:10	17:04
19	07:54	07:22	07:38	06:47	06:10 06:33-07:03/30	05:58	06:14 06:46-07:12/26	06:44	07:15	07:47	07:24	07:53
	17:31	18:10	19:42	20:14	20:46	21:07	21:02	20:27	19:35	18:46	17:10	17:04
20	07:53	07:21	07:36	06:46	06:09 06:33-07:03/30	05:58	06:15 06:45-07:11/26	06:45	07:16	07:48	07:25	07:53
	17:32	18:11	19:43	20:15	20:47	21:08	21:01	20:26	19:34	18:44	17:09	17:05
21	07:53	07:19	07:35	06:44	06:08 06:34-07:02/28	05:58	06:16 06:44-07:12/28	06:46	07:17	07:49	07:26	07:54
	17:34	18:12	19:44	20:17	20:48	21:08	21:00	20:25	19:32	18:43	17:08	17:05
22	07:52	07:18	07:33	06:43	06:07 06:35-07:03/28	05:59	06:17 06:44-07:13/29	06:47	07:18	07:51	07:27	07:54
	17:35	18:13	19:45	20:18	20:49	21:08	21:00	20:23	19:30	18:41	17:08	17:06
23	07:51	07:16	07:31	06:41	06:07 06:35-07:02/27	05:59	06:18 06:44-07:13/29	06:48	07:19	07:52	07:29	07:55
	17:36	18:15	19:46	20:19	20:50	21:08	20:59	20:22	19:28	18:40	17:07	17:06
24	07:51	07:15	07:30	06:40	06:06 06:35-07:01/26	05:59	06:19 06:44-07:14/30	06:49	07:20	07:53	07:30	07:55
	17:37	18:16	19:47	20:20	20:51	21:09	20:58	20:20	19:27	18:39	17:06	17:07
25	07:50	07:13	07:28	06:38	06:05 06:36-07:02/26	05:59	06:19 06:44-07:14/30	06:50	07:21	07:54	07:31	07:56
	17:39	18:17	19:49	20:21	20:51	21:09	20:57	20:18	19:25	18:37	17:06	17:07
26	07:49	07:12	07:26	06:37	06:05 06:37-07:01/24	06:00	06:20 06:44-07:14/30	06:51	07:22	07:55	07:32	07:56
	17:40	18:18	19:50	20:22	20:52	21:09	20:56	20:17	19:23	18:36	17:05	17:08
27	07:48	07:10	07:25	06:35	06:04 06:37-07:00/23	06:00	06:21 06:43-07:14/31	06:52	07:23	07:56	07:33	07:56
	17:41	18:19	19:51	20:23	20:53	21:09	20:55	20:15	19:22	18:34	17:05	17:09
28	07:47	07:09	07:23	06:34	06:03 06:38-07:00/22	06:00	06:22 06:44-07:14/30	06:53	07:24	07:58	07:34	07:57
	17:42	18:21	19:52	20:24	20:54	21:09	20:54	20:14	19:20	18:33	17:04	17:09
29	07:47		07:21	06:33	06:03 06:39-06:59/20	06:01	06:23 06:45-07:14/29	06:54	07:26	07:59	07:35	07:57
	17:44		19:53	20:25	20:55	21:09	20:54	20:12	19:18	18:32	17:04	17:10
30	07:46		07:19	06:31	06:02 06:40-06:58/18	06:01	06:24 06:46-07:14/28	06:55	07:27	08:00	07:36	07:57
	17:45		19:54	20:26	20:56	21:09	20:53	20:11	19:16	18:30	17:04	17:11
31	07:45		07:18		06:02 06:41-06:57/16		06:25 06:47-07:14/27	06:56		08:01		07:57
	17:46		19:55		20:57		20:51	20:09		18:29		17:12
Potential sun hours	297	297	370	399	449	453	460	429	375	345	297	287
Sum of minutes with flicker	0	0	0	0	695	40	547	194	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T78a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (175)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January		February		March		April		May	June	
1	07:57	16:14-16:36/22	07:43	16:17-17:16/59	07:07		07:16	18:22-19:34/72	06:31	06:02	
	17:13		17:48		18:22		19:56		20:27	20:57	
2	07:57	16:14-16:36/22	07:43	16:17-17:16/59	07:06		07:15	18:22-19:36/74	06:29	06:01	
	17:14		17:49		18:23		19:57		20:28	20:58	
3	07:57	16:15-16:36/21	07:41	16:17-17:17/60	07:04		07:13	18:22-19:37/75	06:28	06:01	
	17:15		17:50		18:24		19:58		20:29	20:58	
4	07:57	16:16-16:36/20	07:40	16:18-17:17/59	07:03	07:22-07:26/4	07:11	18:21-19:37/76	06:27	06:01	
	17:16		17:52		18:25		19:59		20:30	20:59	
5	07:57	16:17-16:36/19	07:39	16:18-17:17/59	07:01	07:20-07:28/8	07:10	18:22-19:39/77	06:25	06:00	
	17:17		17:53		18:27		20:00		20:31	21:00	
6	07:57	16:19-16:36/17	07:38	16:17-17:17/60	06:59	07:19-07:29/10	07:08	18:22-19:40/78	06:24	06:00	
	17:18		17:54		18:28		20:00		20:32	21:00	
7	07:57	16:19-16:43/24	07:37	16:17-17:17/60	06:58	07:17-07:30/13	07:06	18:21-19:40/79	06:23	06:00	
	17:19		17:55		18:29		20:01		20:33	21:01	
8	07:57	16:21-16:47/26	07:36	16:18-17:17/59	07:56	08:16-08:31/15	07:05	18:22-19:42/80	06:22	05:59	
	17:20		17:57		19:30		20:03		20:34	21:02	
9	07:57	16:22-16:49/27	07:35	16:18-17:17/59	07:55	08:14-08:31/17	07:03	19:20-19:40/20	06:21	05:59	
	17:21		17:58		19:31		20:04	18:22-19:18/56	20:35	21:02	
10	07:57	16:25-16:52/27	07:34	16:18-17:18/60	07:53	08:12-08:30/18	07:02	19:22-19:39/17	06:20	05:59	
	17:22		17:59		19:32		20:05	18:23-19:18/55	20:36	21:03	
11	07:57	16:27-16:53/26	07:32	16:18-17:17/59	07:51	08:11-08:31/20	07:00	19:23-19:37/14	06:19	05:59	20:23-20:31/8
	17:23		18:00		19:33		20:06	18:24-19:16/52	20:38	21:04	
12	07:56	16:27-16:55/28	07:31	16:19-17:17/58	07:50	08:09-08:30/21	06:58	19:25-19:34/9	06:17	05:59	20:22-20:33/11
	17:24		18:02		19:34		20:07	18:24-19:15/51	20:39	21:04	
13	07:56	16:26-16:57/31	07:30	16:19-17:17/58	07:48	08:07-08:29/22	06:57	18:25-19:14/49	06:16	05:59	20:21-20:35/14
	17:25		18:03		19:36	18:52-19:03/11	20:08		20:40	21:05	
14	07:56	16:25-16:58/33	07:29	16:20-17:17/57	07:46	08:07-08:28/21	06:55	18:26-19:12/46	06:15	05:59	20:20-20:36/16
	17:26		18:04		19:37	18:47-19:09/22	20:09		20:41	21:05	
15	07:55	16:24-17:00/36	07:27	16:20-17:15/55	07:45	08:07-08:27/20	06:54	18:27-19:11/44	06:14	05:59	20:20-20:37/17
	17:27		18:05		19:38	18:43-19:12/29	20:10		20:42	21:05	
16	07:55	16:23-17:01/38	07:26	16:21-17:15/54	07:43	08:08-08:25/17	06:52	18:28-19:09/41	06:13	05:59	20:19-20:37/18
	17:28		18:06		19:39	18:40-19:14/34	20:11		20:43	21:06	
17	07:54	16:23-17:03/40	07:25	16:21-17:14/53	07:41	08:11-08:23/12	06:51	18:30-19:08/38	06:12	05:59	20:19-20:38/19
	17:30		18:08		19:40	18:38-19:16/38	20:12		20:44	21:06	
18	07:54	16:22-17:03/41	07:23	16:23-17:13/50	07:40	08:14-08:18/4	06:49	18:31-19:05/34	06:12	05:59	20:19-20:38/19
	17:31		18:09		19:41	18:35-19:18/43	20:13		20:44	21:07	
19	07:53	16:22-17:05/43	07:22	16:24-17:13/49	07:38	18:33-19:19/46	06:48	18:34-19:03/29	06:11	05:59	20:19-20:39/20
	17:32		18:10		19:42		20:14		20:45	21:07	
20	07:53	16:21-17:06/45	07:21	16:25-17:11/46	07:36	18:31-19:19/48	06:46	18:35-19:00/25	06:10	05:59	20:19-20:39/20
	17:33		18:11		19:43		20:15		20:46	21:07	
21	07:52	16:20-17:07/47	07:19	16:26-17:10/44	07:35	18:31-19:21/50	06:45	18:39-18:57/18	06:09	05:59	20:20-20:40/20
	17:34		18:13		19:44		20:16		20:47	21:08	
22	07:52	16:21-17:09/48	07:18	16:27-17:08/41	07:33	18:29-19:21/52	06:43	18:46-18:49/3	06:08	05:59	20:20-20:40/20
	17:35		18:14		19:45		20:17		20:48	21:08	
23	07:51	16:20-17:09/49	07:16	16:29-17:07/38	07:31	18:27-19:22/55	06:42		06:07	06:00	20:20-20:40/20
	17:37		18:15		19:46		20:19		20:49	21:08	
24	07:50	16:19-17:10/51	07:15	16:31-17:05/34	07:30	18:27-19:23/56	06:40		06:07	06:00	20:20-20:39/19
	17:38		18:16		19:48		20:20		20:50	21:08	
25	07:50	16:19-17:11/52	07:13	16:33-17:03/30	07:28	18:26-19:27/61	06:39		06:06	06:00	20:21-20:40/19
	17:39		18:17		19:49		20:21		20:51	21:08	
26	07:49	16:18-17:11/53	07:12	16:36-16:59/23	07:26	18:25-19:28/63	06:37		06:05	06:00	20:21-20:40/19
	17:40		18:18		19:50		20:22		20:52	21:08	
27	07:48	16:19-17:13/54	07:10	16:40-16:56/16	07:25	18:25-19:30/65	06:36		06:05	06:01	20:22-20:39/17
	17:42		18:20		19:51		20:23		20:53	21:08	
28	07:47	16:18-17:14/56	07:09		07:23	18:24-19:30/66	06:35		06:04	06:01	20:23-20:39/16
	17:43		18:21		19:52		20:24		20:54	21:09	
29	07:46	16:18-17:14/56			07:21	18:23-19:31/68	06:33		06:03	06:02	20:24-20:38/14
	17:44				19:53		20:25		20:54	21:09	
30	07:45	16:18-17:15/57			07:20	18:23-19:33/70	06:32		06:03	06:02	20:25-20:38/13
	17:45				19:54		20:26		20:55	21:08	
31	07:44	16:18-17:15/57			07:18	18:22-19:34/72			06:02		
	17:47				19:55				20:56		
Potential sun hours	297		297		370		399		448	452	
Sum of minutes with flicker		1166		1359		1171		1212	0		339

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T78a - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (175)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July		August		September		October		November		December	
1	06:03	20:27-20:36/9	06:27		06:58	19:22-19:36/14	07:28	07:48-08:09/21	07:02	15:47-16:46/59	07:37	16:09-16:35/26
	21:08		20:50		20:07	18:23-19:15/52	19:15		17:28		17:04	
2	06:03	20:30-20:34/4	06:28		06:59	19:20-19:37/17	07:29	07:49-08:09/20	07:03	15:48-16:47/59	07:38	16:07-16:34/27
	21:08		20:49		20:06	18:21-19:16/55	19:13		17:27		17:04	
3	06:04		06:29		07:00	19:18-19:38/20	07:30	07:50-08:09/19	07:04	15:47-16:47/60	07:39	16:06-16:32/26
	21:08		20:48		20:04	18:20-19:16/56	19:12		17:26		17:04	
4	06:04		06:30		07:01	18:19-19:39/80	07:31	07:51-08:08/17	07:06	15:47-16:47/60	07:40	16:05-16:31/26
	21:08		20:47		20:02		19:10		17:25		17:03	
5	06:05		06:31		07:02	18:19-19:37/78	07:32	07:52-08:08/16	07:07	15:47-16:47/60	07:41	16:04-16:29/25
	21:08		20:46		20:01		19:08		17:24		17:03	
6	06:05		06:32		07:03	18:18-19:36/78	07:33	07:53-08:07/14	07:08	15:48-16:47/59	07:42	16:04-16:21/17
	21:08		20:44		19:57		19:07		17:22		17:03	
7	06:06		06:33		07:04	18:17-19:34/77	07:34	07:54-08:05/11	07:09	15:47-16:47/60	07:43	16:03-16:22/19
	21:07		20:43		19:56		19:05		17:21		17:03	
8	06:07		06:34		07:05	18:16-19:33/77	07:35	07:55-08:04/9	07:10	15:47-16:46/59	07:44	16:03-16:23/20
	21:07		20:42		19:54		19:03		17:20		17:03	
9	06:07		06:35		07:06	18:16-19:31/75	07:36	07:56-08:02/6	07:12	15:48-16:47/59	07:45	16:03-16:24/21
	21:07		20:41		19:52		19:02		17:19		17:03	
10	06:08		06:36		07:07	18:15-19:29/74	07:37	07:57-07:59/2	07:13	15:48-16:47/59	07:46	16:04-16:25/21
	21:06		20:40		19:51		19:00		17:18		17:03	
11	06:09		06:37		07:08	18:15-19:28/73	07:38		07:14	15:49-16:46/57	07:46	16:04-16:26/22
	21:06		20:38		19:49		18:59		17:17		17:03	
12	06:09		06:38		07:09	18:14-19:26/72	07:39		07:15	15:49-16:46/57	07:47	16:04-16:27/23
	21:06		20:37		19:47		18:57		17:16		17:03	
13	06:10		06:39		07:10	18:14-19:24/70	07:40		07:16	15:50-16:46/56	07:48	16:05-16:27/22
	21:05		20:36		19:46		18:55		17:15		17:03	
14	06:11		06:40		07:10	18:14-19:22/68	07:42	17:18-17:24/6	07:18	15:50-16:45/55	07:49	16:04-16:27/23
	21:05		20:34		19:44		18:54		17:14		17:04	
15	06:12		06:41		07:11	18:13-19:20/67	07:43	17:11-17:30/19	07:19	15:51-16:45/54	07:50	16:05-16:28/23
	21:04		20:33		19:42		18:52		17:13		17:04	
16	06:12		06:42		07:12	18:13-19:18/65	07:44	17:07-17:33/26	07:20	15:51-16:44/53	07:50	16:05-16:29/24
	21:03		20:32		19:41		18:51		17:13		17:04	
17	06:13		06:43		07:13	18:13-19:17/64	07:45	17:04-17:35/31	07:21	15:53-16:45/52	07:51	16:05-16:29/24
	21:03		20:30		19:39		18:49		17:12		17:04	
18	06:14		06:44		07:14	18:13-19:15/62	07:46	17:01-17:37/36	07:22	15:53-16:44/51	07:52	16:06-16:30/24
	21:02		20:29		19:37		18:48		17:11		17:05	
19	06:15		06:45		07:15	19:11-19:13/2	07:47	16:59-17:38/39	07:24	15:54-16:43/49	07:52	16:06-16:31/25
	21:02		20:27		19:35	18:13-19:09/56	18:46		17:10		17:05	
20	06:16		06:46		07:16	18:14-19:08/54	07:48	16:58-17:40/42	07:25	15:56-16:44/48	07:53	16:06-16:31/25
	21:01		20:26		19:34		18:45		17:10		17:05	
21	06:17		06:47	18:49-18:57/8	07:17	18:14-19:07/53	07:49	16:56-17:41/45	07:26	15:56-16:43/47	07:53	16:07-16:32/25
	21:00		20:24		19:32		18:43		17:09		17:06	
22	06:17		06:48	18:43-19:02/19	07:18	18:15-19:06/51	07:50	16:55-17:42/47	07:27	15:57-16:42/45	07:54	16:07-16:32/25
	20:59		20:23		19:30		18:42		17:08		17:06	
23	06:18		06:49	18:39-19:04/25	07:20	18:15-19:04/49	07:52	16:53-17:43/50	07:28	15:58-16:41/43	07:54	16:08-16:33/25
	20:59		20:21		19:29		18:40		17:08		17:07	
24	06:19		06:50	18:36-19:07/31	07:21	18:16-19:02/46	07:53	16:52-17:43/51	07:29	15:59-16:40/41	07:55	16:08-16:33/25
	20:58		20:20		19:27		18:39		17:07		17:07	
25	06:20		06:51	18:34-19:08/34	07:22	18:17-19:01/44	07:54	16:52-17:45/53	07:30	16:01-16:41/40	07:55	16:09-16:33/24
	20:57		20:18		19:25		18:38		17:07		17:08	
26	06:21		06:52	18:32-19:10/38	07:23	07:53-08:04/11	07:55	16:51-17:45/54	07:32	16:02-16:40/38	07:56	16:10-16:34/24
	20:56		20:17		19:23	18:19-18:59/40	18:36		17:06		17:09	
27	06:22		06:53	18:30-19:11/41	07:24	07:50-08:06/16	07:56	16:50-17:45/55	07:33	16:03-16:39/36	07:56	16:10-16:34/24
	20:55		20:15		19:22	18:20-18:56/36	18:35		17:06		17:09	
28	06:23		06:54	18:28-19:12/44	07:25	07:48-08:07/19	07:57	16:49-17:45/56	07:34	16:05-16:38/33	07:56	16:10-16:34/24
	20:54		20:14		19:20	18:22-18:54/32	18:33		17:05		17:10	
29	06:24		06:55	18:27-19:13/46	07:26	07:47-08:08/21	07:59	16:49-17:46/57	07:35	16:06-16:37/31	07:57	16:11-16:34/23
	20:53		20:12		19:18	18:25-18:50/25	18:32		17:05		17:11	
30	06:25		06:56	18:25-19:14/49	07:27	07:47-08:09/22	08:00	16:48-17:46/58	07:36	16:08-16:36/28	07:57	16:11-16:34/23
	20:52		20:10		19:17	18:29-18:45/16	18:31		17:04		17:12	
31	06:26		06:57	19:25-19:34/9			08:01	16:48-17:46/58			07:57	16:13-16:35/22
	20:51		20:09	18:24-19:15/51			18:30				17:12	
Potential sun hours	459		428		375		345		297		287	
Sum of minutes with flicker		13		395		1887		918		1508		727

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T79 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (176)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:57	07:43	07:07	07:16	06:30	06:02 06:24-06:47/23	06:02 06:34-06:50/16	06:26 06:48-06:58/10	06:57	07:27	07:02	07:37
	17:13	17:48	18:22	19:56	20:27	20:56	21:08	20:50	20:07	19:15	17:28	17:04
2	07:57	07:42	07:05	07:14	06:29	06:01 06:25-06:47/22	06:03 06:33-06:50/17	06:27 06:49-06:57/8	06:58	07:28	07:03	07:38
	17:14	17:49	18:23	19:57	20:28	20:57	21:08	20:49	20:05	19:13	17:27	17:04
3	07:57	07:41	07:04	07:13	06:28	06:01 06:26-06:48/22	06:03 06:34-06:51/17	06:28 06:50-06:56/6	06:59	07:29	07:04	07:39
	17:15	17:50	18:24	19:58	20:29	20:58	21:08	20:48	20:04	19:11	17:26	17:03
4	07:57	07:40	07:02	07:11	06:26	06:00 06:25-06:47/22	06:04 06:33-06:51/18	06:29 06:51-06:54/3	07:00	07:30	07:05	07:40
	17:16	17:51	18:25	19:59	20:30	20:59	21:08	20:46	20:02	19:10	17:24	17:03
5	07:57	07:39	07:01	07:09	06:25	06:00 06:26-06:47/21	06:04 06:33-06:52/19	06:30	07:01	07:32	07:06	07:41
	17:17	17:53	18:26	20:00	20:31	20:59	21:07	20:45	20:00	19:08	17:23	17:03
6	07:57	07:38	06:59	07:08	06:24	06:00 06:27-06:47/20	06:05 06:33-06:53/20	06:31	07:02	07:33	07:08	07:42
	17:18	17:54	18:27	20:00	20:32	21:00	21:07	20:44	19:57	19:06	17:22	17:03
7	07:57	07:37	06:58	07:06	06:23	05:59 06:27-06:46/19	06:06 06:33-06:53/20	06:32	07:03	07:34	07:09	07:43
	17:19	17:55	18:29	20:01	20:33	21:01	21:07	20:43	19:55	19:05	17:21	17:03
8	07:57	07:36	07:56	07:05	06:22 06:42-06:43/1	05:59 06:28-06:46/18	06:06 06:33-06:54/21	06:33	07:04	07:35	07:10	07:43
	17:20	17:56	19:30	20:02	20:34	21:01	21:07	20:42	19:54	19:03	17:20	17:03
9	07:57	07:35	07:54	07:03	06:20 06:41-06:45/4	05:59 06:28-06:46/18	06:07 06:32-06:54/22	06:34	07:05	07:36	07:11	07:44
	17:21	17:58	19:31	20:03	20:35	21:02	21:06	20:40	19:52	19:01	17:19	17:03
10	07:56	07:33	07:53	07:01	06:19 06:40-06:47/7	05:59 06:29-06:46/17	06:08 06:32-06:55/23	06:35	07:06	07:37	07:12	07:45
	17:22	17:59	19:32	20:04	20:36	21:03	21:06	20:39	19:50	19:00	17:18	17:03
11	07:56	07:32	07:51	07:00	06:18 06:39-06:48/9	05:59 06:30-06:46/16	06:08 06:32-06:55/23	06:36	07:07	07:38	07:14	07:46
	17:23	18:00	19:33	20:05	20:37	21:03	21:06	20:38	19:49	18:58	17:17	17:03
12	07:56	07:31	07:49	06:58	06:17 06:38-06:49/11	05:58 06:30-06:46/16	06:09 06:33-06:56/23	06:37	07:08	07:39	07:15	07:47
	17:24	18:01	19:34	20:06	20:38	21:04	21:05	20:37	19:47	18:57	17:16	17:03
13	07:56	07:30	07:48	06:57	06:16 06:37-06:49/12	05:58 06:31-06:46/15	06:10 06:32-06:56/24	06:38	07:09	07:40	07:16	07:48
	17:25	18:03	19:35	20:08	20:39	21:04	21:05	20:35	19:45	18:55	17:15	17:03
14	07:55	07:28	07:46	06:55	06:15 06:36-06:50/14	05:58 06:31-06:46/15	06:11 06:33-06:57/24	06:39	07:10	07:41	07:17	07:48
	17:26	18:04	19:36	20:09	20:40	21:05	21:04	20:34	19:44	18:53	17:14	17:03
15	07:55	07:27	07:44	06:53	06:14 06:35-06:50/15	05:58 06:32-06:46/14	06:11 06:34-06:58/24	06:40	07:11	07:42	07:18	07:49
	17:27	18:05	19:37	20:10	20:41	21:05	21:04	20:33	19:42	18:52	17:13	17:04
16	07:55	07:26	07:43	06:52	06:13 06:34-06:50/16	05:58 06:32-06:46/14	06:12 06:35-06:58/23	06:41	07:12	07:43	07:20	07:50
	17:28	18:06	19:39	20:11	20:42	21:05	21:03	20:31	19:40	18:50	17:12	17:04
17	07:54	07:24	07:41	06:50	06:12 06:33-06:50/17	05:58 06:33-06:45/12	06:13 06:35-06:58/23	06:42	07:13	07:44	07:21	07:51
	17:29	18:07	19:40	20:12	20:43	21:06	21:02	20:30	19:38	18:49	17:12	17:04
18	07:54	07:23	07:39	06:49	06:11 06:32-06:50/18	05:58 06:33-06:45/12	06:14 06:36-06:59/23	06:43	07:14	07:46	07:22	07:51
	17:30	18:09	19:41	20:13	20:44	21:06	21:02	20:28	19:37	18:47	17:11	17:04
19	07:53	07:22	07:38	06:47	06:10 06:31-06:50/19	05:59 06:33-06:45/12	06:15 06:37-07:00/23	06:44	07:15	07:47	07:23	07:52
	17:32	18:10	19:42	20:14	20:45	21:07	21:01	20:27	19:35	18:46	17:10	17:05
20	07:52	07:20	07:36	06:46	06:10 06:30-06:50/20	05:59 06:33-06:45/12	06:15 06:38-07:00/22	06:45	07:16	07:48	07:24	07:52
	17:33	18:11	19:43	20:15	20:46	21:07	21:00	20:25	19:33	18:44	17:09	17:05
21	07:52	07:19	07:34	06:44	06:09 06:30-06:51/21	05:59 06:34-06:45/11	06:16 06:39-07:01/22	06:46	07:17	07:49	07:25	07:53
	17:34	18:12	19:44	20:16	20:47	21:07	21:00	20:24	19:32	18:43	17:09	17:06
22	07:51	07:17	07:33	06:43	06:08 06:29-06:50/21	05:59 06:34-06:46/12	06:17 06:39-07:00/21	06:47	07:18	07:50	07:27	07:53
	17:35	18:13	19:45	20:17	20:48	21:07	20:59	20:23	19:30	18:41	17:08	17:06
23	07:51	07:16	07:31	06:41	06:07 06:28-06:50/22	05:59 06:34-06:46/12	06:18 06:40-07:00/20	06:48	07:19	07:51	07:28	07:54
	17:36	18:15	19:46	20:18	20:49	21:08	20:58	20:21	19:28	18:40	17:07	17:07
24	07:50	07:14	07:29	06:40	06:06 06:28-06:50/22	06:00 06:34-06:46/12	06:19 06:41-07:01/20	06:49	07:20	07:52	07:29	07:54
	17:38	18:16	19:47	20:19	20:50	21:08	20:57	20:19	19:27	18:39	17:07	17:07
25	07:49	07:13	07:28	06:38	06:06 06:27-06:50/23	06:00 06:34-06:46/12	06:20 06:42-07:01/19	06:50	07:21	07:54	07:30	07:55
	17:39	18:17	19:48	20:20	20:51	21:08	20:56	20:18	19:25	18:37	17:06	17:08
26	07:48	07:12	07:26	06:37	06:05 06:26-06:49/23	06:00 06:35-06:47/12	06:21 06:43-07:01/18	06:51	07:22	07:55	07:31	07:55
	17:40	18:18	19:49	20:21	20:51	21:08	20:56	20:16	19:23	18:36	17:06	17:08
27	07:48	07:10	07:24	06:36	06:04 06:26-06:49/23	06:01 06:34-06:48/14	06:22 06:44-07:01/17	06:52	07:23	07:56	07:32	07:56
	17:41	18:19	19:50	20:22	20:52	21:08	20:55	20:15	19:21	18:34	17:05	17:09
28	07:47	07:08	07:23	06:34	06:04 06:25-06:49/24	06:01 06:35-06:49/14	06:23 06:45-07:01/16	06:53	07:24	07:57	07:33	07:56
	17:43	18:20	19:52	20:23	20:53	21:08	20:54	20:13	19:20	18:33	17:05	17:10
29	07:46		07:21	06:33	06:03 06:25-06:49/24	06:01 06:34-06:49/15	06:24 06:46-07:00/14	06:54	07:25	07:58	07:34	07:56
	17:44		19:53	20:25	20:54	21:08	20:53	20:12	19:18	18:32	17:04	17:11
30	07:45		07:19	06:32	06:03 06:24-06:48/24	06:02 06:34-06:49/15	06:24 06:46-06:59/13	06:55	07:26	07:59	07:36	07:56
	17:45		19:54	20:26	20:55	21:08	20:52	20:10	19:16	18:31	17:04	17:11
31	07:44		07:18		06:02 06:24-06:48/24		06:25 06:47-06:59/12	06:56		08:01		07:57
	17:46		19:55		20:56		20:51	20:09		18:29		17:12
Potential sun hours	297	297	370	399	448	452	459	428	375	345	298	288
Sum of minutes with flicker	0	0	0	0	414	469	617	27	0	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T9 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (148)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	January	February	March		April		May		June	
1	07:58	07:44	07:07		07:16	07:35-08:19/44	06:30	07:17-08:37/80	06:01	19:58-20:25/27
	17:13	17:47	18:22		19:56		20:27		20:57	07:34-08:17/43
2	07:58	07:43	07:06		07:14	07:34-08:22/48	06:29	07:17-08:36/79	06:01	19:58-20:24/26
	17:14	17:49	18:23		19:57		20:28		20:58	07:34-08:16/42
3	07:58	07:42	07:04		07:13	07:32-08:25/53	06:27	07:16-08:35/79	06:00	19:59-20:24/25
	17:14	17:50	18:24		19:58		20:29		20:59	07:35-08:15/40
4	07:58	07:41	07:03		07:11	07:30-08:27/57	06:26	07:16-08:35/79	06:00	19:59-20:24/25 07:37-08:15/38
	17:15	17:51	18:25		19:59		20:30		21:00	20:33-20:35/2
5	07:58	07:40	07:01		07:09	07:29-08:29/60	06:25	07:17-08:35/78	06:00	19:59-20:23/24 07:37-08:14/37
	17:16	17:52	18:26		20:00		20:32		21:00	20:31-20:35/4
6	07:58	07:39	06:59		07:08	07:28-08:31/63	06:24	20:05-20:10/5	05:59	20:00-20:23/23 07:38-08:13/35
	17:17	17:54	18:27		20:00		20:33	07:17-08:34/77	21:01	20:30-20:36/6
7	07:58	07:37	06:58		07:06	07:28-08:32/64	06:23	20:02-20:11/9	05:59	20:01-20:23/22 07:39-08:13/34
	17:18	17:55	18:29		20:01		20:34	07:18-08:34/76	21:02	20:30-20:37/7
8	07:58	07:36	07:56		07:05	07:29-08:34/65	06:21	20:00-20:11/11	05:59	20:02-20:23/21 07:40-08:12/32
	17:19	17:56	19:30		20:03		20:35	07:17-08:32/75	21:02	20:30-20:38/8
9	07:57	07:35	07:55		07:03	07:30-08:34/64	06:20	19:58-20:13/15	05:58	20:02-20:22/20 07:42-08:12/30
	17:20	17:57	19:31		20:04		20:36	07:17-08:32/75	21:03	20:29-20:37/8
10	07:57	07:34	07:53		07:01	07:29-08:35/66	06:19	19:57-20:14/17	05:58	20:02-20:22/20 07:42-08:11/29
	17:21	17:59	19:32		20:05		20:37	07:18-08:32/74	21:03	20:28-20:38/10
11	07:57	07:33	07:51		07:00	07:28-08:36/68	06:18	19:56-20:15/19	05:58	20:03-20:22/19 07:43-08:10/27
	17:22	18:00	19:33		20:06		20:38	07:18-08:31/73	21:04	20:28-20:39/11
12	07:57	07:31	07:50		06:58	07:27-08:36/69	06:17	19:56-20:16/20	05:58	20:04-20:22/18 07:44-08:10/26
	17:23	18:01	19:34		20:07		20:39	07:19-08:30/71	21:04	20:28-20:39/11
13	07:56	07:30	07:48		06:56	07:26-08:37/71	06:16	19:55-20:16/21	05:58	20:04-20:22/18 07:45-08:09/24
	17:24	18:02	19:35		20:08		20:40	07:19-08:30/71	21:05	20:28-20:40/12
14	07:56	07:29	07:46		06:55	07:24-08:37/73	06:15	19:55-20:17/22	05:58	20:05-20:22/17 07:46-08:09/23
	17:26	18:04	19:37		20:09		20:41	07:19-08:29/70	21:05	20:28-20:40/12
15	07:56	07:28	07:45		06:53	07:23-08:37/74	06:14	19:54-20:18/24	05:58	20:06-20:22/16 07:46-08:08/22
	17:27	18:05	19:38		20:10		20:42	07:20-08:28/68	21:06	20:28-20:40/12
16	07:55	07:26	07:43		06:52	07:23-08:38/75	06:13	19:54-20:19/25	05:58	20:06-20:22/16 07:47-08:08/21
	17:28	18:06	19:39		20:11		20:43	07:20-08:28/68	21:06	20:28-20:41/13
17	07:55	07:25	07:41		06:50	07:21-08:38/77	06:12	19:53-20:20/27	05:58	20:06-20:21/15 07:48-08:08/20
	17:29	18:07	19:40		20:12		20:44	07:22-08:28/66	21:07	20:28-20:41/13
18	07:54	07:23	07:40		06:49	07:21-08:39/78	06:11	19:54-20:22/28	05:58	20:07-20:21/14 07:48-08:07/19
	17:30	18:09	19:41		20:13		20:45	07:22-08:27/65	21:07	20:28-20:41/13
19	07:54	07:22	07:38		06:47	07:20-08:38/78	06:10	19:54-20:22/28	05:58	20:07-20:21/14 07:50-08:08/18
	17:31	18:10	19:42		20:14		20:46	07:23-08:26/63	21:07	20:28-20:41/13
20	07:53	07:21	07:36		06:46	07:20-08:39/79	06:09	19:54-20:23/29	05:58	20:08-20:22/14 07:50-08:08/18
	17:32	18:11	19:43		20:15		20:47	07:23-08:25/62	21:08	20:29-20:43/14
21	07:53	07:19	07:35		06:44	07:19-08:38/79	06:08	19:54-20:24/30	05:58	20:08-20:22/14 07:50-08:08/18
	17:34	18:12	19:44		20:17		20:48	07:24-08:24/60	21:08	20:29-20:43/14
22	07:52	07:18	07:33		06:43	07:19-08:39/80	06:07	19:53-20:24/31	05:59	20:08-20:22/14 07:50-08:08/18
	17:35	18:13	19:45		20:18		20:49	07:25-08:24/59	21:08	20:29-20:43/14
23	07:51	07:16	07:31		06:41	07:19-08:39/80	06:07	19:54-20:26/32	05:59	20:08-20:22/14 07:50-08:08/18
	17:36	18:15	19:46		20:19		20:50	07:26-08:23/57	21:08	20:29-20:43/14
24	07:51	07:15	07:30		06:40	07:18-08:38/80	06:06	19:54-20:26/32	05:59	20:09-20:23/14 07:50-08:09/19
	17:37	18:16	19:47		20:20		20:50	07:26-08:22/56	21:09	20:30-20:43/13
25	07:50	07:13	07:28		06:38	07:18-08:38/80	06:05	19:54-20:25/31	05:59	20:09-20:23/14 07:50-08:09/19
	17:39	18:17	19:49		20:21		20:51	07:28-08:22/54	21:09	20:30-20:43/13
26	07:49	07:12	07:26	07:45-07:50/5	06:37	07:17-08:38/81	06:05	19:55-20:26/31	06:00	20:08-20:23/15 07:49-08:10/21
	17:40	18:18	19:50		20:22		20:52	07:28-08:21/53	21:09	20:30-20:43/13
27	07:48	07:10	07:25	07:44-07:53/9	06:35	07:17-08:38/81	06:04	19:55-20:25/30	06:00	20:09-20:25/16 07:50-08:11/21
	17:41	18:19	19:51		20:23		20:53	07:29-08:20/51	21:09	20:31-20:44/13
28	07:47	07:09	07:23	07:42-07:54/12	06:34	07:17-08:38/81	06:03	19:56-20:26/30	06:00	20:08-20:25/17 07:49-08:12/23
	17:42	18:21	19:52		20:24		20:54	07:30-08:20/50	21:09	20:31-20:43/12
29	07:47		07:21	07:40-07:55/15	06:33	07:16-08:37/81	06:03	19:56-20:25/29	06:01	20:08-20:25/17 07:49-08:13/24
	17:44		19:53		20:25		20:55	07:30-08:19/49	21:09	20:31-20:43/12
30	07:46		07:19	07:39-07:56/17	06:31	07:16-08:37/81	06:02	19:57-20:25/28	06:01	20:08-20:26/18 07:48-08:13/25
	17:45		19:54		20:26		20:56	07:32-08:19/47	21:09	20:32-20:43/11
31	07:45		07:18	07:37-08:15/38			06:02	19:57-20:25/28		
	17:46		19:55				20:56	07:32-08:17/45		
Potential sun hours	297	297	370		399		449		453	
Sum of minutes with flicker	0	0	96		2130		2662		1629	

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

Project:
2021-05-06_Emerson Creek SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688

Calculated:
9/28/2021 8:08 AM/3.4.415

SHADOW - Calendar per WTG

Calculation: 2021-09-24_Shadow FlickerWTG: T9 - GE WIND ENERGY 5.3-158 Thrust 700 5300 158.0 !O! hub: 117.0 m (TOT: 196.0 m) (148)

Assumptions for shadow calculations

Sunshine probability S/S0 (Sun hours/Possible sun hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.31	0.40	0.44	0.52	0.57	0.64	0.66	0.61	0.59	0.48	0.30	0.22

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
300	301	557	671	325	294	265	370	495	1,070	1,118	1,067	738	557	368	264	8,760

	July	August	September	October	November	December
1	06:02 20:07-20:26/19 07:47-08:14/27	06:26 20:07-20:26/19	06:57 07:27-08:35/68	07:28	07:02	07:37
	21:09 20:32-20:43/11	20:50 07:29-08:41/72	20:07	19:15	17:28	17:03
2	06:02 20:08-20:27/19 07:47-08:15/28	06:27 20:07-20:25/18	06:58 07:28-08:34/66	07:29	07:03	07:38
	21:09 20:33-20:43/10	20:49 07:29-08:42/73	20:06	19:13	17:27	17:03
3	06:03 20:07-20:27/20 07:46-08:16/30	06:28 20:08-20:24/16	06:59 07:28-08:32/64	07:30	07:05	07:39
	21:09 20:34-20:43/9	20:48 07:28-08:42/74	20:04	19:11	17:25	17:03
4	06:03 20:07-20:28/21 07:46-08:17/31	06:29 20:09-20:23/14	07:00 07:26-08:31/65	07:31	07:06	07:40
	21:09 20:35-20:43/8	20:47 07:28-08:43/75	20:02	19:10	17:24	17:03
5	06:04 20:06-20:28/22 07:46-08:19/33	06:30 20:11-20:22/11	07:01 07:25-08:29/64	07:32	07:07	07:41
	21:08 20:35-20:42/7	20:46 07:27-08:43/76	20:01	19:08	17:23	17:03
6	06:05 20:07-20:29/22 07:45-08:19/34	06:31 20:13-20:21/8	07:02 07:24-08:27/63	07:33	07:08	07:42
	21:08 20:36-20:42/6	20:45 07:27-08:44/77	19:57	19:06	17:22	17:02
7	06:05 20:07-20:30/23 07:44-08:21/37	06:32 20:15-20:20/5	07:03 07:24-08:25/61	07:34	07:09	07:43
	21:08 20:38-20:42/4	20:44 07:27-08:44/77	19:56	19:05	17:21	17:02
8	06:06 20:06-20:30/24 07:43-08:21/38	06:33 07:26-08:44/78	07:04 07:25-08:22/57	07:35	07:11	07:44
	21:08 20:38-20:42/4	20:42	19:54	19:03	17:20	17:02
9	06:06 20:06-20:31/25 07:43-08:22/39	06:34 07:26-08:45/79	07:05 07:26-08:20/54	07:36	07:12	07:45
	21:07 20:41-20:42/1	20:41	19:52	19:01	17:19	17:02
10	06:07 20:06-20:32/26	06:35 07:26-08:45/79	07:06 07:27-08:17/50	07:37	07:13	07:46
	21:07 07:43-08:24/41	20:40	19:51	19:00	17:18	17:02
11	06:08 20:05-20:32/27	06:36 07:26-08:45/79	07:07 07:28-08:12/44	07:38	07:14	07:47
	21:06 07:41-08:24/43	20:39	19:49	18:58	17:17	17:02
12	06:09 20:05-20:33/28	06:37 07:25-08:45/80	07:08 07:29-08:07/38	07:39	07:15	07:48
	21:06 07:41-08:25/44	20:37	19:47	18:57	17:16	17:02
13	06:09 20:05-20:34/29	06:38 07:25-08:45/80	07:09 07:29-07:46/17	07:40	07:17	07:48
	21:05 07:40-08:26/46	20:36	19:46	18:55	17:15	17:03
14	06:10 20:05-20:34/29	06:39 07:24-08:44/80	07:10 07:30-07:45/15	07:42	07:18	07:49
	21:05 07:40-08:28/48	20:35	19:44	18:53	17:14	17:03
15	06:11 20:04-20:34/30	06:40 07:24-08:44/80	07:11 07:31-07:43/12	07:43	07:19	07:50
	21:04 07:39-08:28/49	20:33	19:42	18:52	17:13	17:03
16	06:12 20:04-20:35/31	06:41 07:24-08:44/80	07:12 07:32-07:41/9	07:44	07:20	07:51
	21:04 07:38-08:29/51	20:32	19:40	18:50	17:12	17:03
17	06:12 20:05-20:35/30	06:42 07:23-08:44/81	07:13 07:33-07:39/6	07:45	07:21	07:51
	21:03 07:38-08:30/52	20:30	19:39	18:49	17:11	17:04
18	06:13 20:05-20:36/31	06:43 07:23-08:44/81	07:14	07:46	07:23	07:52
	21:03 07:37-08:31/54	20:29	19:37	18:47	17:10	17:04
19	06:14 20:04-20:35/31	06:44 07:23-08:44/81	07:15	07:47	07:24	07:53
	21:02 07:37-08:32/55	20:27	19:35	18:46	17:10	17:04
20	06:15 20:04-20:35/31	06:45 07:23-08:44/81	07:16	07:48	07:25	07:53
	21:01 07:35-08:32/57	20:26	19:34	18:44	17:09	17:05
21	06:16 20:04-20:35/31	06:46 07:23-08:43/80	07:17	07:49	07:26	07:54
	21:00 07:35-08:33/58	20:25	19:32	18:43	17:08	17:05
22	06:17 20:04-20:35/31	06:47 07:23-08:43/80	07:18	07:51	07:27	07:54
	21:00 07:35-08:34/59	20:23	19:30	18:41	17:08	17:06
23	06:18 20:04-20:34/30	06:48 07:24-08:42/78	07:19	07:52	07:29	07:55
	20:59 07:34-08:35/61	20:22	19:28	18:40	17:07	17:06
24	06:19 20:04-20:33/29	06:49 07:24-08:42/78	07:20	07:53	07:30	07:55
	20:58 07:34-08:36/62	20:20	19:27	18:39	17:06	17:07
25	06:19 20:05-20:33/28	06:50 07:24-08:41/77	07:21	07:54	07:31	07:56
	20:57 07:33-08:37/64	20:18	19:25	18:37	17:06	17:07
26	06:20 20:04-20:31/27	06:51 07:24-08:41/77	07:22	07:55	07:32	07:56
	20:56 07:33-08:38/65	20:17	19:23	18:36	17:05	17:08
27	06:21 20:04-20:30/26	06:52 07:25-08:40/75	07:23	07:56	07:33	07:56
	20:55 07:31-08:38/67	20:15	19:22	18:34	17:05	17:09
28	06:22 20:04-20:29/25	06:53 07:25-08:39/74	07:24	07:57	07:34	07:57
	20:54 07:31-08:39/68	20:14	19:20	18:33	17:04	17:09
29	06:23 20:05-20:28/23	06:54 07:25-08:38/73	07:26	07:59	07:35	07:57
	20:54 07:30-08:39/69	20:12	19:18	18:32	17:04	17:10
30	06:24 20:05-20:28/23	06:55 07:26-08:37/71	07:27	08:00	07:36	07:57
	20:53 07:30-08:40/70	20:11	19:16	18:30	17:04	17:11
31	06:25 20:06-20:27/21	06:56 07:27-08:36/69		08:01		07:57
	20:51 07:29-08:41/72	20:09		18:29		17:12
Potential sun hours	460	429	375	345	297	287
Sum of minutes with flicker	2424	2486	753	0	0	0

Table layout: For each day in each month the following matrix apply

Day in month	Sun rise (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker
	Sun set (hh:mm)	First time (hh:mm) with flicker-Last time (hh:mm) with flicker/Minutes with flicker

This foregoing document was electronically filed with the Public Utilities

Commission of Ohio Docketing Information System on

10/28/2021 11:18:58 AM

in

Case No(s). 21-1055-EL-BGA

Summary: Application - 6 of 13 (Exhibit D – Shadow Flicker Analysis) electronically filed by Christine M.T. Pirik on behalf of Firelands Wind, LLC