Appendix C

Shadow Flicker Assessment:

Big Bend Wind Project

Nordex N-163
Vestas V162
GE-158

Big Bend Wind, LLC
Docket No. IP7013/WS-19-619
November 2020

Shadow Flicker Report

Nordex N-163

Big Bend Wind

Cottonwood County and Watonwan Counties, Minnesota

Prepared for:

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September 2020

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1.0 PROJECT OVERVIEW

Big Bend Wind, LLC (Big Bend or Applicant), an affiliate of Apex Clean Energy, LLC (Apex), is proposing to construct a wind energy generation facility, including up to 54 turbines and associated necessary project infrastructure, in Cottonwood County and Watonwan Counties, Minnesota (hereafter referred to as the Project) (see Figure 1). This report provides an assessment of the potential shadow flicker that could be experienced at residences located around the proposed turbines.

Several wind turbine generators are being considered for this Project. For this analysis, the turbine model evaluated is the Nordex N-163 turbine. Each wind turbine consists of three major mechanical components: the tower, nacelle, and rotor. For the Nordex N-163, the anticipated tower height or "hub height" (height from foundation to the center of the rotor), for each turbine is approximately 118 meters (387 feet) and the rotor diameter is 163 meters (535 feet), resulting in a total maximum height of 199.5 meters (655 feet). The current Project turbine layout is depicted in Figure 2.

The Project is located within Cottonwood and Watonwan Counties, Minnesota, approximately 7 miles northeast of the City of Windom and 30 miles north of the Minnesota-Iowa border. Elevations in the area range from approximately 1,100 feet above mean sea level (amsl) to 1,460 feet amsl. Land cover within the Project area is dominated by active agriculture, with farms and single-family residences generally occurring along the road frontage.

2.0 INTRODUCTION

Shadow flicker refers to the moving shadows that an operating wind turbine casts at times of the day when the turbine rotor is between the sun and a receptor's position. 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). During intervals of sunshine, wind turbine generators will cast a shadow on surrounding areas as the rotor blades pass in front of the sun, and if these moving shadows pass over a window they can cause a flickering effect. Shadow flicker does not occur when fog or clouds obscure the sun, or when turbines are not operating.

The distance between a wind turbine and a potential shadow-flicker receptor affects the intensity of the shadows cast by the blades, and therefore the intensity of flickering. Shadows cast close to a turbine will be more intense, distinct, and focused. This is because a greater proportion of the sun's disc is intermittently blocked by the turbine (BERR, 2009). Obstacles such as terrain, vegetation, and/or buildings occurring between receptors and wind turbines may significantly reduce or eliminate shadow-flicker effects. At distances beyond roughly 10 rotor diameters (approximately

1,630 meters based on the Nordex N-163 turbine model) shadow-flicker effects are generally considered negligible (BERR, 2009; DECC, 2011; DOER, 2011).

The location and duration of shadow flicker can be predicted using computer modeling programs and input data regarding turbine characteristics and weather conditions. A "worst-case" shadow-flicker scenario could be predicted based on the assumptions that there are no clouds or fog, wind conditions allow continuous turbine operation, the turbine rotor is continuously perpendicular to the sun, and the turbine rotor is positioned between the receptor and the sun. However, this "worst–case" scenario is not realistic because turbines do not operate continuously, are not always aligned perpendicular to the sun, and are not always positioned between the receptor and the sun. In addition, sunlight intensity and duration vary daily and seasonally, and obstacles that block shadows (terrain, vegetation, and buildings) exist in the landscape.

3.0 METHODS

3.1 Shadow Flicker Analysis

This shadow flicker analysis evaluated the potential impact of 54 Nordex N-163 turbines, each with a rotor diameter of 163 meters and a hub height of 118 meters. A maximum distance of potential effect of 1,630 meters (10 rotor diameters) was used for this analysis to ensure that all potentially impacted receptors were assessed.

The shadow flicker analysis for the proposed Project used *WindPRO 3.4* software and associated Shadow module. *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 54 proposed wind turbine sites (provided by the Applicant).
- The latitude and longitude coordinates of 969 potential residences located in the vicinity of the proposed turbines (provided by the Applicant).
- U.S. Geological Survey (USGS) 1:24,000 topographic mapping and USGS 10-meter resolution digital elevation model (DEM) data.
- The rotor diameter (163 meters) and hub height (118 meters) for the Nordex N-163 turbine model.
- Annual wind rose data (provided by Apex), which is depicted in Table A1 of Attachment A (to determine the approximate directional frequency of rotor orientation throughout the year).
- 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 Minneapolis – St. Paul,

Minnesota was used. Data were obtained from NOAA's "Comparative Climatic Data for the United States through 2015" (see Table A2 of Attachment A) (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).

Shadow-flicker effects on receptors are expressed in terms of predicted frequency (hours per year). Shadow isolines (i.e., contours indicating total number of hours of shadowing per average year) were calculated based on the data and assumptions outlined above. These isolines define the theoretical number of hours per year that shadow flicker would occur at any given location within a 1,630-meter radius of all proposed turbine locations (see Figure 3).

The model calculations include the cumulative sum of shadow flicker hours for all Project turbines. This omni-directional approach reports total shadow flicker results at a receptor regardless of the presence or orientation of windows at that particular 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 this "greenhouse" model is defined as a one square meter area located one meter above ground; actual house dimensions are not taken into consideration.

Because the shadow flicker analysis conducted for the proposed Project was based on the conservative assumptions that 1) all 54 turbine locations modeled will be built, 2) the turbines are in continuous operation during daylight hours, and 3) that shadow flicker can be perceived at a receptor structure regardless of the presence or orientation of windows or the screening effects of all surrounding trees and buildings, the analysis presented herein is a conservative projection of the shadow-flicker effects at ground level.

3.2 Shadow Flicker Threshold

No consistent national, state, county, or local standards exist for allowable frequency or duration of shadow flicker from wind turbines. The Minnesota Public Utilities Commission has not promulgated any standards on shadow flicker. A threshold of 30 shadow flicker hours per year was applied to the analysis of the proposed Project to identify any potentially significant impacts on non-participating receptors.

4.0 RESULTS

Output from the model includes the following information:

- Calculated shadow-flicker time (days per year, maximum hours per day, and total hours per year when shadow flicker is expected) at each of the 969.
- Tabulated and plotted time of day that structures are predicted to receive shadow flicker.
- 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 (see Figure 3).

These data are presented in the tables and calendars included in Attachment B.

A summary of the projected shadow flicker at each of the receptors is presented in Table 1 below.

Table 1. Summary of Projected Shadow Flicker

Hours/Year	Number of Receptors		
	Non-participants	Participants	Total
0	802	49	851
0 – 1	4	0	4
1 – 10	39	13	52
10 – 20	9	12	21
20 – 30	1	17	18
Over 30	0	23	23
Max Hours/Year	**20:31**	**59:36**	--

As these results indicate, 946 (98%) of the receptors are predicted to receive less than 30 hours of shadow flicker per year, with 907 (94%) of the receptors predicted to receive less than 10 hours of shadow flicker per year. At most receptor locations shadow flicker will occur primarily in the early morning or late afternoon. The maximum daily duration of shadow flicker predicted at any receptor is 2 hours and 10 minutes (at receptor 1, see Attachment B).

Attachment B provides the results of the predicted shadow flicker at each structure. 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 a table indicating the amount of shadow flicker expected at each receptor. For receptors over 30 hours, detailed calendars that illustrate the specific times of year and day that shadow flicker may occur are included within Attachment B. A table of results for all receptors is included as Attachment C.

5.0 DISCUSSION

As outlined above, results of the shadow flicker analysis for the Facility indicate that up to 22 receptors could experience more than 30 hours of shadow flicker per year. However, all of these receptors are located on properties owned by Project participants. The details regarding anticipated shadow flicker at all receptors predicted to receive in excess of 30 hours are summarized below in Table 2.

Table 2. Receptors Predicted to Exceed 30 Hours of Shadow Flicker Annually

Receptor ID	Project Status	Predicted Annual Shadow Flicker (hh:mm)[1]	Predicted Max Daily Shadow Flicker (hh:mm)[2]	Predicted Shadow Flicker (days/year)[1]
41	Participating	30:07	0:51	171
88	Participating	30:40	1:10	92
29	Participating	30:42	0:49	149
5	Participating	32:18	1:10	146
30	Participating	33:13	0:46	161
24	Participating	33:33	1:23	147
22	Participating	35:03	0:57	139
90	Participating	35:25	0:46	236
40	Participating	35:34	0:54	187
33	Participating	35:52	1:05	130
110	Participating	36:46	1:15	99
0	Participating	37:57	0:59	126
23	Participating	37:57	0:59	134
87	Participating	38:17	1:25	107
21	Participating	40:47	1:06	213
1	Participating	40:50	2:10	99
42	Participating	43:10	1:04	216
34	Participating	43:18	1:14	245
92	Participating	47:33	1:29	125
26	Participating	52:15	1:29	209
109	Participating	54:44	1:55	152
71	Participating	57:19	1:21	204
45	Participating	59:36	1:28	154

[1] Results do not account for the screening effect of trees, orientation of windows, hours of no turbine operation, or hours when turbines will be oriented to cast shadows away from the residences.

Although shadow flicker results presented in Table 1 theoretically exceed the 30-hour per year threshold, these calculations do not take into account the actual location and orientation of windows, or the screening effects associated with existing, site-specific conditions and obstacles such as trees (i.e., does not take into account the results of a viewshed analysis) and/or buildings. Further, this analysis assumes turbine rotors are continuously in motion and that each receptor location is occupied year-round.

Given these assumptions, the predicted shadow-flicker frequency represents a conservative scenario, and almost certainly 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. As the sun sinks below the horizon, more of its light is scattered by the atmosphere, which has the effect of dampening its brightness and therefore reducing its ability to cast dark shadows (EMD, 2013).

6.0 CONCLUSIONS

WindPRO predicted that 23 receptors will receive more than 30 hours/year of shadow flicker from the Project wind turbines. However, all of the receptors are located on properties owned by Project participants. More generally, the assumptions underlying the shadow flicker analysis are conservative. 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.

REFERENCES

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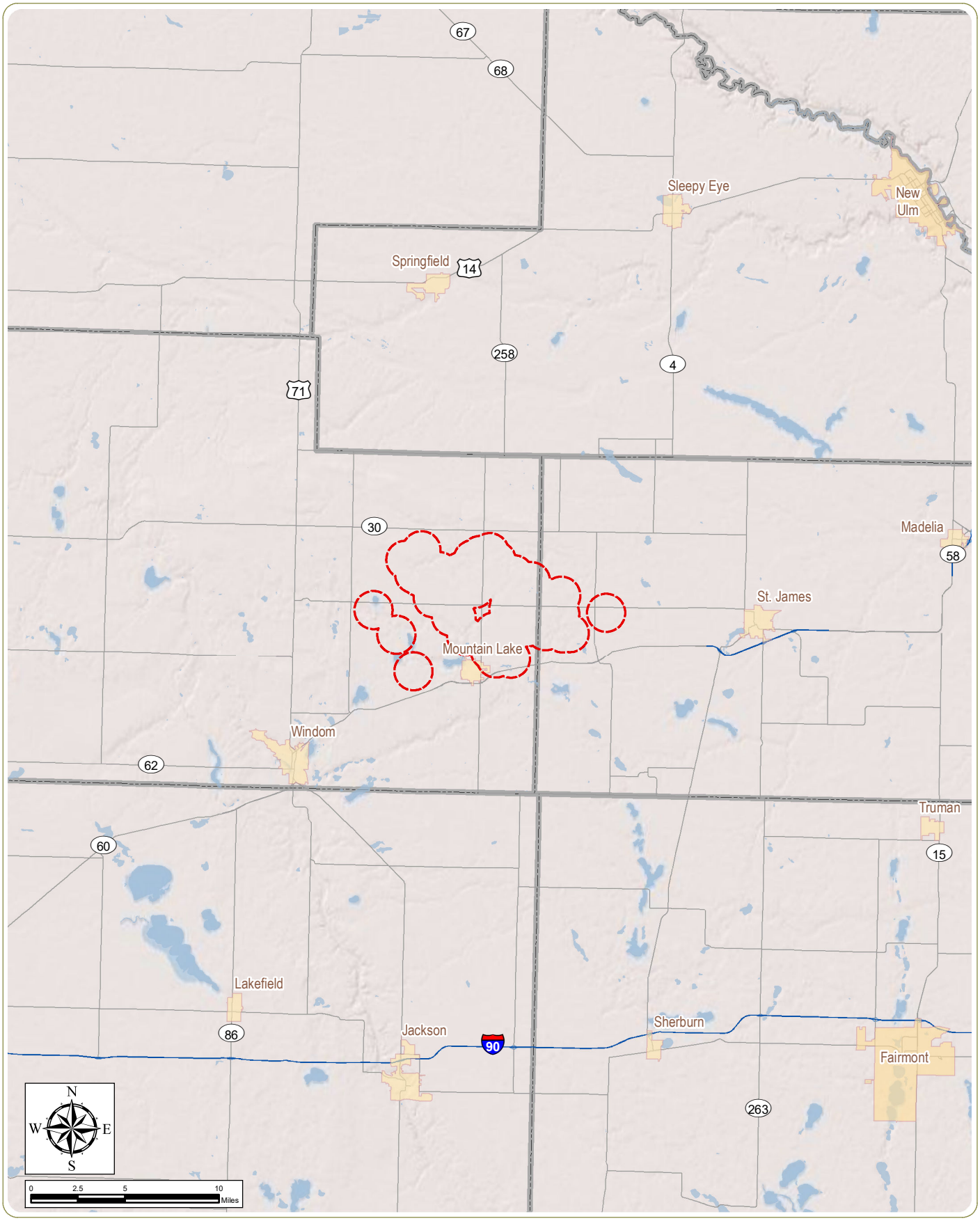
U.S. Department of the Interior. 2005. *Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States.* Bureau of Land Management.

Figures

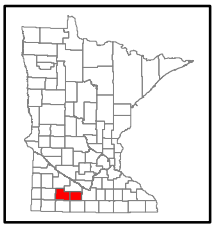


Big Bend Wind Farm

Cottonwood and Watonwan Counties, Minnesota

Figure 1. Regional Project Location

Project Area



Notes: 1. Basemap: ESRI ArcGIS Online "World Shaded Relief" Map Service and ESRI StreetMap North America, 2008. **2.** This map was generated in ArcMap on September 17, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Big Bend Wind Farm

Cottonwood County and Watonwan County, Minnesota

Figure 2: Proposed Turbine Layout

- Receptor
- Wind Turbine
- County Boundary

Notes: 1. Basemap: ESRI StreetMap North America, 2008. **2.** This map was generated in ArcMap on September 23, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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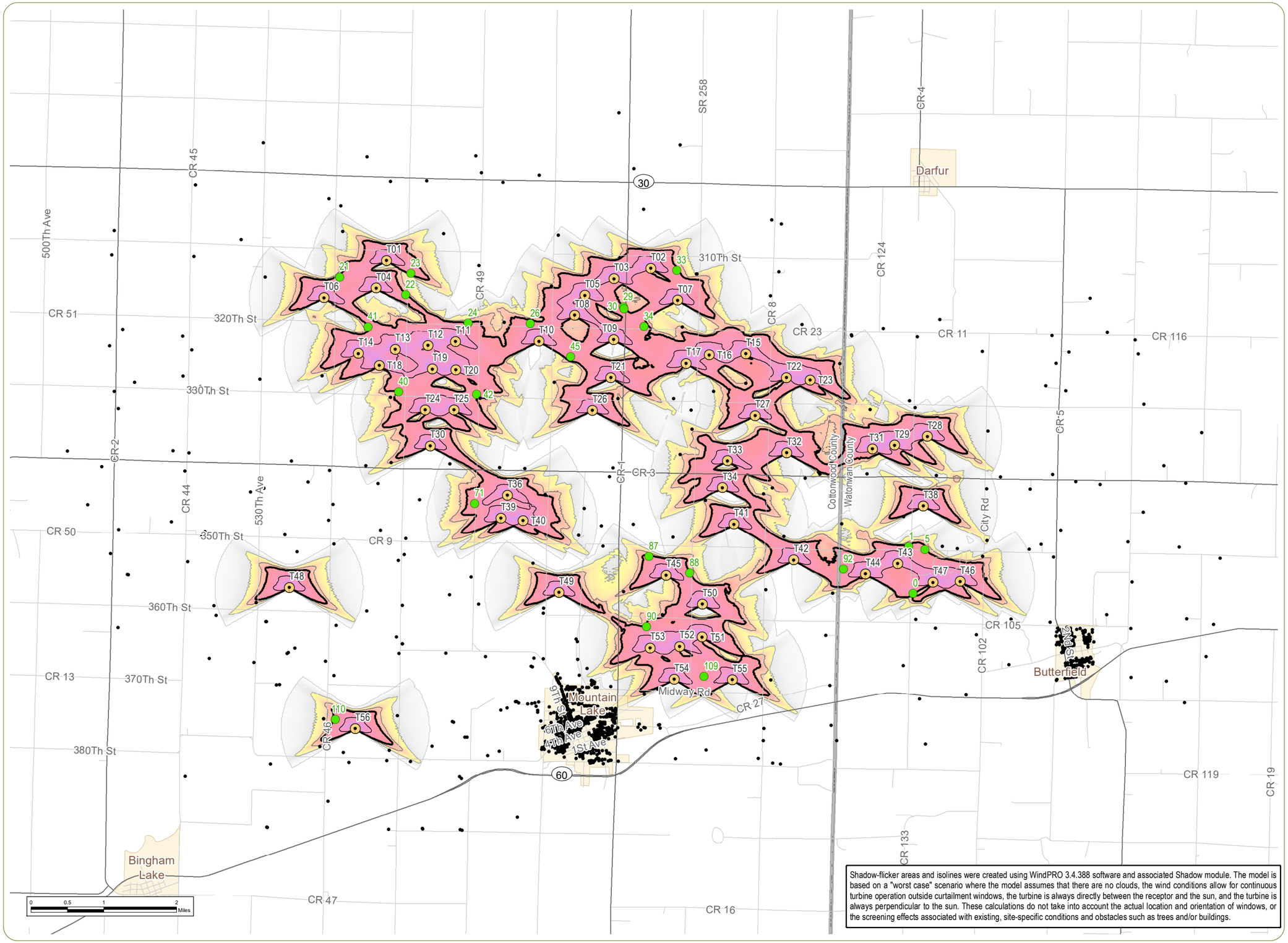
Big Bend Wind Farm

Cottonwood County and Watonwan County, Minnesota

Figure 3: Projected Shadow Flicker



- Wind Turbine
- Participating Receptor > 30 hours/year
- Receptor < 30 hours/year
- County Boundary

Shadow Flicker Isoline

- 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

Notes: 1. Basemap: ESRI StreetMap North America, 2008. **2.** This map was generated in ArcMap on September 28, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

Shadow-flicker areas and isolines were created using WindPRO 3.4.388 software and associated Shadow module. The model is based on a "worst case" scenario where the model assumes that there are no clouds, the wind conditions allow for continuous turbine operation outside curtailment windows, the turbine is always directly between the receptor and the sun, and the turbine is always perpendicular to the sun. These calculations do not take into account the actual location and orientation of windows, or the screening effects associated with existing, site-specific conditions and obstacles such as trees and/or buildings.

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Attachment A

Wind Rose and Sunshine Data

Table A1. Wind Rose Data

SECTOR	N	NNE	NE	ENE	E	ESE	SE	SSE
Hours of Operation	443	319	239	233	293	348	457	639

SECTOR	S	SSW	SW	WSW	W	WNW	NW	NNW
Hours of Operation	825	587	609	452	526	847	1,159	782

Source: Wind rose data provided by Apex Clean Energy, LLC

Table A2. Sunshine Probability Data[1]

Month	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Sunshine Probability[2]	0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

[1]Source: NOAA Comparative Climatic Data for the United States through 2015 – Minneapolis – St. Paul, Minnesota 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.

Attachment B

WindPRO Overview Reports and Calendars

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

Assumptions for shadow calculations

Maximum distance for influence	1,630	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
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
443	319	239	233	293	348	457	639	825	587	609	452

W	WNW	NW	NNW	Sum
526	847	1,159	782	8,758

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_Big Bend SFA.wpo (3)
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: 15

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	RPM
			[m]					[kW]	[m]	[m]	[RPM]
T01	340,884	4,877,490	400.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T02	346,729	4,877,323	361.2	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T03	345,911	4,877,089	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T04	340,652	4,876,880	402.3	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T05	345,267	4,876,719	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T06	339,499	4,876,669	399.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T07	347,323	4,876,612	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T08	345,042	4,876,283	369.9	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T09	345,902	4,875,742	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T10	344,251	4,875,707	375.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T11	342,407	4,875,698	392.2	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T12	341,804	4,875,616	396.6	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T13	341,076	4,875,529	398.3	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T14	340,260	4,875,437	395.2	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T15	348,824	4,875,427	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T16	348,019	4,875,399	368.4	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T17	347,510	4,875,217	369.6	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T18	340,721	4,875,176	398.9	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T19	341,896	4,875,093	396.4	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T20	342,413	4,875,069	395.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T21	345,845	4,874,903	374.5	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T22	349,723	4,874,904	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T23	350,250	4,874,850	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T24	341,742	4,874,189	398.3	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T25	342,374	4,874,188	396.3	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T26	345,435	4,874,178	381.5	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T27	349,034	4,874,065	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T28	352,840	4,873,598	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T29	352,114	4,873,403	368.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T30	341,852	4,873,393	399.1	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T31	351,627	4,873,321	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T32	349,729	4,873,238	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T33	348,416	4,873,059	373.9	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T34	348,311	4,872,464	375.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T36	343,556	4,872,299	395.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T38	352,749	4,872,064	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T39	343,408	4,871,791	395.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7

To be continued on next page...

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Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	RPM
			[m]					[kW]	[m]	[m]	[RPM]
T40	343,898	4,871,740	395.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T41	348,563	4,871,655	379.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T42	349,886	4,870,868	376.1	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T43	352,182	4,870,785	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T44	351,475	4,870,558	370.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T45	347,063	4,870,534	387.5	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T46	353,567	4,870,395	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T47	352,962	4,870,375	365.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T48	338,731	4,870,263	408.6	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T49	344,694	4,870,149	390.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T50	347,864	4,869,894	385.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T51	347,861	4,869,165	389.6	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T52	347,362	4,868,960	390.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T53	346,710	4,868,925	390.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T54	347,246	4,868,232	390.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T55	348,531	4,868,217	389.5	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7
T56	340,192	4,867,139	415.0	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m)...	Yes	NORDEX	N163/5.X-5,700	5,700	163.0	118.0	10.7

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]
0	352,523	4,870,126	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
1	352,429	4,871,159	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
2	352,317	4,871,827	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
3	351,507	4,872,770	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
4	352,444	4,874,389	362.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
5	352,788	4,871,107	362.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
6	353,923	4,869,212	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
7	354,138	4,870,450	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
8	354,060	4,870,950	361.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
9	354,160	4,871,301	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
10	355,786	4,873,825	346.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
11	355,611	4,872,760	350.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
12	355,788	4,871,518	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
13	355,093	4,871,103	355.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
14	357,338	4,869,349	352.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
15	356,120	4,872,599	350.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
16	356,660	4,872,537	345.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
17	337,669	4,877,954	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
18	339,916	4,878,129	397.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
19	344,680	4,878,049	366.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
20	338,203	4,877,119	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
21	339,845	4,877,128	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
22	341,306	4,876,736	392.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
23	341,423	4,877,202	394.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
24	342,686	4,876,113	387.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
25	344,526	4,876,919	371.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
26	344,063	4,876,099	375.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
27	343,489	4,876,121	381.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
28	346,045	4,877,547	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
29	346,121	4,876,467	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
30	346,133	4,876,425	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
31	347,751	4,877,191	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
32	347,732	4,877,194	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
33	347,298	4,877,275	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
34	346,577	4,876,037	365.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
35	347,426	4,876,019	365.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
36	351,171	4,875,823	362.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
37	351,159	4,875,846	361.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
38	336,591	4,874,598	415.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
39	340,973	4,874,461	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
40	341,151	4,874,584	399.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
41	340,476	4,876,025	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

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Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
42	342,874	4,874,531	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
43	342,955	4,874,439	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
44	346,003	4,874,437	377.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
45	344,951	4,875,368	377.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
46	347,229	4,874,434	371.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
47	348,113	4,874,596	366.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
48	348,826	4,874,772	366.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
49	350,906	4,875,206	367.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
50	336,518	4,873,233	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
51	336,426	4,872,830	421.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
52	339,628	4,872,846	401.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
53	339,152	4,872,589	403.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
54	342,283	4,872,991	399.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
55	343,385	4,872,908	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
56	346,021	4,873,868	380.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
57	347,619	4,874,180	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
58	347,637	4,873,755	371.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
59	347,374	4,873,197	375.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
60	350,141	4,872,674	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
61	350,439	4,872,803	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
62	350,460	4,872,763	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
63	334,966	4,871,532	430.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
64	336,130	4,871,707	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
65	336,802	4,871,389	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
66	336,866	4,871,494	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
67	337,877	4,872,372	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
68	339,605	4,871,738	402.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
69	340,748	4,871,519	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
70	341,312	4,871,350	392.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
71	342,830	4,872,120	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
72	344,389	4,872,311	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
73	346,342	4,871,655	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
74	347,938	4,872,183	378.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
75	349,417	4,872,460	371.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
76	349,669	4,871,388	375.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
77	336,487	4,870,827	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
78	338,000	4,869,923	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
79	338,000	4,869,923	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
80	341,142	4,870,860	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
81	341,279	4,870,990	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
82	342,281	4,870,098	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
83	344,122	4,870,798	392.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
84	344,360	4,869,798	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
85	344,353	4,869,692	394.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
86	346,127	4,870,164	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
87	346,682	4,870,947	388.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
88	347,586	4,870,582	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
89	346,980	4,869,651	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
90	346,633	4,869,395	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
91	350,747	4,870,134	375.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
92	350,980	4,870,668	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
93	338,684	4,868,796	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
94	338,712	4,868,821	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
95	338,858	4,868,915	418.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
96	339,533	4,868,625	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
97	339,769	4,869,422	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
98	341,105	4,869,168	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
99	341,155	4,868,800	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
100	342,192	4,868,804	403.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
101	343,071	4,868,728	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
102	344,109	4,868,502	395.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
103	344,081	4,868,518	396.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
104	344,140	4,868,696	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
105	344,353	4,868,681	384.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
106	345,320	4,868,463	387.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
107	345,147	4,868,312	392.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
108	346,879	4,868,012	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
109	347,898	4,868,294	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
110	339,746	4,867,346	410.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
111	339,927	4,866,608	417.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
112	340,942	4,866,660	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
113	342,343	4,867,290	398.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
114	342,365	4,867,276	398.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
115	343,118	4,866,540	404.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
116	347,271	4,866,472	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
117	347,952	4,866,662	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
118	352,799	4,866,793	380.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
119	350,835	4,866,871	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
120	349,595	4,866,355	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
121	349,422	4,866,374	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
122	349,103	4,866,475	389.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
123	349,213	4,866,873	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
124	349,228	4,867,141	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
125	350,713	4,867,207	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
126	352,670	4,867,794	376.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
127	353,699	4,867,885	371.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
128	352,311	4,868,532	378.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
129	350,682	4,868,084	380.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
130	353,023	4,869,360	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
131	350,592	4,869,202	380.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
132	346,440	4,867,166	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
133	346,470	4,867,238	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
134	345,927	4,867,324	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
135	345,925	4,867,282	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
136	345,907	4,867,282	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
137	345,913	4,867,372	394.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
138	345,950	4,867,371	394.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
139	345,940	4,867,443	393.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
140	345,907	4,867,442	393.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
141	345,865	4,867,455	392.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
142	345,847	4,867,444	393.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
143	345,820	4,867,444	393.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
144	345,860	4,867,395	394.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
145	345,824	4,867,406	394.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
146	345,879	4,867,329	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
147	345,930	4,867,261	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
148	345,942	4,867,486	392.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
149	345,944	4,867,530	391.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
150	345,945	4,867,560	390.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
151	345,946	4,867,582	390.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
152	345,912	4,867,536	391.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
153	345,886	4,867,537	391.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
154	345,861	4,867,583	390.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
155	345,819	4,867,579	391.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
156	345,748	4,867,576	391.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
157	345,815	4,867,464	393.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
158	346,580	4,867,902	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
159	352,582	4,869,550	371.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
160	351,577	4,874,192	375.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
161	335,051	4,875,960	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
162	349,402	4,878,386	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
163	349,614	4,878,299	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
164	343,773	4,865,177	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
165	342,515	4,864,903	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
166	342,556	4,864,887	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
167	344,750	4,866,880	395.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
168	344,826	4,866,883	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
169	344,835	4,866,860	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
170	344,751	4,866,843	395.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
171	344,543	4,866,734	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
172	344,570	4,866,748	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
173	344,610	4,866,766	395.0	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
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
174	344,475	4,866,630	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
175	344,609	4,866,705	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
176	344,635	4,866,594	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
177	344,665	4,866,665	395.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
178	344,668	4,866,729	395.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
179	344,688	4,866,662	395.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
180	344,731	4,866,747	395.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
181	344,712	4,866,671	395.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
182	344,732	4,866,678	395.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
183	344,756	4,866,692	396.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
184	344,694	4,866,622	395.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
185	344,728	4,866,632	395.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
186	344,759	4,866,635	396.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
187	344,811	4,866,658	396.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
188	344,797	4,866,711	396.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
189	344,785	4,866,604	396.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
190	344,828	4,866,711	396.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
191	344,878	4,866,732	395.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
192	344,823	4,866,637	396.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
193	344,772	4,866,770	396.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
194	344,788	4,866,774	395.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
195	344,824	4,866,785	395.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
196	344,846	4,866,783	395.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
197	344,837	4,866,739	395.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
198	344,863	4,866,753	395.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
199	344,794	4,866,823	395.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
200	344,907	4,866,794	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
201	344,593	4,866,823	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
202	344,902	4,866,980	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
203	344,898	4,867,036	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
204	344,758	4,867,070	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
205	344,832	4,867,143	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
206	344,811	4,867,135	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
207	344,787	4,867,127	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
208	344,744	4,867,116	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
209	344,722	4,867,109	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
210	344,701	4,867,101	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
211	344,681	4,867,093	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
212	344,959	4,866,998	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
213	344,953	4,867,020	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
214	344,946	4,867,052	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
215	344,930	4,867,105	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
216	344,923	4,867,124	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
217	344,916	4,867,138	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
218	344,912	4,867,161	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
219	344,865	4,867,161	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
220	344,867	4,867,146	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
221	344,873	4,867,132	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
222	344,881	4,867,110	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
223	344,908	4,867,176	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
224	344,892	4,867,214	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
225	344,772	4,867,174	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
226	344,814	4,867,192	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
227	344,850	4,867,198	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
228	344,833	4,867,234	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
229	344,877	4,867,252	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
230	344,870	4,867,273	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
231	344,829	4,867,261	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
232	344,816	4,867,301	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
233	344,862	4,867,296	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
234	345,372	4,867,332	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
235	345,349	4,867,253	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
236	345,407	4,867,339	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
237	345,281	4,867,351	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
238	345,324	4,867,370	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
239	345,320	4,867,395	395.0	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
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
240	345,354	4,867,384	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
241	345,402	4,867,392	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
242	345,431	4,867,404	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
243	345,396	4,867,421	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
244	345,400	4,867,448	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
245	345,402	4,867,474	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
246	345,399	4,867,503	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
247	345,401	4,867,530	394.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
248	345,401	4,867,554	393.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
249	345,460	4,867,413	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
250	345,434	4,867,349	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
251	345,465	4,867,362	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
252	345,487	4,867,372	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
253	345,360	4,867,046	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
254	345,362	4,867,014	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
255	345,422	4,866,985	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
256	345,466	4,867,118	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
257	345,444	4,866,998	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
258	345,451	4,866,969	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
259	345,481	4,867,010	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
260	345,470	4,866,934	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
261	345,489	4,866,945	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
262	345,506	4,866,950	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
263	345,522	4,867,027	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
264	345,484	4,867,063	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
265	345,530	4,866,958	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
266	345,516	4,867,070	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
267	345,556	4,867,036	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
268	345,574	4,866,969	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
269	345,484	4,866,894	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
270	345,515	4,866,902	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
271	345,535	4,866,911	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
272	345,550	4,866,912	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
273	345,570	4,866,916	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
274	345,591	4,866,928	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
275	345,586	4,867,044	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
276	345,594	4,866,983	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
277	345,546	4,867,080	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
278	345,570	4,867,093	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
279	345,615	4,867,105	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
280	345,545	4,867,110	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
281	345,573	4,867,116	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
282	345,612	4,867,051	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
283	345,618	4,866,994	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
284	345,663	4,867,004	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
285	345,652	4,867,042	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
286	345,663	4,867,071	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
287	345,688	4,866,966	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
288	345,706	4,866,917	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
289	345,704	4,867,048	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
290	345,754	4,867,031	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
291	345,780	4,866,997	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
292	345,798	4,867,004	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
293	345,768	4,867,037	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
294	345,797	4,866,912	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
295	345,734	4,866,956	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
296	345,551	4,867,201	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
297	345,598	4,867,165	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
298	345,599	4,867,217	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
299	345,627	4,867,227	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
300	345,656	4,867,232	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
301	345,646	4,867,177	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
302	345,637	4,867,115	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
303	345,679	4,867,151	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
304	345,713	4,867,279	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
305	345,669	4,867,279	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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Calculated:
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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
306	345,619	4,867,282	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
307	345,598	4,867,284	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
308	345,748	4,867,149	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
309	345,759	4,867,103	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
310	345,713	4,867,238	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
311	345,793	4,867,164	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
312	345,805	4,867,122	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
313	345,796	4,867,094	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
314	345,865	4,867,137	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
315	345,839	4,867,129	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
316	345,821	4,867,055	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
317	345,805	4,867,048	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
318	345,893	4,867,086	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
319	345,879	4,867,199	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
320	345,948	4,867,109	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
321	345,993	4,867,152	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
322	345,878	4,867,027	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
323	345,827	4,867,019	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
324	345,940	4,866,954	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
325	345,632	4,867,452	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
326	345,654	4,867,450	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
327	345,674	4,867,448	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
328	345,699	4,867,449	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
329	345,729	4,867,451	394.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
330	345,755	4,867,451	394.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
331	345,624	4,867,398	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
332	345,682	4,867,399	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
333	345,735	4,867,396	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
334	345,763	4,867,394	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
335	345,536	4,867,445	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
336	344,813	4,866,507	396.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
337	345,073	4,866,480	396.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
338	345,073	4,866,588	395.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
339	345,155	4,866,517	396.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
340	345,154	4,866,577	395.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
341	345,177	4,866,551	395.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
342	345,230	4,866,608	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
343	345,138	4,866,641	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
344	345,175	4,866,616	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
345	345,223	4,866,546	395.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
346	345,224	4,866,505	395.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
347	345,225	4,866,474	396.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
348	345,263	4,866,608	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
349	345,325	4,866,601	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
350	345,389	4,866,375	395.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
351	345,415	4,866,380	395.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
352	345,452	4,866,384	395.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
353	345,363	4,866,423	395.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
354	345,387	4,866,425	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
355	345,409	4,866,426	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
356	345,444	4,866,424	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
357	345,406	4,866,588	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
358	345,484	4,866,422	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
359	345,516	4,866,463	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
360	345,542	4,866,483	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
361	345,582	4,866,472	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
362	345,581	4,866,431	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
363	345,658	4,866,458	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
364	345,648	4,866,439	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
365	345,675	4,866,361	395.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
366	345,708	4,866,454	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
367	345,789	4,866,420	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
368	345,821	4,866,437	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
369	345,852	4,866,438	395.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
370	346,010	4,866,417	399.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
371	345,385	4,866,659	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
372	345,361	4,866,653	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
373	345,444	4,866,656	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
374	345,394	4,866,700	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
375	345,445	4,866,712	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
376	345,449	4,866,697	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
377	345,467	4,866,597	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
378	345,526	4,866,650	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
379	345,486	4,866,686	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
380	345,535	4,866,560	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
381	345,588	4,866,595	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
382	345,575	4,866,651	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
383	345,654	4,866,648	394.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
384	345,744	4,866,649	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
385	345,760	4,866,595	391.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
386	345,799	4,866,594	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
387	345,824	4,866,577	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
388	344,729	4,867,554	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
389	344,711	4,867,579	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
390	344,798	4,867,714	391.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
391	344,817	4,867,664	393.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
392	344,828	4,867,635	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
393	344,841	4,867,620	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
394	344,846	4,867,589	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
395	344,858	4,867,551	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
396	344,482	4,867,617	386.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
397	344,913	4,867,548	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
398	344,904	4,867,576	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
399	344,941	4,867,543	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
400	345,013	4,867,549	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
401	344,881	4,867,641	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
402	344,863	4,867,674	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
403	344,761	4,867,777	392.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
404	344,836	4,867,763	394.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
405	344,882	4,867,717	394.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
406	344,896	4,867,754	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
407	344,993	4,867,740	393.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
408	345,319	4,867,639	390.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
409	345,356	4,867,641	390.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
410	345,397	4,867,638	391.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
411	345,458	4,867,642	390.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
412	345,494	4,867,635	390.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
413	345,552	4,867,631	390.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
414	342,499	4,866,075	409.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
415	342,542	4,866,036	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
416	334,279	4,872,084	430.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
417	341,679	4,864,929	410.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
418	341,682	4,864,918	410.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
419	340,928	4,864,906	415.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
420	339,590	4,865,531	420.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
421	344,313	4,866,680	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
422	344,321	4,866,721	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
423	344,371	4,866,680	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
424	344,380	4,866,740	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
425	344,405	4,866,810	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
426	344,397	4,866,858	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
427	344,487	4,866,840	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
428	344,522	4,866,852	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
429	344,557	4,866,860	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
430	344,582	4,866,871	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
431	344,622	4,866,882	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
432	344,636	4,866,885	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
433	344,648	4,866,891	395.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
434	344,656	4,866,906	395.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
435	344,674	4,866,924	395.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
436	344,667	4,866,943	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
437	344,659	4,866,965	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
438	344,637	4,867,015	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
439	344,621	4,867,080	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
440	344,596	4,867,085	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
441	344,576	4,867,084	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
442	344,562	4,867,069	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
443	344,537	4,867,073	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
444	344,511	4,867,086	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
445	344,485	4,867,084	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
446	344,464	4,867,084	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
447	344,441	4,867,084	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
448	344,403	4,867,078	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
449	344,334	4,867,153	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
450	344,427	4,867,136	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
451	344,394	4,867,190	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
452	344,467	4,867,129	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
453	344,494	4,867,196	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
454	344,511	4,867,129	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
455	344,298	4,867,305	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
456	344,223	4,867,501	393.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
457	344,226	4,867,539	392.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
458	344,192	4,867,630	390.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
459	344,248	4,867,728	386.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
460	344,164	4,867,706	386.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
461	344,097	4,867,692	385.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
462	344,005	4,867,683	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
463	343,806	4,867,708	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
464	343,763	4,867,732	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
465	343,735	4,867,738	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
466	343,547	4,867,593	384.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
467	344,526	4,867,272	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
468	344,514	4,867,474	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
469	344,585	4,867,490	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
470	344,663	4,867,500	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
471	344,662	4,867,472	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
472	344,660	4,867,442	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
473	344,706	4,867,502	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
474	344,707	4,867,473	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
475	344,729	4,867,441	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
476	344,707	4,867,416	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
477	344,711	4,867,386	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
478	344,661	4,867,413	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
479	344,663	4,867,391	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
480	344,662	4,867,372	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
481	344,652	4,867,351	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
482	344,612	4,867,197	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
483	344,639	4,867,196	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
484	344,682	4,867,281	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
485	344,690	4,867,150	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
486	344,725	4,867,163	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
487	344,743	4,867,263	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
488	344,755	4,867,210	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
489	344,704	4,867,198	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
490	344,736	4,867,307	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
491	344,753	4,867,361	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
492	344,659	4,867,134	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
493	344,717	4,866,947	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
494	344,699	4,867,030	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
495	344,737	4,866,923	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
496	344,741	4,867,042	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
497	344,797	4,866,967	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
498	344,782	4,867,010	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
499	344,766	4,867,006	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
500	344,795	4,866,938	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
501	344,804	4,866,896	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
502	344,847	4,867,342	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
503	344,832	4,867,381	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
504	344,826	4,867,397	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
505	344,813	4,867,442	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
506	344,797	4,867,466	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
507	344,885	4,867,472	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
508	344,831	4,867,500	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
509	344,894	4,867,443	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
510	344,959	4,867,498	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
511	344,931	4,867,482	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
512	344,944	4,867,454	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
513	344,951	4,867,432	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
514	344,957	4,867,412	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
515	344,962	4,867,389	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
516	344,968	4,867,376	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
517	344,914	4,867,379	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
518	344,904	4,867,407	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
519	344,922	4,867,357	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
520	344,930	4,867,341	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
521	344,939	4,867,307	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
522	344,979	4,867,352	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
523	344,990	4,867,325	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
524	345,002	4,867,280	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
525	344,953	4,867,273	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
526	344,962	4,867,255	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
527	344,969	4,867,241	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
528	344,939	4,867,186	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
529	344,958	4,867,116	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
530	344,998	4,867,155	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
531	344,993	4,867,169	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
532	344,931	4,867,224	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
533	344,977	4,867,082	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
534	344,990	4,867,011	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
535	345,016	4,867,020	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
536	345,044	4,867,024	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
537	345,017	4,867,093	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
538	345,076	4,867,096	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
539	345,045	4,867,154	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
540	345,142	4,867,060	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
541	345,161	4,867,076	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
542	345,150	4,867,105	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
543	345,139	4,867,121	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
544	345,077	4,867,156	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
545	345,097	4,867,175	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
546	345,030	4,867,203	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
547	345,023	4,867,219	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
548	345,015	4,867,259	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
549	345,113	4,867,217	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
550	345,050	4,867,270	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
551	345,086	4,867,285	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
552	345,148	4,867,253	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
553	345,164	4,867,188	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
554	345,121	4,867,293	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
555	345,181	4,867,146	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
556	345,211	4,867,200	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
557	345,189	4,867,264	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
558	345,222	4,867,275	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
559	345,223	4,867,240	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
560	345,287	4,867,249	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
561	345,235	4,867,218	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
562	345,208	4,867,323	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
563	345,048	4,867,340	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
564	345,079	4,867,340	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
565	345,101	4,867,348	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
566	345,086	4,867,388	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
567	345,116	4,867,399	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
568	345,139	4,867,406	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
569	345,144	4,867,372	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
570	345,191	4,867,347	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
571	345,192	4,867,376	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
572	345,268	4,867,298	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
573	345,288	4,867,302	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
574	345,308	4,867,308	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
575	345,324	4,867,315	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
576	345,349	4,867,325	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
577	344,944	4,867,742	394.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
578	345,006	4,867,695	394.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
579	345,046	4,867,699	394.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
580	345,028	4,867,734	393.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
581	345,060	4,867,741	392.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
582	345,144	4,867,694	391.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
583	345,151	4,867,744	391.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
584	345,197	4,867,777	390.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
585	345,200	4,867,747	390.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
586	345,197	4,867,711	390.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
587	345,196	4,867,679	391.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
588	345,149	4,867,669	392.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
589	345,126	4,867,671	392.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
590	345,217	4,867,936	389.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
591	345,235	4,867,642	390.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
592	345,260	4,867,638	390.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
593	345,286	4,867,644	390.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
594	343,409	4,867,547	382.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
595	352,617	4,875,800	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
596	352,567	4,874,236	361.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
597	354,694	4,869,562	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
598	354,152	4,872,437	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
599	354,454	4,872,703	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
600	354,182	4,873,719	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
601	354,055	4,875,479	350.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
602	356,437	4,876,650	340.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
603	355,599	4,875,833	340.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
604	355,966	4,875,462	340.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
605	355,687	4,875,216	341.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
606	355,901	4,874,606	345.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
607	355,455	4,874,722	345.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
608	355,352	4,871,213	358.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
609	355,630	4,870,935	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
610	355,553	4,869,487	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
611	356,806	4,869,653	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
612	357,363	4,870,377	350.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
613	357,276	4,871,269	350.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
614	357,615	4,871,921	345.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
615	358,069	4,872,952	344.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
616	357,627	4,874,308	340.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
617	357,430	4,875,734	340.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
618	357,505	4,875,420	342.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
619	356,819	4,875,899	340.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
620	353,119	4,876,184	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
621	353,038	4,872,739	361.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
622	355,110	4,872,432	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
623	353,501	4,871,117	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
624	353,171	4,871,171	361.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
625	354,643	4,868,550	367.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
626	355,692	4,868,205	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
627	355,705	4,868,226	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
628	355,890	4,868,247	362.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
629	355,778	4,868,387	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
630	355,951	4,868,260	362.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
631	356,003	4,868,263	362.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
632	356,051	4,868,273	361.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
633	356,076	4,868,276	360.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
634	356,066	4,868,302	361.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
635	356,128	4,868,280	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

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Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
636	356,112	4,868,326	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
637	356,112	4,868,349	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
638	356,044	4,868,344	362.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
639	355,995	4,868,317	364.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
640	356,050	4,868,375	362.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
641	356,046	4,868,391	362.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
642	356,045	4,868,412	362.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
643	356,116	4,868,389	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
644	356,100	4,868,440	360.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
645	356,172	4,868,448	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
646	356,176	4,868,477	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
647	356,186	4,868,367	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
648	356,303	4,868,492	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
649	356,390	4,868,511	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
650	355,970	4,868,434	364.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
651	355,906	4,868,513	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
652	355,902	4,868,535	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
653	355,893	4,868,586	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
654	355,956	4,868,520	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
655	355,989	4,868,484	364.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
656	356,007	4,868,520	363.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
657	356,040	4,868,494	361.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
658	356,092	4,868,505	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
659	356,160	4,868,520	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
660	356,139	4,868,541	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
661	356,212	4,868,528	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
662	356,262	4,868,539	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
663	356,203	4,868,559	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
664	356,206	4,868,592	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
665	356,230	4,868,596	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
666	356,282	4,868,604	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
667	356,251	4,868,605	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
668	356,097	4,868,534	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
669	356,030	4,868,540	362.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
670	356,027	4,868,567	362.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
671	355,940	4,868,594	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
672	356,018	4,868,599	363.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
673	356,015	4,868,632	361.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
674	356,011	4,868,647	360.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
675	356,066	4,868,631	360.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
676	356,138	4,868,631	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
677	356,190	4,868,643	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
678	356,219	4,868,645	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
679	356,265	4,868,655	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
680	356,265	4,868,681	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
681	356,132	4,868,668	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
682	356,131	4,868,692	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
683	356,318	4,868,612	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
684	356,339	4,868,628	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
685	356,427	4,868,604	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
686	356,408	4,868,633	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
687	356,331	4,868,663	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
688	356,383	4,868,682	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
689	356,421	4,868,689	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
690	356,457	4,868,686	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
691	356,366	4,868,697	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
692	356,446	4,868,715	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
693	356,494	4,868,564	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
694	356,498	4,868,606	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
695	356,392	4,868,940	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
696	356,392	4,868,989	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
697	356,422	4,869,067	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
698	356,382	4,869,063	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
699	356,377	4,869,031	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
700	356,327	4,869,052	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
701	356,331	4,869,023	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

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Jacob Runner / jrunner@edrdpc.com
Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
702	356,309	4,869,087	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
703	356,374	4,869,101	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
704	356,437	4,869,110	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
705	356,438	4,869,161	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
706	356,390	4,869,157	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
707	356,355	4,869,151	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
708	356,307	4,869,137	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
709	356,302	4,869,170	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
710	356,412	4,869,220	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
711	356,053	4,868,972	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
712	356,080	4,868,980	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
713	356,079	4,869,006	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
714	356,073	4,869,033	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
715	356,055	4,869,050	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
716	356,006	4,868,977	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
717	355,993	4,869,003	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
718	355,994	4,869,031	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
719	355,949	4,868,966	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
720	355,946	4,868,986	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
721	355,947	4,869,008	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
722	355,943	4,869,023	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
723	355,969	4,868,875	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
724	355,889	4,868,864	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
725	355,881	4,868,899	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
726	355,878	4,868,939	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
727	355,870	4,868,966	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
728	355,844	4,868,823	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
729	355,839	4,868,859	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
730	355,839	4,868,894	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
731	355,829	4,868,930	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
732	355,828	4,868,944	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
733	355,807	4,868,818	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
734	355,933	4,869,063	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
735	355,928	4,869,079	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
736	355,926	4,869,091	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
737	355,917	4,869,113	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
738	355,917	4,869,134	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
739	355,986	4,869,080	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
740	355,980	4,869,124	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
741	355,971	4,869,143	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
742	356,059	4,869,086	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
743	356,057	4,869,101	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
744	356,099	4,869,163	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
745	355,885	4,869,055	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
746	355,860	4,869,054	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
747	355,849	4,869,113	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
748	355,870	4,869,117	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
749	355,807	4,869,058	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
750	355,802	4,869,095	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
751	355,794	4,869,128	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
752	355,782	4,869,165	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
753	355,770	4,869,187	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
754	355,755	4,869,047	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
755	355,711	4,869,040	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
756	355,760	4,868,992	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
757	355,694	4,868,990	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
758	355,689	4,869,183	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
759	355,698	4,869,275	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
760	355,723	4,869,356	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
761	355,751	4,869,319	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
762	355,809	4,869,334	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
763	355,817	4,869,271	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
764	355,843	4,869,284	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
765	355,886	4,869,292	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
766	355,951	4,869,296	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
767	355,935	4,869,318	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
768	355,931	4,869,376	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
769	356,001	4,869,360	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
770	356,005	4,869,310	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
771	356,030	4,869,257	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
772	356,003	4,869,256	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
773	356,012	4,869,188	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
774	356,036	4,869,192	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
775	356,032	4,869,238	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
776	355,964	4,869,180	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
777	355,961	4,869,199	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
778	355,956	4,869,255	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
779	355,911	4,869,176	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
780	355,907	4,869,212	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
781	355,894	4,869,247	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
782	355,823	4,869,224	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
783	355,849	4,869,163	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
784	356,273	4,869,294	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
785	356,327	4,869,308	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
786	356,329	4,869,276	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
787	356,285	4,869,242	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
788	356,217	4,869,348	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
789	356,142	4,869,333	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
790	356,488	4,869,268	358.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
791	356,488	4,869,322	358.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
792	356,521	4,869,056	358.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
793	351,866	4,875,985	357.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
794	357,345	4,868,269	355.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
795	358,127	4,868,180	355.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
796	359,000	4,868,732	350.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
797	358,409	4,871,152	345.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
798	338,161	4,880,092	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
799	340,457	4,879,785	375.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
800	342,979	4,879,428	370.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
801	342,860	4,879,804	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
802	344,257	4,879,373	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
803	346,022	4,880,757	374.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
804	346,353	4,879,521	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
805	347,374	4,880,046	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
806	334,869	4,878,152	415.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
807	336,665	4,879,160	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
808	339,609	4,878,853	392.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
809	339,876	4,878,698	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
810	340,969	4,879,236	384.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
811	341,771	4,879,253	373.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
812	342,147	4,878,086	380.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
813	343,459	4,879,213	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
814	346,568	4,878,623	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
815	334,807	4,877,612	416.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
816	336,624	4,877,581	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
817	342,925	4,877,379	377.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
818	348,298	4,877,605	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
819	349,372	4,876,711	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
820	349,560	4,877,237	360.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
821	350,071	4,876,070	365.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
822	334,761	4,875,604	427.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
823	335,312	4,874,792	430.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
824	336,576	4,875,510	411.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
825	336,378	4,875,819	415.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
826	336,384	4,874,934	414.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
827	336,991	4,874,550	411.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
828	336,774	4,874,695	412.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
829	338,085	4,874,866	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
830	339,459	4,874,939	400.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
831	344,595	4,874,794	381.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
832	333,832	4,873,272	429.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
833	334,862	4,874,592	430.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
834	334,958	4,874,215	430.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
835	334,586	4,872,932	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
836	336,162	4,873,279	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
837	338,786	4,873,051	403.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
838	340,983	4,873,020	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
839	340,423	4,872,948	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
840	343,945	4,872,887	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
841	345,816	4,872,706	382.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
842	345,892	4,872,903	380.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
843	338,174	4,872,453	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
844	338,637	4,871,428	406.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
845	339,725	4,871,223	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
846	339,698	4,872,091	401.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
847	341,617	4,872,198	397.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
848	340,697	4,872,553	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
849	345,132	4,871,418	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
850	345,666	4,871,176	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
851	345,635	4,871,615	386.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
852	345,255	4,872,003	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
853	347,220	4,871,377	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
854	349,219	4,872,327	373.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
855	350,944	4,871,667	370.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
856	334,781	4,871,010	430.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
857	335,152	4,870,543	429.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
858	335,176	4,870,542	429.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
859	337,070	4,869,855	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
860	337,119	4,869,638	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
861	338,904	4,871,049	397.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
862	340,446	4,869,737	401.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
863	341,233	4,869,865	400.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
864	342,758	4,870,493	399.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
865	342,923	4,869,891	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
866	349,266	4,870,209	380.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
867	334,947	4,869,374	430.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
868	337,953	4,868,597	422.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
869	338,227	4,869,503	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
870	338,448	4,868,102	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
871	338,518	4,868,105	416.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
872	339,725	4,868,307	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
873	336,967	4,868,688	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
874	338,219	4,869,504	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
875	341,232	4,869,013	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
876	341,232	4,869,013	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
877	344,669	4,868,346	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
878	344,721	4,868,250	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
879	344,634	4,868,277	388.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
880	344,647	4,868,236	390.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
881	344,664	4,868,206	394.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
882	344,679	4,868,180	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
883	344,691	4,868,155	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
884	344,708	4,868,129	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
885	344,749	4,868,074	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
886	344,752	4,868,013	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
887	344,761	4,867,974	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
888	344,773	4,867,945	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
889	344,846	4,868,005	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
890	344,907	4,867,995	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
891	344,933	4,868,048	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
892	344,905	4,868,049	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
893	344,872	4,868,050	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
894	344,892	4,868,073	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
895	344,795	4,867,894	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
896	344,803	4,867,873	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
897	344,805	4,867,852	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
898	344,812	4,867,827	394.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
899	344,828	4,867,812	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
900	344,949	4,867,811	394.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
901	344,887	4,867,861	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
902	344,887	4,867,891	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
903	345,021	4,867,901	393.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
904	344,998	4,867,808	393.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
905	345,080	4,867,809	392.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
906	345,110	4,867,806	391.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
907	345,136	4,867,810	391.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
908	345,156	4,867,808	390.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
909	345,205	4,867,815	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
910	345,155	4,867,859	390.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
911	345,113	4,867,871	391.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
912	345,144	4,867,902	390.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
913	345,161	4,867,967	389.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
914	345,161	4,867,998	389.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
915	345,124	4,867,997	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
916	345,213	4,868,052	388.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
917	345,307	4,868,046	386.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
918	345,355	4,868,046	386.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
919	345,499	4,868,043	388.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
920	345,548	4,868,046	389.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
921	345,419	4,868,097	385.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
922	345,422	4,868,130	385.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
923	345,479	4,868,127	386.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
924	345,482	4,868,161	386.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
925	345,467	4,868,172	386.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
926	345,442	4,868,188	385.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
927	345,411	4,868,192	385.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
928	345,411	4,868,201	385.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
929	345,060	4,868,051	391.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
930	345,032	4,868,050	394.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
931	345,006	4,868,052	394.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
932	344,982	4,868,051	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
933	344,959	4,868,051	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
934	344,979	4,868,001	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
935	345,003	4,868,001	394.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
936	345,082	4,867,861	391.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
937	345,108	4,868,670	385.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
938	345,101	4,869,058	388.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
939	345,073	4,869,116	387.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
940	345,842	4,868,063	390.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
941	349,380	4,868,208	387.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
942	339,407	4,866,737	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
943	339,495	4,867,354	415.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
944	338,320	4,866,355	425.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
945	339,495	4,867,354	415.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
946	340,056	4,866,386	416.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
947	340,891	4,866,430	410.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
948	341,412	4,866,409	409.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
949	341,126	4,867,426	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
950	341,891	4,866,747	405.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
951	342,614	4,866,948	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
952	342,664	4,866,947	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
953	343,379	4,866,634	400.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
954	346,917	4,867,222	392.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
955	346,902	4,867,214	393.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
956	346,932	4,867,149	391.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
957	346,601	4,867,154	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
958	346,574	4,867,159	395.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
959	346,504	4,867,107	394.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
960	336,434	4,866,082	422.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
961	338,235	4,864,957	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
962	338,247	4,864,948	420.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
963	358,904	4,873,683	341.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
964	359,310	4,870,903	345.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
965	358,522	4,867,711	352.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: N163

...continued from previous page

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]
966	358,572	4,869,564	350.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
967	359,166	4,869,439	348.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
968	358,553	4,872,560	345.0	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]
0	90:03	126	0:59	37:57
1	163:03	99	2:10	40:50
2	40:02	54	0:56	15:34
3	12:19	44	0:26	4:07
4	0:00	0	0:00	0:00
5	107:03	146	1:10	32:18
6	0:00	0	0:00	0:00
7	72:36	84	1:09	26:42
8	65:39	113	0:52	16:21
9	43:02	127	0:27	14:51
10	0:00	0	0:00	0:00
11	0:00	0	0:00	0:00
12	0:00	0	0:00	0:00
13	0:00	0	0:00	0:00
14	0:00	0	0:00	0:00
15	0:00	0	0:00	0:00
16	0:00	0	0:00	0:00
17	0:00	0	0:00	0:00
18	25:10	66	0:34	8:07
19	20:30	69	0:25	6:20
20	10:59	37	0:27	4:05
21	131:39	213	1:06	40:47
22	84:45	139	0:57	35:03
23	92:56	134	0:59	37:57
24	133:40	147	1:23	33:33
25	78:02	153	0:49	27:24
26	155:36	209	1:29	52:15
27	61:43	104	1:14	21:34
28	91:18	146	0:58	29:24
29	76:15	149	0:49	30:42
30	80:12	161	0:46	33:13
31	49:15	97	0:42	14:54
32	44:35	93	0:38	13:57
33	90:35	130	1:05	35:52
34	121:59	245	1:14	43:18
35	65:31	138	0:48	21:07
36	0:00	0	0:00	0:00
37	0:00	0	0:00	0:00
38	0:00	0	0:00	0:00
39	61:53	134	0:59	23:44
40	98:37	187	0:54	35:34
41	90:56	171	0:51	30:07
42	143:54	216	1:04	43:10
43	88:07	133	1:17	29:24
44	65:14	84	1:00	20:06
45	139:10	154	1:28	59:36
46	12:52	44	0:26	5:42
47	25:40	59	0:37	8:53
48	54:40	99	0:56	21:42
49	66:59	103	0:52	19:42
50	0:00	0	0:00	0:00
51	0:00	0	0:00	0:00
52	0:00	0	0:00	0:00
53	0:00	0	0:00	0:00

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...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]
54	11:26	42	0:26	3:55
55	9:21	37	0:23	4:04
56	57:40	74	0:57	27:35
57	9:27	33	0:26	3:38
58	54:57	115	0:39	17:57
59	55:03	129	0:36	18:40
60	18:55	80	0:23	7:32
61	54:38	84	0:58	23:27
62	38:46	72	0:53	16:07
63	0:00	0	0:00	0:00
64	0:00	0	0:00	0:00
65	0:00	0	0:00	0:00
66	0:00	0	0:00	0:00
67	0:00	0	0:00	0:00
68	0:00	0	0:00	0:00
69	0:00	0	0:00	0:00
70	0:00	0	0:00	0:00
71	150:14	204	1:21	57:19
72	94:09	176	0:47	27:38
73	0:00	0	0:00	0:00
74	69:54	99	0:49	22:00
75	53:45	142	0:34	19:01
76	37:49	87	0:37	13:41
77	0:00	0	0:00	0:00
78	51:15	80	0:50	20:16
79	51:15	80	0:50	20:16
80	0:00	0	0:00	0:00
81	0:00	0	0:00	0:00
82	0:00	0	0:00	0:00
83	33:50	57	0:43	10:18
84	0:00	0	0:00	0:00
85	0:00	0	0:00	0:00
86	60:50	128	0:40	24:05
87	121:00	107	1:25	38:17
88	83:02	92	1:10	30:40
89	68:46	141	0:43	26:06
90	98:59	236	0:46	35:25
91	25:11	78	0:25	9:53
92	122:38	125	1:29	47:33
93	0:00	0	0:00	0:00
94	0:00	0	0:00	0:00
95	0:00	0	0:00	0:00
96	0:00	0	0:00	0:00
97	0:00	0	0:00	0:00
98	0:00	0	0:00	0:00
99	0:00	0	0:00	0:00
100	0:00	0	0:00	0:00
101	0:00	0	0:00	0:00
102	0:00	0	0:00	0:00
103	0:00	0	0:00	0:00
104	0:00	0	0:00	0:00
105	0:00	0	0:00	0:00
106	14:31	49	0:26	5:41
107	0:00	0	0:00	0:00
108	9:14	24	0:29	3:29
109	138:22	152	1:55	54:44
110	95:39	99	1:15	36:46
111	0:00	0	0:00	0:00
112	11:39	35	0:25	5:33
113	0:00	0	0:00	0:00
114	0:00	0	0:00	0:00
115	0:00	0	0:00	0:00
116	0:00	0	0:00	0:00
117	0:00	0	0:00	0:00
118	0:00	0	0:00	0:00

To be continued on next page...

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EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
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Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
119	0:00	0	0:00	0:00
120	0:00	0	0:00	0:00
121	0:00	0	0:00	0:00
122	0:00	0	0:00	0:00
123	0:00	0	0:00	0:00
124	0:00	0	0:00	0:00
125	0:00	0	0:00	0:00
126	0:00	0	0:00	0:00
127	0:00	0	0:00	0:00
128	0:00	0	0:00	0:00
129	0:00	0	0:00	0:00
130	0:00	0	0:00	0:00
131	0:00	0	0:00	0:00
132	0:00	0	0:00	0:00
133	0:00	0	0:00	0:00
134	0:00	0	0:00	0:00
135	0:00	0	0:00	0:00
136	0:00	0	0:00	0:00
137	0:00	0	0:00	0:00
138	0:00	0	0:00	0:00
139	0:59	19	0:04	0:22
140	2:42	29	0:08	1:01
141	6:42	42	0:14	2:35
142	6:28	41	0:13	2:29
143	8:08	46	0:15	3:09
144	0:41	17	0:03	0:15
145	0:00	0	0:00	0:00
146	0:00	0	0:00	0:00
147	0:00	0	0:00	0:00
148	5:55	39	0:13	2:16
149	12:08	52	0:19	4:43
150	16:55	59	0:23	6:37
151	20:37	65	0:26	8:06
152	15:12	57	0:22	5:57
153	17:04	61	0:23	6:41
154	23:49	73	0:25	9:25
155	23:14	76	0:24	9:13
156	0:00	0	0:00	0:00
157	10:46	52	0:17	4:11
158	44:55	67	0:51	17:40
159	0:00	0	0:00	0:00
160	35:49	120	0:26	15:55
161	0:00	0	0:00	0:00
162	0:00	0	0:00	0:00
163	0:00	0	0:00	0:00
164	0:00	0	0:00	0:00
165	0:00	0	0:00	0:00
166	0:00	0	0:00	0:00
167	0:00	0	0:00	0:00
168	0:00	0	0:00	0:00
169	0:00	0	0:00	0:00
170	0:00	0	0:00	0:00
171	0:00	0	0:00	0:00
172	0:00	0	0:00	0:00
173	0:00	0	0:00	0:00
174	0:00	0	0:00	0:00
175	0:00	0	0:00	0:00
176	0:00	0	0:00	0:00
177	0:00	0	0:00	0:00
178	0:00	0	0:00	0:00
179	0:00	0	0:00	0:00
180	0:00	0	0:00	0:00
181	0:00	0	0:00	0:00
182	0:00	0	0:00	0:00
183	0:00	0	0:00	0:00

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
184	0:00	0	0:00	0:00
185	0:00	0	0:00	0:00
186	0:00	0	0:00	0:00
187	0:00	0	0:00	0:00
188	0:00	0	0:00	0:00
189	0:00	0	0:00	0:00
190	0:00	0	0:00	0:00
191	0:00	0	0:00	0:00
192	0:00	0	0:00	0:00
193	0:00	0	0:00	0:00
194	0:00	0	0:00	0:00
195	0:00	0	0:00	0:00
196	0:00	0	0:00	0:00
197	0:00	0	0:00	0:00
198	0:00	0	0:00	0:00
199	0:00	0	0:00	0:00
200	0:00	0	0:00	0:00
201	0:00	0	0:00	0:00
202	0:00	0	0:00	0:00
203	0:00	0	0:00	0:00
204	0:00	0	0:00	0:00
205	0:00	0	0:00	0:00
206	0:00	0	0:00	0:00
207	0:00	0	0:00	0:00
208	0:00	0	0:00	0:00
209	0:00	0	0:00	0:00
210	0:00	0	0:00	0:00
211	0:00	0	0:00	0:00
212	0:00	0	0:00	0:00
213	0:00	0	0:00	0:00
214	0:00	0	0:00	0:00
215	0:00	0	0:00	0:00
216	0:00	0	0:00	0:00
217	0:00	0	0:00	0:00
218	0:00	0	0:00	0:00
219	0:00	0	0:00	0:00
220	0:00	0	0:00	0:00
221	0:00	0	0:00	0:00
222	0:00	0	0:00	0:00
223	0:00	0	0:00	0:00
224	0:00	0	0:00	0:00
225	0:00	0	0:00	0:00
226	0:00	0	0:00	0:00
227	0:00	0	0:00	0:00
228	0:00	0	0:00	0:00
229	0:00	0	0:00	0:00
230	0:00	0	0:00	0:00
231	0:00	0	0:00	0:00
232	0:00	0	0:00	0:00
233	0:00	0	0:00	0:00
234	0:00	0	0:00	0:00
235	0:00	0	0:00	0:00
236	0:00	0	0:00	0:00
237	0:00	0	0:00	0:00
238	0:00	0	0:00	0:00
239	0:00	0	0:00	0:00
240	0:00	0	0:00	0:00
241	0:00	0	0:00	0:00
242	0:00	0	0:00	0:00
243	0:00	0	0:00	0:00
244	0:00	0	0:00	0:00
245	0:00	0	0:00	0:00
246	0:00	0	0:00	0:00
247	0:00	0	0:00	0:00
248	0:00	0	0:00	0:00

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
249	0:00	0	0:00	0:00
250	0:00	0	0:00	0:00
251	0:00	0	0:00	0:00
252	0:00	0	0:00	0:00
253	0:00	0	0:00	0:00
254	0:00	0	0:00	0:00
255	0:00	0	0:00	0:00
256	0:00	0	0:00	0:00
257	0:00	0	0:00	0:00
258	0:00	0	0:00	0:00
259	0:00	0	0:00	0:00
260	0:00	0	0:00	0:00
261	0:00	0	0:00	0:00
262	0:00	0	0:00	0:00
263	0:00	0	0:00	0:00
264	0:00	0	0:00	0:00
265	0:00	0	0:00	0:00
266	0:00	0	0:00	0:00
267	0:00	0	0:00	0:00
268	0:00	0	0:00	0:00
269	0:00	0	0:00	0:00
270	0:00	0	0:00	0:00
271	0:00	0	0:00	0:00
272	0:00	0	0:00	0:00
273	0:00	0	0:00	0:00
274	0:00	0	0:00	0:00
275	0:00	0	0:00	0:00
276	0:00	0	0:00	0:00
277	0:00	0	0:00	0:00
278	0:00	0	0:00	0:00
279	0:00	0	0:00	0:00
280	0:00	0	0:00	0:00
281	0:00	0	0:00	0:00
282	0:00	0	0:00	0:00
283	0:00	0	0:00	0:00
284	0:00	0	0:00	0:00
285	0:00	0	0:00	0:00
286	0:00	0	0:00	0:00
287	0:00	0	0:00	0:00
288	0:00	0	0:00	0:00
289	0:00	0	0:00	0:00
290	0:00	0	0:00	0:00
291	0:00	0	0:00	0:00
292	0:00	0	0:00	0:00
293	0:00	0	0:00	0:00
294	0:00	0	0:00	0:00
295	0:00	0	0:00	0:00
296	0:00	0	0:00	0:00
297	0:00	0	0:00	0:00
298	0:00	0	0:00	0:00
299	0:00	0	0:00	0:00
300	0:00	0	0:00	0:00
301	0:00	0	0:00	0:00
302	0:00	0	0:00	0:00
303	0:00	0	0:00	0:00
304	0:00	0	0:00	0:00
305	0:00	0	0:00	0:00
306	0:00	0	0:00	0:00
307	0:00	0	0:00	0:00
308	0:00	0	0:00	0:00
309	0:00	0	0:00	0:00
310	0:00	0	0:00	0:00
311	0:00	0	0:00	0:00
312	0:00	0	0:00	0:00
313	0:00	0	0:00	0:00

To be continued on next page...

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9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
314	0:00	0	0:00	0:00
315	0:00	0	0:00	0:00
316	0:00	0	0:00	0:00
317	0:00	0	0:00	0:00
318	0:00	0	0:00	0:00
319	0:00	0	0:00	0:00
320	0:00	0	0:00	0:00
321	0:00	0	0:00	0:00
322	0:00	0	0:00	0:00
323	0:00	0	0:00	0:00
324	0:00	0	0:00	0:00
325	0:00	0	0:00	0:00
326	0:00	0	0:00	0:00
327	0:00	0	0:00	0:00
328	0:00	0	0:00	0:00
329	0:00	0	0:00	0:00
330	0:00	0	0:00	0:00
331	0:00	0	0:00	0:00
332	0:00	0	0:00	0:00
333	0:00	0	0:00	0:00
334	0:00	0	0:00	0:00
335	0:00	0	0:00	0:00
336	0:00	0	0:00	0:00
337	0:00	0	0:00	0:00
338	0:00	0	0:00	0:00
339	0:00	0	0:00	0:00
340	0:00	0	0:00	0:00
341	0:00	0	0:00	0:00
342	0:00	0	0:00	0:00
343	0:00	0	0:00	0:00
344	0:00	0	0:00	0:00
345	0:00	0	0:00	0:00
346	0:00	0	0:00	0:00
347	0:00	0	0:00	0:00
348	0:00	0	0:00	0:00
349	0:00	0	0:00	0:00
350	0:00	0	0:00	0:00
351	0:00	0	0:00	0:00
352	0:00	0	0:00	0:00
353	0:00	0	0:00	0:00
354	0:00	0	0:00	0:00
355	0:00	0	0:00	0:00
356	0:00	0	0:00	0:00
357	0:00	0	0:00	0:00
358	0:00	0	0:00	0:00
359	0:00	0	0:00	0:00
360	0:00	0	0:00	0:00
361	0:00	0	0:00	0:00
362	0:00	0	0:00	0:00
363	0:00	0	0:00	0:00
364	0:00	0	0:00	0:00
365	0:00	0	0:00	0:00
366	0:00	0	0:00	0:00
367	0:00	0	0:00	0:00
368	0:00	0	0:00	0:00
369	0:00	0	0:00	0:00
370	0:00	0	0:00	0:00
371	0:00	0	0:00	0:00
372	0:00	0	0:00	0:00
373	0:00	0	0:00	0:00
374	0:00	0	0:00	0:00
375	0:00	0	0:00	0:00
376	0:00	0	0:00	0:00
377	0:00	0	0:00	0:00
378	0:00	0	0:00	0:00

To be continued on next page...

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Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
379	0:00	0	0:00	0:00
380	0:00	0	0:00	0:00
381	0:00	0	0:00	0:00
382	0:00	0	0:00	0:00
383	0:00	0	0:00	0:00
384	0:00	0	0:00	0:00
385	0:00	0	0:00	0:00
386	0:00	0	0:00	0:00
387	0:00	0	0:00	0:00
388	0:00	0	0:00	0:00
389	0:00	0	0:00	0:00
390	0:00	0	0:00	0:00
391	0:00	0	0:00	0:00
392	0:00	0	0:00	0:00
393	0:00	0	0:00	0:00
394	0:00	0	0:00	0:00
395	0:00	0	0:00	0:00
396	0:00	0	0:00	0:00
397	0:00	0	0:00	0:00
398	0:00	0	0:00	0:00
399	0:00	0	0:00	0:00
400	0:00	0	0:00	0:00
401	0:00	0	0:00	0:00
402	0:00	0	0:00	0:00
403	0:00	0	0:00	0:00
404	0:00	0	0:00	0:00
405	0:00	0	0:00	0:00
406	0:00	0	0:00	0:00
407	0:00	0	0:00	0:00
408	0:00	0	0:00	0:00
409	0:00	0	0:00	0:00
410	0:00	0	0:00	0:00
411	0:00	0	0:00	0:00
412	0:00	0	0:00	0:00
413	0:00	0	0:00	0:00
414	0:00	0	0:00	0:00
415	0:00	0	0:00	0:00
416	0:00	0	0:00	0:00
417	0:00	0	0:00	0:00
418	0:00	0	0:00	0:00
419	0:00	0	0:00	0:00
420	0:00	0	0:00	0:00
421	0:00	0	0:00	0:00
422	0:00	0	0:00	0:00
423	0:00	0	0:00	0:00
424	0:00	0	0:00	0:00
425	0:00	0	0:00	0:00
426	0:00	0	0:00	0:00
427	0:00	0	0:00	0:00
428	0:00	0	0:00	0:00
429	0:00	0	0:00	0:00
430	0:00	0	0:00	0:00
431	0:00	0	0:00	0:00
432	0:00	0	0:00	0:00
433	0:00	0	0:00	0:00
434	0:00	0	0:00	0:00
435	0:00	0	0:00	0:00
436	0:00	0	0:00	0:00
437	0:00	0	0:00	0:00
438	0:00	0	0:00	0:00
439	0:00	0	0:00	0:00
440	0:00	0	0:00	0:00
441	0:00	0	0:00	0:00
442	0:00	0	0:00	0:00
443	0:00	0	0:00	0:00

To be continued on next page...

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Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
444	0:00	0	0:00	0:00
445	0:00	0	0:00	0:00
446	0:00	0	0:00	0:00
447	0:00	0	0:00	0:00
448	0:00	0	0:00	0:00
449	0:00	0	0:00	0:00
450	0:00	0	0:00	0:00
451	0:00	0	0:00	0:00
452	0:00	0	0:00	0:00
453	0:00	0	0:00	0:00
454	0:00	0	0:00	0:00
455	0:00	0	0:00	0:00
456	0:00	0	0:00	0:00
457	0:00	0	0:00	0:00
458	0:00	0	0:00	0:00
459	0:00	0	0:00	0:00
460	0:00	0	0:00	0:00
461	0:00	0	0:00	0:00
462	0:00	0	0:00	0:00
463	0:00	0	0:00	0:00
464	0:00	0	0:00	0:00
465	0:00	0	0:00	0:00
466	0:00	0	0:00	0:00
467	0:00	0	0:00	0:00
468	0:00	0	0:00	0:00
469	0:00	0	0:00	0:00
470	0:00	0	0:00	0:00
471	0:00	0	0:00	0:00
472	0:00	0	0:00	0:00
473	0:00	0	0:00	0:00
474	0:00	0	0:00	0:00
475	0:00	0	0:00	0:00
476	0:00	0	0:00	0:00
477	0:00	0	0:00	0:00
478	0:00	0	0:00	0:00
479	0:00	0	0:00	0:00
480	0:00	0	0:00	0:00
481	0:00	0	0:00	0:00
482	0:00	0	0:00	0:00
483	0:00	0	0:00	0:00
484	0:00	0	0:00	0:00
485	0:00	0	0:00	0:00
486	0:00	0	0:00	0:00
487	0:00	0	0:00	0:00
488	0:00	0	0:00	0:00
489	0:00	0	0:00	0:00
490	0:00	0	0:00	0:00
491	0:00	0	0:00	0:00
492	0:00	0	0:00	0:00
493	0:00	0	0:00	0:00
494	0:00	0	0:00	0:00
495	0:00	0	0:00	0:00
496	0:00	0	0:00	0:00
497	0:00	0	0:00	0:00
498	0:00	0	0:00	0:00
499	0:00	0	0:00	0:00
500	0:00	0	0:00	0:00
501	0:00	0	0:00	0:00
502	0:00	0	0:00	0:00
503	0:00	0	0:00	0:00
504	0:00	0	0:00	0:00
505	0:00	0	0:00	0:00
506	0:00	0	0:00	0:00
507	0:00	0	0:00	0:00
508	0:00	0	0:00	0:00

To be continued on next page...

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
509	0:00	0	0:00	0:00
510	0:00	0	0:00	0:00
511	0:00	0	0:00	0:00
512	0:00	0	0:00	0:00
513	0:00	0	0:00	0:00
514	0:00	0	0:00	0:00
515	0:00	0	0:00	0:00
516	0:00	0	0:00	0:00
517	0:00	0	0:00	0:00
518	0:00	0	0:00	0:00
519	0:00	0	0:00	0:00
520	0:00	0	0:00	0:00
521	0:00	0	0:00	0:00
522	0:00	0	0:00	0:00
523	0:00	0	0:00	0:00
524	0:00	0	0:00	0:00
525	0:00	0	0:00	0:00
526	0:00	0	0:00	0:00
527	0:00	0	0:00	0:00
528	0:00	0	0:00	0:00
529	0:00	0	0:00	0:00
530	0:00	0	0:00	0:00
531	0:00	0	0:00	0:00
532	0:00	0	0:00	0:00
533	0:00	0	0:00	0:00
534	0:00	0	0:00	0:00
535	0:00	0	0:00	0:00
536	0:00	0	0:00	0:00
537	0:00	0	0:00	0:00
538	0:00	0	0:00	0:00
539	0:00	0	0:00	0:00
540	0:00	0	0:00	0:00
541	0:00	0	0:00	0:00
542	0:00	0	0:00	0:00
543	0:00	0	0:00	0:00
544	0:00	0	0:00	0:00
545	0:00	0	0:00	0:00
546	0:00	0	0:00	0:00
547	0:00	0	0:00	0:00
548	0:00	0	0:00	0:00
549	0:00	0	0:00	0:00
550	0:00	0	0:00	0:00
551	0:00	0	0:00	0:00
552	0:00	0	0:00	0:00
553	0:00	0	0:00	0:00
554	0:00	0	0:00	0:00
555	0:00	0	0:00	0:00
556	0:00	0	0:00	0:00
557	0:00	0	0:00	0:00
558	0:00	0	0:00	0:00
559	0:00	0	0:00	0:00
560	0:00	0	0:00	0:00
561	0:00	0	0:00	0:00
562	0:00	0	0:00	0:00
563	0:00	0	0:00	0:00
564	0:00	0	0:00	0:00
565	0:00	0	0:00	0:00
566	0:00	0	0:00	0:00
567	0:00	0	0:00	0:00
568	0:00	0	0:00	0:00
569	0:00	0	0:00	0:00
570	0:00	0	0:00	0:00
571	0:00	0	0:00	0:00
572	0:00	0	0:00	0:00
573	0:00	0	0:00	0:00

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
574	0:00	0	0:00	0:00
575	0:00	0	0:00	0:00
576	0:00	0	0:00	0:00
577	0:00	0	0:00	0:00
578	0:00	0	0:00	0:00
579	0:00	0	0:00	0:00
580	0:00	0	0:00	0:00
581	0:00	0	0:00	0:00
582	0:00	0	0:00	0:00
583	0:00	0	0:00	0:00
584	0:00	0	0:00	0:00
585	0:00	0	0:00	0:00
586	0:00	0	0:00	0:00
587	0:00	0	0:00	0:00
588	0:00	0	0:00	0:00
589	0:00	0	0:00	0:00
590	0:00	0	0:00	0:00
591	0:00	0	0:00	0:00
592	0:00	0	0:00	0:00
593	0:00	0	0:00	0:00
594	0:00	0	0:00	0:00
595	0:00	0	0:00	0:00
596	5:30	25	0:17	1:12
597	0:00	0	0:00	0:00
598	9:33	33	0:25	3:04
599	0:00	0	0:00	0:00
600	11:22	35	0:28	4:09
601	0:00	0	0:00	0:00
602	0:00	0	0:00	0:00
603	0:00	0	0:00	0:00
604	0:00	0	0:00	0:00
605	0:00	0	0:00	0:00
606	0:00	0	0:00	0:00
607	0:00	0	0:00	0:00
608	0:00	0	0:00	0:00
609	0:00	0	0:00	0:00
610	0:00	0	0:00	0:00
611	0:00	0	0:00	0:00
612	0:00	0	0:00	0:00
613	0:00	0	0:00	0:00
614	0:00	0	0:00	0:00
615	0:00	0	0:00	0:00
616	0:00	0	0:00	0:00
617	0:00	0	0:00	0:00
618	0:00	0	0:00	0:00
619	0:00	0	0:00	0:00
620	0:00	0	0:00	0:00
621	14:44	51	0:25	6:50
622	0:00	0	0:00	0:00
623	10:44	36	0:26	3:27
624	21:54	51	0:36	6:56
625	0:00	0	0:00	0:00
626	0:00	0	0:00	0:00
627	0:00	0	0:00	0:00
628	0:00	0	0:00	0:00
629	0:00	0	0:00	0:00
630	0:00	0	0:00	0:00
631	0:00	0	0:00	0:00
632	0:00	0	0:00	0:00
633	0:00	0	0:00	0:00
634	0:00	0	0:00	0:00
635	0:00	0	0:00	0:00
636	0:00	0	0:00	0:00
637	0:00	0	0:00	0:00
638	0:00	0	0:00	0:00

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
639	0:00	0	0:00	0:00
640	0:00	0	0:00	0:00
641	0:00	0	0:00	0:00
642	0:00	0	0:00	0:00
643	0:00	0	0:00	0:00
644	0:00	0	0:00	0:00
645	0:00	0	0:00	0:00
646	0:00	0	0:00	0:00
647	0:00	0	0:00	0:00
648	0:00	0	0:00	0:00
649	0:00	0	0:00	0:00
650	0:00	0	0:00	0:00
651	0:00	0	0:00	0:00
652	0:00	0	0:00	0:00
653	0:00	0	0:00	0:00
654	0:00	0	0:00	0:00
655	0:00	0	0:00	0:00
656	0:00	0	0:00	0:00
657	0:00	0	0:00	0:00
658	0:00	0	0:00	0:00
659	0:00	0	0:00	0:00
660	0:00	0	0:00	0:00
661	0:00	0	0:00	0:00
662	0:00	0	0:00	0:00
663	0:00	0	0:00	0:00
664	0:00	0	0:00	0:00
665	0:00	0	0:00	0:00
666	0:00	0	0:00	0:00
667	0:00	0	0:00	0:00
668	0:00	0	0:00	0:00
669	0:00	0	0:00	0:00
670	0:00	0	0:00	0:00
671	0:00	0	0:00	0:00
672	0:00	0	0:00	0:00
673	0:00	0	0:00	0:00
674	0:00	0	0:00	0:00
675	0:00	0	0:00	0:00
676	0:00	0	0:00	0:00
677	0:00	0	0:00	0:00
678	0:00	0	0:00	0:00
679	0:00	0	0:00	0:00
680	0:00	0	0:00	0:00
681	0:00	0	0:00	0:00
682	0:00	0	0:00	0:00
683	0:00	0	0:00	0:00
684	0:00	0	0:00	0:00
685	0:00	0	0:00	0:00
686	0:00	0	0:00	0:00
687	0:00	0	0:00	0:00
688	0:00	0	0:00	0:00
689	0:00	0	0:00	0:00
690	0:00	0	0:00	0:00
691	0:00	0	0:00	0:00
692	0:00	0	0:00	0:00
693	0:00	0	0:00	0:00
694	0:00	0	0:00	0:00
695	0:00	0	0:00	0:00
696	0:00	0	0:00	0:00
697	0:00	0	0:00	0:00
698	0:00	0	0:00	0:00
699	0:00	0	0:00	0:00
700	0:00	0	0:00	0:00
701	0:00	0	0:00	0:00
702	0:00	0	0:00	0:00
703	0:00	0	0:00	0:00

To be continued on next page...

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SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
704	0:00	0	0:00	0:00
705	0:00	0	0:00	0:00
706	0:00	0	0:00	0:00
707	0:00	0	0:00	0:00
708	0:00	0	0:00	0:00
709	0:00	0	0:00	0:00
710	0:00	0	0:00	0:00
711	0:00	0	0:00	0:00
712	0:00	0	0:00	0:00
713	0:00	0	0:00	0:00
714	0:00	0	0:00	0:00
715	0:00	0	0:00	0:00
716	0:00	0	0:00	0:00
717	0:00	0	0:00	0:00
718	0:00	0	0:00	0:00
719	0:00	0	0:00	0:00
720	0:00	0	0:00	0:00
721	0:00	0	0:00	0:00
722	0:00	0	0:00	0:00
723	0:00	0	0:00	0:00
724	0:00	0	0:00	0:00
725	0:00	0	0:00	0:00
726	0:00	0	0:00	0:00
727	0:00	0	0:00	0:00
728	0:00	0	0:00	0:00
729	0:00	0	0:00	0:00
730	0:00	0	0:00	0:00
731	0:00	0	0:00	0:00
732	0:00	0	0:00	0:00
733	0:00	0	0:00	0:00
734	0:00	0	0:00	0:00
735	0:00	0	0:00	0:00
736	0:00	0	0:00	0:00
737	0:00	0	0:00	0:00
738	0:00	0	0:00	0:00
739	0:00	0	0:00	0:00
740	0:00	0	0:00	0:00
741	0:00	0	0:00	0:00
742	0:00	0	0:00	0:00
743	0:00	0	0:00	0:00
744	0:00	0	0:00	0:00
745	0:00	0	0:00	0:00
746	0:00	0	0:00	0:00
747	0:00	0	0:00	0:00
748	0:00	0	0:00	0:00
749	0:00	0	0:00	0:00
750	0:00	0	0:00	0:00
751	0:00	0	0:00	0:00
752	0:00	0	0:00	0:00
753	0:00	0	0:00	0:00
754	0:00	0	0:00	0:00
755	0:00	0	0:00	0:00
756	0:00	0	0:00	0:00
757	0:00	0	0:00	0:00
758	0:00	0	0:00	0:00
759	0:00	0	0:00	0:00
760	0:00	0	0:00	0:00
761	0:00	0	0:00	0:00
762	0:00	0	0:00	0:00
763	0:00	0	0:00	0:00
764	0:00	0	0:00	0:00
765	0:00	0	0:00	0:00
766	0:00	0	0:00	0:00
767	0:00	0	0:00	0:00
768	0:00	0	0:00	0:00

To be continued on next page...

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9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
769	0:00	0	0:00	0:00
770	0:00	0	0:00	0:00
771	0:00	0	0:00	0:00
772	0:00	0	0:00	0:00
773	0:00	0	0:00	0:00
774	0:00	0	0:00	0:00
775	0:00	0	0:00	0:00
776	0:00	0	0:00	0:00
777	0:00	0	0:00	0:00
778	0:00	0	0:00	0:00
779	0:00	0	0:00	0:00
780	0:00	0	0:00	0:00
781	0:00	0	0:00	0:00
782	0:00	0	0:00	0:00
783	0:00	0	0:00	0:00
784	0:00	0	0:00	0:00
785	0:00	0	0:00	0:00
786	0:00	0	0:00	0:00
787	0:00	0	0:00	0:00
788	0:00	0	0:00	0:00
789	0:00	0	0:00	0:00
790	0:00	0	0:00	0:00
791	0:00	0	0:00	0:00
792	0:00	0	0:00	0:00
793	0:00	0	0:00	0:00
794	0:00	0	0:00	0:00
795	0:00	0	0:00	0:00
796	0:00	0	0:00	0:00
797	0:00	0	0:00	0:00
798	0:00	0	0:00	0:00
799	0:00	0	0:00	0:00
800	0:00	0	0:00	0:00
801	0:00	0	0:00	0:00
802	0:00	0	0:00	0:00
803	0:00	0	0:00	0:00
804	0:00	0	0:00	0:00
805	0:00	0	0:00	0:00
806	0:00	0	0:00	0:00
807	0:00	0	0:00	0:00
808	0:00	0	0:00	0:00
809	0:00	0	0:00	0:00
810	0:00	0	0:00	0:00
811	0:00	0	0:00	0:00
812	14:09	43	0:28	4:08
813	0:00	0	0:00	0:00
814	0:00	0	0:00	0:00
815	0:00	0	0:00	0:00
816	0:00	0	0:00	0:00
817	0:00	0	0:00	0:00
818	6:58	29	0:22	2:15
819	0:00	0	0:00	0:00
820	0:00	0	0:00	0:00
821	13:43	45	0:28	3:45
822	0:00	0	0:00	0:00
823	0:00	0	0:00	0:00
824	0:00	0	0:00	0:00
825	0:00	0	0:00	0:00
826	0:00	0	0:00	0:00
827	0:00	0	0:00	0:00
828	0:00	0	0:00	0:00
829	0:00	0	0:00	0:00
830	15:55	58	0:29	5:57
831	54:22	139	0:38	18:10
832	0:00	0	0:00	0:00
833	0:00	0	0:00	0:00

To be continued on next page...

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9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
834	0:00	0	0:00	0:00
835	0:00	0	0:00	0:00
836	0:00	0	0:00	0:00
837	0:00	0	0:00	0:00
838	51:35	86	0:43	20:31
839	12:25	44	0:25	4:49
840	9:10	27	0:25	1:59
841	0:00	0	0:00	0:00
842	0:00	0	0:00	0:00
843	0:00	0	0:00	0:00
844	0:00	0	0:00	0:00
845	2:07	15	0:11	0:26
846	0:00	0	0:00	0:00
847	0:00	0	0:00	0:00
848	0:00	0	0:00	0:00
849	16:06	47	0:30	6:49
850	8:56	35	0:24	3:18
851	0:00	0	0:00	0:00
852	10:27	35	0:26	3:23
853	12:09	42	0:26	4:31
854	59:20	115	0:42	18:51
855	46:25	81	0:48	12:21
856	0:00	0	0:00	0:00
857	0:00	0	0:00	0:00
858	0:00	0	0:00	0:00
859	0:00	0	0:00	0:00
860	0:00	0	0:00	0:00
861	0:00	0	0:00	0:00
862	0:00	0	0:00	0:00
863	0:00	0	0:00	0:00
864	0:00	0	0:00	0:00
865	0:00	0	0:00	0:00
866	9:33	33	0:25	3:03
867	0:00	0	0:00	0:00
868	0:00	0	0:00	0:00
869	0:00	0	0:00	0:00
870	0:00	0	0:00	0:00
871	0:00	0	0:00	0:00
872	0:00	0	0:00	0:00
873	0:00	0	0:00	0:00
874	0:00	0	0:00	0:00
875	0:00	0	0:00	0:00
876	0:00	0	0:00	0:00
877	0:00	0	0:00	0:00
878	0:00	0	0:00	0:00
879	0:00	0	0:00	0:00
880	0:00	0	0:00	0:00
881	0:00	0	0:00	0:00
882	0:00	0	0:00	0:00
883	0:00	0	0:00	0:00
884	0:00	0	0:00	0:00
885	0:00	0	0:00	0:00
886	0:00	0	0:00	0:00
887	0:00	0	0:00	0:00
888	0:00	0	0:00	0:00
889	0:00	0	0:00	0:00
890	0:00	0	0:00	0:00
891	0:00	0	0:00	0:00
892	0:00	0	0:00	0:00
893	0:00	0	0:00	0:00
894	0:00	0	0:00	0:00
895	0:00	0	0:00	0:00
896	0:00	0	0:00	0:00
897	0:00	0	0:00	0:00
898	0:00	0	0:00	0:00

To be continued on next page...

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...continued from previous page

No.	Shadow, worst case			Shadow, expected values
	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]
899	0:00	0	0:00	0:00
900	0:00	0	0:00	0:00
901	0:00	0	0:00	0:00
902	0:00	0	0:00	0:00
903	0:00	0	0:00	0:00
904	0:00	0	0:00	0:00
905	0:00	0	0:00	0:00
906	0:00	0	0:00	0:00
907	0:00	0	0:00	0:00
908	0:00	0	0:00	0:00
909	0:00	0	0:00	0:00
910	0:00	0	0:00	0:00
911	0:00	0	0:00	0:00
912	0:00	0	0:00	0:00
913	0:00	0	0:00	0:00
914	0:00	0	0:00	0:00
915	0:00	0	0:00	0:00
916	0:00	0	0:00	0:00
917	0:00	0	0:00	0:00
918	0:00	0	0:00	0:00
919	0:00	0	0:00	0:00
920	0:00	0	0:00	0:00
921	0:00	0	0:00	0:00
922	0:00	0	0:00	0:00
923	0:00	0	0:00	0:00
924	0:00	0	0:00	0:00
925	0:48	16	0:04	0:17
926	4:28	33	0:11	1:42
927	7:23	41	0:15	2:51
928	8:39	44	0:16	3:21
929	0:00	0	0:00	0:00
930	0:00	0	0:00	0:00
931	0:00	0	0:00	0:00
932	0:00	0	0:00	0:00
933	0:00	0	0:00	0:00
934	0:00	0	0:00	0:00
935	0:00	0	0:00	0:00
936	0:00	0	0:00	0:00
937	7:57	32	0:22	2:59
938	6:41	28	0:21	2:34
939	0:00	0	0:00	0:00
940	10:38	37	0:26	4:00
941	32:32	59	0:44	12:23
942	32:23	64	0:40	12:41
943	43:54	67	0:51	16:36
944	0:00	0	0:00	0:00
945	43:54	67	0:51	16:36
946	0:00	0	0:00	0:00
947	0:00	0	0:00	0:00
948	13:15	51	0:21	6:21
949	25:05	51	0:39	8:03
950	0:00	0	0:00	0:00
951	0:00	0	0:00	0:00
952	0:00	0	0:00	0:00
953	0:00	0	0:00	0:00
954	0:00	0	0:00	0:00
955	0:00	0	0:00	0:00
956	0:00	0	0:00	0:00
957	0:00	0	0:00	0:00
958	0:00	0	0:00	0:00
959	0:00	0	0:00	0:00
960	0:00	0	0:00	0:00
961	0:00	0	0:00	0:00
962	0:00	0	0:00	0:00
963	0:00	0	0:00	0:00

To be continued on next page...

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/23/2020 4:41 PM/3.4.405

SHADOW - Main Result

Calculation: N163

...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]
964	0:00	0	0:00	0:00
965	0:00	0	0:00	0:00
966	0:00	0	0:00	0:00
967	0:00	0	0:00	0:00
968	0:00	0	0:00	0:00

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

No.	Name	Worst case [h/year]	Expected [h/year]
T01	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (2)	129:04	52:29
T02	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (3)	136:16	53:12
T03	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (4)	70:19	21:02
T04	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (5)	142:37	55:13
T05	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (149)	138:50	59:13
T06	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (6)	81:01	21:45
T07	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (7)	66:47	19:54
T08	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (8)	92:24	32:06
T09	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (1)	105:06	37:06
T10	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (9)	215:09	79:03
T11	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (10)	126:13	32:07
T12	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (11)	41:41	12:22
T13	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (12)	76:06	24:10
T14	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (13)	1:18	0:29
T15	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (14)	23:11	7:20
T16	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (15)	56:57	18:09
T17	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (16)	46:48	16:22
T18	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (17)	14:37	5:27
T19	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (18)	24:07	11:34
T20	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (19)	27:09	10:49
T21	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (20)	52:22	20:12
T22	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (150)	48:02	17:26
T23	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (151)	87:42	30:48
T24	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (21)	125:54	43:41
T25	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (22)	176:50	51:22
T26	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (23)	163:54	60:41
T27	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (152)	46:42	16:52
T28	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (24)	22:15	8:09
T29	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (25)	0:00	0:00
T30	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (153)	70:08	28:09
T31	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (26)	58:15	23:07
T32	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (27)	21:08	10:08
T33	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (28)	79:53	29:04
T34	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (29)	83:11	29:51
T36	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (30)	124:17	46:09
T38	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (32)	82:41	32:43
T39	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (33)	85:55	29:04
T40	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (34)	81:35	25:38
T41	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (35)	136:54	43:20
T42	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (36)	68:03	20:33
T43	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (37)	253:49	72:41
T44	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (38)	179:33	67:43
T45	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (39)	254:36	89:52
T46	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (40)	200:34	64:49
T47	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (41)	80:46	25:40
T48	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (42)	53:22	20:43
T49	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (43)	43:03	13:47
T50	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (44)	90:57	33:39
T51	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (45)	40:38	14:39
T52	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (154)	41:21	14:26
T53	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (46)	81:27	32:09
T54	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (47)	110:22	41:32
T55	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (48)	89:36	34:27
T56	NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (49)	191:03	73:07

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:
Big Bend SFA

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 0 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1356)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:52 16:49	07:37 17:26	06:56 18:04	07:00 19:43	06:10 20:19 34	06:33 (T46) 05:38 07:07 (T46) 20:52 38	06:21 (T47) 05:38 20:12 (T44) 21:04 55	06:13 (T47) 06:05 20:13 (T44) 20:43 57	06:44 (T46) 06:40 20:19 (T44) 19:57	07:14 19:02	06:53 17:09	07:32 16:41
2	07:52 16:50	07:36 17:27	06:54 18:05	06:59 19:44	06:09 20:20 41	06:32 (T46) 05:38 19:59 (T44) 20:53 44	06:17 (T47) 05:39 20:11 (T44) 21:04 55	06:13 (T47) 06:06 20:13 (T44) 20:42 58	06:43 (T46) 06:41 20:18 (T44) 19:55	07:16 19:00	06:55 17:08	07:33 16:41
3	07:52 16:51	07:35 17:29	06:52 18:07	06:57 19:45	06:08 20:21 45	06:32 (T46) 05:37 20:00 (T44) 20:54 47	06:16 (T47) 05:40 20:12 (T44) 21:04 55	06:14 (T47) 06:07 20:14 (T44) 20:41 59	06:42 (T46) 06:42 20:17 (T44) 19:53	07:17 18:56	06:56 17:06	07:34 16:41
4	07:52 16:52	07:34 17:30	06:51 18:08	06:55 19:46	06:06 20:23 49	06:31 (T46) 05:37 20:01 (T44) 20:55 50	06:14 (T47) 05:40 20:11 (T44) 21:04 54	06:15 (T47) 06:08 20:14 (T44) 20:40 57	06:43 (T46) 06:44 20:17 (T44) 19:51	07:18 18:54	06:57 17:05	07:35 16:40
5	07:52 16:53	07:32 17:31	06:49 18:09	06:53 19:48	06:05 20:24 52	06:31 (T46) 05:36 20:02 (T44) 20:55 52	06:13 (T47) 05:41 20:11 (T44) 21:04 53	06:16 (T47) 06:10 20:15 (T44) 20:39 56	06:42 (T46) 06:45 20:15 (T44) 19:49	07:19 18:53	06:58 17:04	07:36 16:40
6	07:52 16:54	07:31 17:33	06:47 18:10	06:51 19:49	06:04 20:25 54	06:32 (T46) 05:36 20:04 (T44) 20:56 53	06:12 (T47) 05:41 20:11 (T44) 21:03 52	06:18 (T47) 06:11 20:16 (T44) 20:37 54	06:42 (T46) 06:46 20:14 (T44) 19:48	07:20 18:51	07:00 17:02	07:37 16:40
7	07:52 16:55	07:30 17:34	06:45 18:12	06:50 19:50	06:02 20:26 56	06:31 (T46) 05:36 20:04 (T44) 20:57 54	06:10 (T47) 05:42 20:09 (T44) 21:03 52	06:18 (T47) 06:12 20:17 (T44) 20:36 54	06:41 (T46) 06:47 20:13 (T44) 19:46	07:22 18:49	07:01 17:01	07:38 16:40
8	07:52 16:56	07:29 17:36	07:44 18:13	06:48 19:51	06:01 20:27 56	06:32 (T46) 05:35 20:05 (T44) 20:58 54	06:10 (T47) 05:43 20:09 (T44) 21:03 52	06:20 (T47) 06:13 20:18 (T44) 20:35 51	06:41 (T46) 06:48 20:11 (T44) 19:44	07:23 18:47	07:02 17:00	07:39 16:40
9	07:52 16:57	07:27 17:37	07:42 19:14	06:46 19:52	06:00 20:28 58	06:32 (T46) 05:35 20:07 (T44) 20:58 54	06:10 (T47) 05:43 20:09 (T44) 21:02 49	06:22 (T47) 06:14 20:19 (T44) 20:33 48	06:41 (T46) 06:49 20:10 (T44) 19:42	07:24 18:46	07:04 16:59	07:40 16:40
10	07:52 16:58	07:26 17:38	07:40 19:16	06:44 19:54	05:58 20:30 58	06:33 (T46) 05:35 20:08 (T44) 20:59 56	06:09 (T47) 05:44 20:09 (T44) 21:02 46	06:24 (T47) 06:15 20:19 (T44) 20:32 45	06:40 (T46) 06:50 20:09 (T44) 19:40	07:25 18:44	07:05 16:58	07:41 16:40
11	07:51 16:59	07:25 17:40	07:38 19:17	06:43 19:55	05:57 20:31 58	06:34 (T46) 05:35 20:09 (T44) 20:59 56	06:09 (T47) 05:45 20:09 (T44) 21:01 41	06:27 (T47) 06:16 20:19 (T44) 20:30 37	06:41 (T46) 06:51 20:07 (T44) 19:39	07:26 18:42	07:06 16:56	07:42 16:40
12	07:51 17:00	07:23 17:41	07:37 19:18	06:41 19:56	05:56 20:32 58	06:35 (T46) 05:35 20:10 (T44) 21:00 54	06:09 (T47) 05:46 20:08 (T44) 21:01 32	06:32 (T47) 06:17 20:20 (T44) 20:29 34	06:42 (T46) 06:53 07:16 (T46) 19:37	07:28 18:40	07:08 16:55	07:42 16:40
13	07:51 17:01	07:22 17:42	07:35 19:19	06:39 19:57	05:55 20:33 57	06:35 (T46) 05:34 20:10 (T44) 21:01 54	06:08 (T47) 05:47 20:07 (T44) 21:00 28	19:53 (T44) 06:19 20:21 (T44) 20:27 32	06:43 (T46) 06:54 07:15 (T46) 19:35	07:29 18:39	07:09 16:54	07:43 16:40
14	07:50 17:02	07:21 17:44	07:33 19:21	06:37 19:58	05:54 20:34 57	06:36 (T46) 05:34 20:11 (T44) 21:01 55	06:07 (T47) 05:47 20:07 (T44) 21:00 29	19:53 (T44) 06:20 20:22 (T44) 20:26 31	06:44 (T46) 06:55 07:15 (T46) 19:33	07:30 18:37	07:10 16:53	07:44 16:40
15	07:50 17:04	07:19 17:45	07:31 19:22	06:36 20:00	05:53 20:35 57	06:37 (T46) 05:34 20:13 (T44) 21:02 53	06:07 (T47) 05:48 20:06 (T44) 20:59 30	19:52 (T44) 06:21 20:22 (T44) 20:25 29	06:45 (T46) 06:56 07:14 (T46) 19:31	07:31 18:35	07:12 16:52	07:45 16:40
16	07:50 17:05	07:18 17:47	07:29 19:23	06:34 20:01	05:51 20:36 56	06:38 (T46) 05:34 20:14 (T44) 21:02 54	06:07 (T47) 05:49 20:06 (T44) 20:58 30	19:52 (T44) 06:22 20:22 (T44) 20:23 27	06:46 (T46) 06:57 07:13 (T46) 19:29	07:33 18:33	07:13 16:51	07:46 16:40
17	07:49 17:06	07:16 17:48	07:28 19:24	06:32 20:02	05:50 20:37 53	06:39 (T46) 05:34 20:14 (T44) 21:02 53	06:08 (T47) 05:50 20:07 (T44) 20:58 32	19:51 (T44) 06:23 20:23 (T44) 20:21 25	06:47 (T46) 06:58 07:12 (T46) 19:28	07:34 18:32	07:14 16:50	07:46 16:41
18	07:48 17:07	07:15 17:49	07:26 19:26	06:31 20:03	05:49 20:38 49	06:41 (T46) 05:34 20:14 (T44) 21:03 51	06:08 (T47) 05:51 20:06 (T44) 20:57 32	19:51 (T44) 06:24 20:23 (T44) 20:20 23	06:48 (T46) 06:59 07:11 (T46) 19:26	07:35 18:30	07:16 16:49	07:47 16:41
19	07:48 17:09	07:13 17:51	07:24 19:27	06:29 20:04	05:48 20:40 43	06:45 (T46) 05:35 20:15 (T44) 21:03 52	06:08 (T47) 05:52 20:06 (T44) 20:56 33	19:51 (T44) 06:25 20:24 (T44) 20:18 21	06:50 (T46) 07:01 07:11 (T46) 19:24	07:36 18:29	07:17 16:49	07:48 16:41
20	07:47 17:10	07:12 17:52	07:22 19:28	06:27 20:06 8	05:47 20:41 35	06:50 (T46) 19:40 (T44) 05:35 06:58 (T46) 20:15 (T44) 21:03 52	06:08 (T47) 05:53 20:06 (T44) 20:55 33	19:51 (T44) 06:26 20:24 (T44) 20:17 18	06:51 (T46) 07:02 07:09 (T46) 19:22	07:38 18:27	07:18 16:48	07:48 16:42
21	07:47 17:11	07:10 17:53	07:20 19:29	06:26 20:07 13	05:46 07:01 (T46) 20:42 35	06:48 (T46) 19:40 (T44) 05:35 20:15 (T44) 21:04 52	06:08 (T47) 05:54 20:06 (T44) 20:55 34	19:51 (T44) 06:28 20:25 (T44) 20:15 15	06:52 (T46) 07:03 07:07 (T46) 19:20	07:39 18:25	07:19 16:47	07:49 16:42
22	07:46 17:12	07:09 17:55	07:19 19:31	06:24 20:08 16	06:46 (T46) 05:46 07:02 (T46) 20:43 34	19:40 (T44) 05:35 20:14 (T44) 21:04 52	06:08 (T47) 05:55 20:06 (T44) 20:54 34	19:51 (T44) 06:29 20:25 (T44) 20:14 12	06:53 (T46) 07:04 07:05 (T46) 19:18	07:40 18:24	07:21 16:46	07:49 16:43
23	07:45 17:14	07:07 17:56	07:17 19:32	06:23 20:09 19	06:45 (T46) 05:45 07:04 (T46) 20:44 33	19:41 (T44) 05:35 20:14 (T44) 21:04 52	06:09 (T47) 05:56 20:07 (T44) 20:53 34	19:50 (T44) 06:30 20:24 (T44) 20:12 8	06:54 (T46) 07:05 07:02 (T46) 19:16	07:41 18:22	07:22 16:46	07:50 16:43
24	07:44 17:15	07:06 17:57	07:15 19:33	06:21 20:11 21	06:43 (T46) 05:44 07:04 (T46) 20:45 33	19:41 (T44) 05:36 20:14 (T44) 21:04 52	06:09 (T47) 05:57 20:07 (T44) 20:52 37	06:57 (T46) 06:31 20:24 (T44) 20:10	07:06 19:15	07:43 18:21	07:23 16:45	07:50 16:44
25	07:44 17:16	07:04 17:59	07:13 19:34	06:19 20:12 24	06:42 (T46) 05:43 07:06 (T46) 20:46 32	19:42 (T44) 05:36 20:14 (T44) 21:04 53	06:09 (T47) 05:58 20:08 (T44) 20:51 46	06:53 (T46) 06:32 20:25 (T44) 20:09	07:08 19:13	07:44 18:19	07:24 16:44	07:51 16:44
26	07:43 17:18	07:02 18:00	07:11 19:35	06:18 20:13 26	06:40 (T46) 05:42 07:06 (T46) 20:47 32	19:42 (T44) 05:36 20:14 (T44) 21:05 53	06:10 (T47) 05:59 20:09 (T44) 20:50 51	06:51 (T46) 06:33 20:25 (T44) 20:07	07:09 19:11	07:45 18:18	07:26 16:44	07:51 16:45
27	07:42 17:19	07:01 18:00	07:09 19:37	06:16 20:14 28	06:39 (T46) 05:42 07:07 (T46) 20:48 31	19:42 (T44) 05:37 20:13 (T44) 21:05 54	06:10 (T47) 06:00 20:09 (T44) 20:49 54	06:49 (T46) 06:34 20:25 (T44) 20:05	07:10 19:09	07:47 18:16	07:27 16:43	07:51 16:46
28	07:41 17:20	06:59 18:01	07:08 19:38	06:15 20:15 30	06:37 (T46) 05:41 07:07 (T46) 20:49 30	19:43 (T44) 05:37 20:13 (T44) 21:05 55	06:10 (T47) 06:01 20:10 (T44) 20:48 56	06:48 (T46) 06:36 20:24 (T44) 20:03	07:11 19:07	07:48 18:15	07:28 16:43	07:52 16:46
29	07:40 17:22	06:57 18:03	07:06 19:39	06:13 20:17 31	06:36 (T46) 05:40 07:07 (T46) 20:50 30	19:43 (T44) 05:37 20:13 (T44) 21:05 55	06:11 (T47) 06:02 20:11 (T44) 20:47 57	06:47 (T46) 06:37 20:23 (T44) 20:02	07:12 19:05	07:49 18:13	07:29 16:42	07:52 16:47
30	07:39 17:23		07:04 19:40	06:12 20:18 33	06:35 (T46) 05:40 07:08 (T46) 20:51 27	19:44 (T44) 05:38 20:12 (T44) 21:05 55	06:12 (T47) 06:03 20:11 (T44) 20:46 58	06:46 (T46) 06:38 20:22 (T44) 20:00	07:13 19:04	07:51 18:12	07:30 16:42	07:52 16:48
31	07:38 17:25		07:02 19:42		05:39 20:51 27	19:45 (T44) 20:12 (T44)	06:04 20:45 58	06:45 (T46) 06:39 20:20 (T44) 19:58		07:52 18:10		07:52 16:49
Potential sun hours	288	303	369	402	456	462	469	434	377	342	290	278
Total, worst case				249	1372	1569	1362	851				
Sun reduction				0.56	0.62	0.67	0.74	0.69				
Oper. time red.				1.00	1.00	1.00	1.00	1.00				
Wind dir. red.				0.59	0.65	0.60	0.65	0.62				
Total reduction				0.33	0.40	0.40	0.48	0.42				
Total, real				82	554	628	653	361				

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 1 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1357)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January		February		March	April	May	June	July	August	September	October	November		December		
1	07:52	13:57 (T43)	07:37	08:09 (T46)	06:56	07:00	06:10	05:38	05:38	06:05	06:40	07:15	06:53		07:32		07:59 (T46)
	16:49 88	15:25 (T43)	17:26 108	16:53 (T44)	18:04	19:43	20:19	20:52	21:04	20:44	19:57	19:02	17:09		16:41 108		16:17 (T44)
2	07:52	13:58 (T43)	07:36	08:10 (T46)	06:54	06:59	06:09	05:38	05:39	06:06	06:41	07:16	06:55		07:33		08:00 (T46)
	16:50 87	15:25 (T43)	17:27 102	16:53 (T44)	18:05	19:44	20:20	20:53	21:04	20:42	19:55	19:00	17:07		16:41 106		16:17 (T44)
3	07:53	13:59 (T43)	07:35	08:12 (T46)	06:52	06:57	06:08	05:37	05:40	06:07	06:42	07:17	06:56	16:02 (T44)	07:34		08:01 (T46)
	16:51 88	16:25 (T44)	17:29 93	16:53 (T44)	18:07	19:45	20:21	20:54	21:04	20:41	19:53	18:56	17:06 13	16:15 (T44)	16:41 103		16:16 (T44)
4	07:53	13:59 (T43)	07:34	08:12 (T46)	06:51	06:55	06:06	05:37	05:40	06:08	06:44	07:18	06:57	15:59 (T44)	07:35		08:02 (T46)
	16:52 91	16:26 (T44)	17:30 86	16:52 (T44)	18:08	19:46	20:23	20:55	21:04	20:40	19:51	18:54	17:05 18	16:17 (T44)	16:40 100		16:16 (T44)
5	07:53	14:00 (T43)	07:32	08:15 (T46)	06:49	06:53	06:05	05:36	05:41	06:10	06:45	07:19	06:58	14:17 (T43)	07:36		08:04 (T46)
	16:53 91	16:27 (T44)	17:31 73	16:51 (T44)	18:09	19:48	20:24	20:55	21:04	20:39	19:49	18:53	17:04 41	16:19 (T44)	16:40 98		16:16 (T44)
6	07:52	14:01 (T43)	07:31	08:19 (T46)	06:47	06:51	06:03	05:36	05:41	06:11	06:46	07:20	07:00	07:48 (T46)	07:37		13:48 (T43)
	16:54 94	16:29 (T44)	17:33 56	16:50 (T44)	18:10	19:49	20:25	20:56	21:03	20:37	19:48	18:51	17:02 60	16:20 (T44)	16:40 94		16:16 (T44)
7	07:52	14:01 (T43)	07:30	14:48 (T43)	06:46	06:50	06:02	05:36	05:42	06:12	06:47	07:22	07:01	07:44 (T46)	07:38		13:48 (T43)
	16:55 95	16:30 (T44)	17:34 38	16:49 (T44)	18:12	19:50	20:26	20:57	21:03	20:36	19:46	18:49	17:01 76	16:21 (T44)	16:40 94		16:16 (T44)
8	07:52	08:18 (T46)	07:29	16:29 (T44)	07:44	06:48	06:01	05:35	05:43	06:13	06:48	07:23	07:02	07:43 (T46)	07:39		13:48 (T43)
	16:56 97	16:30 (T44)	17:36 18	16:47 (T44)	18:13	19:51	20:27	20:58	21:03	20:35	19:44	18:47	17:00 85	16:22 (T44)	16:40 92		16:16 (T44)
9	07:52	08:18 (T46)	07:27	16:32 (T44)	07:42	06:46	06:00	05:35	05:43	06:14	06:49	07:24	07:04	07:41 (T46)	07:40		13:48 (T43)
	16:57 100	16:32 (T44)	17:37 12	16:44 (T44)	19:14	19:52	20:28	20:58	21:02	20:33	19:42	18:46	16:59 95	16:23 (T44)	16:40 92		16:16 (T44)
10	07:52	08:18 (T46)	07:26		07:40	06:44	05:58	05:35	05:44	06:15	06:50	07:25	07:05	07:41 (T46)	07:41		13:49 (T43)
	16:58 103	16:33 (T44)	17:38		19:16	19:54	20:30	20:59	21:02	20:32	19:40	18:44	16:58 102	16:24 (T44)	16:40 89		16:16 (T44)
11	07:52	08:17 (T46)	07:25		07:38	06:43	05:57	05:35	05:45	06:16	06:51	07:26	07:06	07:40 (T46)	07:42		13:48 (T43)
	16:59 105	16:34 (T44)	17:40		19:17	19:55	20:31	20:59	21:01	20:30	19:39	18:42	16:56 109	16:24 (T44)	16:40 87		15:15 (T43)
12	07:51	08:17 (T46)	07:24		07:37	06:41	05:56	05:35	05:46	06:17	06:53	07:28	07:08	07:40 (T46)	07:42		13:48 (T43)
	17:00 108	16:35 (T44)	17:41		19:18	19:56	20:32	21:00	21:01	20:29	19:37	18:40	16:55 115	16:26 (T44)	16:40 88		15:16 (T43)
13	07:51	08:17 (T46)	07:22		07:35	06:39	05:55	05:34	05:47	06:18	06:54	07:29	07:09	07:39 (T46)	07:43		13:49 (T43)
	17:01 109	16:37 (T44)	17:42		19:19	19:57	20:33	21:01	21:00	20:28	19:35	18:39	16:54 119	16:26 (T44)	16:40 87		15:16 (T43)
14	07:50	08:16 (T46)	07:21		07:33	06:37	05:54	05:34	05:47	06:20	06:55	07:30	07:10	07:38 (T46)	07:44		13:50 (T43)
	17:02 113	16:38 (T44)	17:44		19:21	19:58	20:34	21:01	21:00	20:26	19:33	18:37	16:53 124	16:26 (T44)	16:40 87		15:17 (T43)
15	07:50	08:16 (T46)	07:19		07:31	06:36	05:52	05:34	05:48	06:21	06:56	07:31	07:12	07:39 (T46)	07:45		13:50 (T43)
	17:04 113	16:39 (T44)	17:45		19:22	20:00	20:35	21:02	20:59	20:25	19:31	18:35	16:52 126	16:26 (T44)	16:40 88		15:18 (T43)
16	07:50	08:15 (T46)	07:18		07:29	06:34	05:51	05:34	05:49	06:22	06:57	07:33	07:13	07:39 (T46)	07:46		13:50 (T43)
	17:05 117	16:40 (T44)	17:47		19:23	20:01	20:36	21:02	20:58	20:23	19:29	18:33	16:51 128	16:26 (T44)	16:40 88		15:18 (T43)
17	07:49	08:14 (T46)	07:16		07:28	06:32	05:50	05:34	05:50	06:23	06:58	07:34	07:14	07:41 (T46)	07:46		13:51 (T43)
	17:06 119	16:41 (T44)	17:48		19:24	20:02	20:37	21:02	20:58	20:21	19:28	18:32	16:50 130	16:27 (T44)	16:41 87		15:18 (T43)
18	07:48	08:14 (T46)	07:15		07:26	06:31	05:49	05:34	05:51	06:24	06:59	07:35	07:16	07:42 (T46)	07:47		13:51 (T43)
	17:07 121	16:43 (T44)	17:49		19:26	20:03	20:39	21:03	20:57	20:20	19:26	18:30	16:49 130	16:26 (T44)	16:41 88		15:19 (T43)
19	07:48	08:13 (T46)	07:13		07:24	06:29	05:48	05:35	05:52	06:25	07:01	07:36	07:17	07:44 (T46)	07:48		13:51 (T43)
	17:09 122	16:44 (T44)	17:51		19:27	20:05	20:40	21:03	20:56	20:18	19:24	18:29	16:49 128	16:26 (T44)	16:41 88		15:19 (T43)
20	07:47	08:12 (T46)	07:12		07:22	06:27	05:47	05:35	05:53	06:26	07:02	07:38	07:18	07:45 (T46)	07:48		13:52 (T43)
	17:10 123	16:45 (T44)	17:52		19:28	20:06	20:41	21:03	20:56	20:17	19:22	18:27	16:48 128	16:25 (T44)	16:42 88		15:20 (T43)
21	07:47	08:12 (T46)	07:10		07:20	06:26	05:46	05:35	05:54	06:28	07:03	07:39	07:20	07:46 (T46)	07:49		13:52 (T43)
	17:11 126	16:47 (T44)	17:53		19:29	20:07	20:42	21:04	20:55	20:15	19:20	18:25	16:47 126	16:23 (T44)	16:42 88		15:20 (T43)
22	07:46	08:11 (T46)	07:09		07:19	06:24	05:46	05:35	05:55	06:29	07:04	07:40	07:21	07:48 (T46)	07:49		13:53 (T43)
	17:12 126	16:48 (T44)	17:55		19:31	20:08	20:43	21:04	20:54	20:14	19:18	18:24	16:46 126	16:23 (T44)	16:43 88		15:21 (T43)
23	07:45	08:10 (T46)	07:07		07:17	06:23	05:45	05:35	05:56	06:30	07:05	07:42	07:22	07:49 (T46)	07:50		13:53 (T43)
	17:14 128	16:50 (T44)	17:56		19:32	20:09	20:44	21:04	20:53	20:12	19:16	18:22	16:46 123	16:22 (T44)	16:43 88		15:21 (T43)
24	07:44	08:09 (T46)	07:06		07:15	06:21	05:44	05:36	05:57	06:31	07:06	07:43	07:23	07:50 (T46)	07:50		13:54 (T43)
	17:15 128	16:51 (T44)	17:57		19:33	20:11	20:45	21:04	20:52	20:10	19:15	18:21	16:45 122	16:21 (T44)	16:44 88		15:22 (T43)
25	07:44	08:08 (T46)	07:04		07:13	06:19	05:43	05:36	05:58	06:32	07:08	07:44	07:24	07:52 (T46)	07:51		13:54 (T43)
	17:16 130	16:52 (T44)	17:59		19:34	20:12	20:46	21:04	20:51	20:09	19:13	18:19	16:44 121	16:21 (T44)	16:44 88		15:22 (T43)
26	07:43	08:07 (T46)	07:02		07:11	06:18	05:42	05:36	05:59	06:33	07:09	07:45	07:26	07:53 (T46)	07:51		13:54 (T43)
	17:18 130	16:53 (T44)	18:00		19:35	20:13	20:47	21:05	20:50	20:07	19:11	18:18	16:44 118	16:20 (T44)	16:45 88		15:22 (T43)
27	07:42	08:06 (T46)	07:01		07:09	06:16	05:42	05:37	06:00	06:34	07:10	07:47	07:27	07:54 (T46)	07:51		13:56 (T43)
	17:19 128	16:53 (T44)	18:00		19:37	20:14	20:48	21:05	20:49	20:05	19:09	18:16	16:43 116	16:19 (T44)	16:46 88		15:24 (T43)
28	07:41	08:06 (T46)	06:59		07:08	06:15	05:41	05:37	06:01	06:36	07:11	07:48	07:28	07:55 (T46)	07:52		13:56 (T43)
	17:20 126	16:53 (T44)	18:01		19:38	20:15	20:49	21:05	20:48	20:04	19:07	18:15	16:43 114	16:18 (T44)	16:46 88		15:24 (T43)
29	07:40	08:06 (T46)	06:57		07:06	06:13	05:40	05:37	06:02	06:37	07:12	07:49	07:29	07:57 (T46)	07:52		13:56 (T43)
	17:22 124	16:54 (T44)	18:03		19:39	20:17	20:50	21:05	20:47	20:02	19:05	18:13	16:42 113	16:19 (T44)	16:47 88		15:24 (T43)
30	07:39	08:07 (T46)			07:04	06:12	05:40	05:38	06:03	06:38	07:13	07:51	07:30	07:58 (T46)	07:52		13:57 (T43)
	17:23 118	16:54 (T44)			19:40	20:18	20:50	21:05	20:46	20:00	19:04	18:12	16:42 110	16:18 (T44)	16:48 87		15:24 (T43)
31	07:38	08:08 (T46)			07:02		05:39		06:04	06:39		07:52			07:52		13:57 (T43)
	17:25 114	16:54 (T44)			19:42		20:51		20:45	19:58		18:10			16:49 88		15:25 (T43)
Potential sun hours	288		303		369	402	456	462	469	434	377	342	290		278		
Total, worst case	3462		586										2916		2819		
Sun reduction	0.53		0.59										0.37		0.38		
Oper. time red.	1.00		1.00										1.00		1.00		
Wind dir. red.	0.57		0.58										0.58		0.55		
Total reduction	0.30		0.34										0.21		0.21		
Total, real	1041		199										621		589		

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1361)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April	May	June
1	07:52		08:25 (T46)	07:37		16:18 (T43)	06:56		16:26 (T43)	07:00	06:10	05:38
	16:49	38	09:03 (T46)	17:26	44	17:02 (T43)	18:04	29	16:55 (T43)	19:43	20:19	20:52
2	07:52		08:25 (T46)	07:36		16:17 (T43)	06:54		16:28 (T43)	06:59	06:09	05:38
	16:50	38	09:03 (T46)	17:27	46	17:03 (T43)	18:05	23	16:51 (T43)	19:44	20:20	20:53
3	07:52		08:25 (T46)	07:35		16:17 (T43)	06:52		16:33 (T43)	06:57	06:08	05:37
	16:51	39	09:04 (T46)	17:29	47	17:04 (T43)	18:07	15	16:48 (T43)	19:45	20:21	20:54
4	07:53		08:26 (T46)	07:34		16:15 (T43)	06:51			06:55	06:06	05:37
	16:52	38	09:04 (T46)	17:30	50	17:07 (T44)	18:08			19:46	20:23	20:55
5	07:52		08:27 (T46)	07:32		16:15 (T43)	06:49			06:53	06:05	05:36
	16:53	38	09:05 (T46)	17:31	53	17:08 (T44)	18:09			19:48	20:24	20:55
6	07:52		08:27 (T46)	07:31		16:15 (T43)	06:47			06:51	06:03	05:36
	16:54	38	09:05 (T46)	17:33	55	17:10 (T44)	18:10			19:49	20:25	20:56
7	07:52		08:28 (T46)	07:30		16:15 (T43)	06:45			06:50	06:02	05:36
	16:55	38	09:06 (T46)	17:34	57	17:12 (T44)	18:12			19:50	20:26	20:57
8	07:52		08:28 (T46)	07:29		16:14 (T43)	07:44			06:48	06:01	05:35
	16:56	37	09:05 (T46)	17:36	59	17:13 (T44)	18:13			19:51	20:27	20:58
9	07:52		08:29 (T46)	07:27		16:14 (T43)	07:42			06:46	06:00	05:35
	16:57	37	09:06 (T46)	17:37	61	17:15 (T44)	19:14			19:52	20:28	20:58
10	07:52		08:29 (T46)	07:26		16:14 (T43)	07:40			06:44	05:58	05:35
	16:58	38	09:07 (T46)	17:38	62	17:16 (T44)	19:16			19:54	20:30	20:59
11	07:51		08:29 (T46)	07:25		16:13 (T43)	07:38			06:43	05:57	05:35
	16:59	37	09:06 (T46)	17:40	64	17:17 (T44)	19:17			19:55	20:31	20:59
12	07:51		08:30 (T46)	07:23		16:14 (T43)	07:37			06:41	05:56	05:35
	17:00	37	09:07 (T46)	17:41	65	17:19 (T44)	19:18			19:56	20:32	21:00
13	07:51		08:31 (T46)	07:22		16:13 (T43)	07:35			06:39	05:55	05:34
	17:01	36	09:07 (T46)	17:42	67	17:20 (T44)	19:19			19:57	20:33	21:01
14	07:50		08:32 (T46)	07:21		16:13 (T43)	07:33			06:37	05:54	05:34
	17:02	35	09:07 (T46)	17:44	69	17:22 (T44)	19:21			19:58	20:34	21:01
15	07:50		08:33 (T46)	07:19		16:13 (T43)	07:31			06:36	05:52	05:34
	17:04	34	09:07 (T46)	17:45	70	17:23 (T44)	19:22			20:00	20:35	21:02
16	07:50		08:33 (T46)	07:18		16:14 (T43)	07:29			06:34	05:51	05:34
	17:05	34	09:07 (T46)	17:47	70	17:24 (T44)	19:23			20:01	20:36	21:02
17	07:49		08:33 (T46)	07:16		16:13 (T43)	07:28			06:32	05:50	05:34
	17:06	33	09:06 (T46)	17:48	70	17:23 (T44)	19:24			20:02	20:37	21:02
18	07:48		08:35 (T46)	07:15		16:14 (T43)	07:26			06:31	05:49	05:34
	17:07	32	09:07 (T46)	17:49	69	17:23 (T44)	19:26			20:03	20:38	21:03
19	07:48		08:36 (T46)	07:13		16:14 (T43)	07:24			06:29	05:48	05:34
	17:09	30	09:06 (T46)	17:51	67	17:21 (T44)	19:27			20:04	20:40	21:03
20	07:47		08:36 (T46)	07:12		16:15 (T43)	07:22			06:27	05:47	05:35
	17:10	29	09:05 (T46)	17:52	66	17:21 (T44)	19:28			20:06	20:41	21:03
21	07:47		08:38 (T46)	07:10		16:15 (T43)	07:20			06:26	05:46	05:35
	17:11	28	09:06 (T46)	17:53	64	17:19 (T44)	19:29			20:07	20:42	21:04
22	07:46		08:39 (T46)	07:09		16:16 (T43)	07:19			06:24	05:46	05:35
	17:12	34	16:42 (T43)	17:55	62	17:18 (T44)	19:31			20:08	20:43	21:04
23	07:45		08:40 (T46)	07:07		16:17 (T43)	07:17			06:23	05:45	05:35
	17:14	40	16:46 (T43)	17:56	56	17:14 (T44)	19:32			20:09	20:44	21:04
24	07:44		08:42 (T46)	07:06		16:17 (T43)	07:15			06:21	05:44	05:36
	17:15	42	16:49 (T43)	17:57	47	17:04 (T43)	19:33			20:11	20:45	21:04
25	07:44		08:44 (T46)	07:04		16:19 (T43)	07:13			06:19	05:43	05:36
	17:16	43	16:51 (T43)	17:59	45	17:04 (T43)	19:34			20:12	20:46	21:04
26	07:43		08:47 (T46)	07:02		16:19 (T43)	07:11			06:18	05:42	05:36
	17:18	40	16:53 (T43)	18:00	43	17:02 (T43)	19:35			20:13	20:47	21:05
27	07:42		16:22 (T43)	07:01		16:20 (T43)	07:09			06:16	05:41	05:37
	17:19	33	16:55 (T43)	18:00	40	17:00 (T43)	19:37			20:14	20:48	21:05
28	07:41		16:21 (T43)	06:59		16:23 (T43)	07:08			06:15	05:41	05:37
	17:20	35	16:56 (T43)	18:01	36	16:59 (T43)	19:38			20:15	20:49	21:05
29	07:40		16:20 (T43)	06:57		16:24 (T43)	07:06			06:13	05:40	05:37
	17:22	38	16:58 (T43)	18:03	33	16:57 (T43)	19:39			20:17	20:50	21:05
30	07:39		16:19 (T43)				07:04			06:12	05:39	05:38
	17:23	40	16:59 (T43)				19:40			20:18	20:50	21:05
31	07:38		16:18 (T43)				07:02				05:39	
	17:24	43	17:01 (T43)				19:42				20:51	
Potential sun hours	288			303			369			402	456	462
Total, worst case		1132			1637			67				
Sun reduction		0.53			0.59			0.57				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.68			0.57			0.57				
Total reduction		0.36			0.34			0.33				
Total, real		411			557			22				

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 5 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1361)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July	August	September	October			November			December		
1	05:38	06:05	06:40	07:14			06:53		15:43 (T43)	07:32		08:12 (T46)
	21:04	20:43	19:57	19:02			17:09	64	16:47 (T44)	16:41	37	08:49 (T46)
2	05:39	06:06	06:41	07:16			06:55		15:43 (T43)	07:33		08:12 (T46)
	21:04	20:42	19:55	19:00			17:07	62	16:45 (T44)	16:41	37	08:49 (T46)
3	05:40	06:07	06:42	07:17			06:56		15:44 (T43)	07:34		08:12 (T46)
	21:04	20:41	19:53	18:56			17:06	60	16:44 (T44)	16:41	38	08:50 (T46)
4	05:40	06:08	06:44	07:18			06:57		15:44 (T43)	07:35		08:13 (T46)
	21:04	20:40	19:51	18:54			17:05	58	16:42 (T44)	16:40	37	08:50 (T46)
5	05:41	06:10	06:45	07:19			06:58		15:45 (T43)	07:36		08:14 (T46)
	21:04	20:39	19:49	18:53			17:04	57	16:42 (T44)	16:40	38	08:52 (T46)
6	05:41	06:11	06:46	07:20			07:00		15:45 (T43)	07:37		08:14 (T46)
	21:03	20:37	19:48	18:51			17:02	55	16:40 (T44)	16:40	38	08:52 (T46)
7	05:42	06:12	06:47	07:22			07:01		15:45 (T43)	07:38		08:14 (T46)
	21:03	20:36	19:46	18:49			17:01	53	16:38 (T44)	16:40	38	08:52 (T46)
8	05:43	06:13	06:48	07:23			07:02		15:46 (T43)	07:39		08:15 (T46)
	21:03	20:35	19:44	18:47			17:00	49	16:35 (T43)	16:40	38	08:53 (T46)
9	05:43	06:14	06:49	07:24			07:04		15:47 (T43)	07:40		08:15 (T46)
	21:02	20:33	19:42	18:45			16:59	47	16:34 (T43)	16:40	38	08:53 (T46)
10	05:44	06:15	06:50	07:25		17:10 (T43)	07:05		15:48 (T43)	07:41		08:16 (T46)
	21:02	20:32	19:40	18:44	8	17:18 (T43)	16:58	46	16:34 (T43)	16:40	38	08:54 (T46)
11	05:45	06:16	06:51	07:26		17:04 (T43)	07:06		15:49 (T43)	07:42		08:15 (T46)
	21:01	20:30	19:39	18:42	19	17:23 (T43)	16:56	44	16:33 (T43)	16:40	39	08:54 (T46)
12	05:46	06:17	06:53	07:28		17:01 (T43)	07:08		15:50 (T43)	07:42		08:16 (T46)
	21:01	20:29	19:37	18:40	26	17:27 (T43)	16:55	43	16:33 (T43)	16:40	38	08:54 (T46)
13	05:47	06:18	06:54	07:29		16:58 (T43)	07:09		15:51 (T43)	07:43		08:16 (T46)
	21:00	20:28	19:35	18:39	31	17:29 (T43)	16:54	40	16:31 (T43)	16:40	39	08:55 (T46)
14	05:47	06:20	06:55	07:30		16:56 (T43)	07:10		15:52 (T43)	07:44		08:17 (T46)
	21:00	20:26	19:33	18:37	34	17:30 (T43)	16:53	38	16:30 (T43)	16:40	38	08:55 (T46)
15	05:48	06:21	06:56	07:31		16:54 (T43)	07:12		15:54 (T43)	07:45		08:18 (T46)
	20:59	20:25	19:31	18:35	38	17:32 (T43)	16:52	35	16:29 (T43)	16:40	38	08:56 (T46)
16	05:49	06:22	06:57	07:33		16:52 (T43)	07:13		15:55 (T43)	07:46		08:17 (T46)
	20:58	20:23	19:29	18:33	41	17:33 (T43)	16:51	33	16:28 (T43)	16:40	39	08:56 (T46)
17	05:50	06:23	06:58	07:34		16:50 (T43)	07:14		08:21 (T46)	07:46		08:18 (T46)
	20:58	20:21	19:28	18:32	44	17:34 (T43)	16:50	40	16:27 (T43)	16:41	39	08:57 (T46)
18	05:51	06:24	06:59	07:35		16:50 (T43)	07:16		08:18 (T46)	07:47		08:19 (T46)
	20:57	20:20	19:26	18:30	45	17:35 (T43)	16:49	43	16:25 (T43)	16:41	38	08:57 (T46)
19	05:52	06:25	07:01	07:36		16:48 (T43)	07:17		08:16 (T46)	07:48		08:19 (T46)
	20:56	20:18	19:24	18:28	48	17:36 (T43)	16:49	42	16:23 (T43)	16:41	38	08:57 (T46)
20	05:53	06:26	07:02	07:38		16:47 (T43)	07:18		08:16 (T46)	07:48		08:20 (T46)
	20:56	20:17	19:22	18:27	59	17:46 (T44)	16:48	39	16:21 (T43)	16:42	38	08:58 (T46)
21	05:54	06:28	07:03	07:39		16:47 (T43)	07:19		08:14 (T46)	07:49		08:20 (T46)
	20:55	20:15	19:20	18:25	62	17:49 (T44)	16:47	34	16:17 (T43)	16:42	38	08:58 (T46)
22	05:55	06:29	07:04	07:40		16:45 (T43)	07:21		08:14 (T46)	07:49		08:21 (T46)
	20:54	20:14	19:18	18:24	65	17:50 (T44)	16:46	28	08:42 (T46)	16:43	38	08:59 (T46)
23	05:56	06:30	07:05	07:41		16:44 (T43)	07:22		08:13 (T46)	07:50		08:21 (T46)
	20:53	20:12	19:16	18:22	67	17:51 (T44)	16:46	29	08:42 (T46)	16:43	38	08:59 (T46)
24	05:57	06:31	07:06	07:43		16:45 (T43)	07:23		08:13 (T46)	07:50		08:22 (T46)
	20:52	20:10	19:15	18:21	67	17:52 (T44)	16:45	30	08:43 (T46)	16:44	38	09:00 (T46)
25	05:58	06:32	07:08	07:44		16:44 (T43)	07:24		08:13 (T46)	07:51		08:22 (T46)
	20:51	20:09	19:13	18:19	68	17:52 (T44)	16:44	32	08:45 (T46)	16:44	38	09:00 (T46)
26	05:59	06:33	07:09	07:45		16:43 (T43)	07:26		08:13 (T46)	07:51		08:22 (T46)
	20:50	20:07	19:11	18:17	70	17:53 (T44)	16:44	32	08:45 (T46)	16:45	39	09:01 (T46)
27	06:00	06:34	07:10	07:47		16:43 (T43)	07:27		08:12 (T46)	07:51		08:23 (T46)
	20:49	20:05	19:09	18:16	70	17:53 (T44)	16:43	34	08:46 (T46)	16:46	39	09:02 (T46)
28	06:01	06:36	07:11	07:48		16:43 (T43)	07:28		08:12 (T46)	07:52		08:23 (T46)
	20:48	20:03	19:07	18:15	69	17:52 (T44)	16:43	34	08:46 (T46)	16:46	39	09:02 (T46)
29	06:02	06:37	07:12	07:49		16:43 (T43)	07:29		08:13 (T46)	07:52		08:24 (T46)
	20:47	20:02	19:05	18:13	68	17:51 (T44)	16:42	35	08:48 (T46)	16:47	38	09:02 (T46)
30	06:03	06:38	07:13	07:51		16:43 (T43)	07:30		08:12 (T46)	07:52		08:24 (T46)
	20:46	20:00	19:03	18:12	66	17:49 (T44)	16:42	36	08:48 (T46)	16:48	39	09:03 (T46)
31	06:04	06:39		07:52		16:42 (T43)				07:52		08:24 (T46)
	20:45	19:58		18:10	66	17:48 (T44)				16:49	39	09:03 (T46)
Potential sun hours	469	434	377	342			290			278		
Total, worst case					1131			1272			1184	
Sun reduction					0.51			0.37			0.38	
Oper. time red.					1.00			1.00			1.00	
Wind dir. red.					0.57			0.61			0.72	
Total reduction					0.29			0.23			0.27	
Total, real					333			292			325	

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

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

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 21 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1369)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April			May			June		
1	07:53		14:29 (T06)	07:38			06:56		07:19 (T04)	07:01			06:11		06:34 (T01)	05:39		06:24 (T01)
	16:50	64	15:33 (T06)	17:26			18:05	40	07:59 (T04)	19:43			20:20	10	06:44 (T01)	20:53	22	06:46 (T01)
2	07:53		14:30 (T06)	07:37			06:55		07:17 (T04)	06:59			06:10		06:32 (T01)	05:38		06:25 (T01)
	16:50	63	15:33 (T06)	17:28			18:06	42	07:59 (T04)	19:45			20:21	13	06:45 (T01)	20:54	21	06:46 (T01)
3	07:53		14:30 (T06)	07:35			06:53		07:16 (T04)	06:57			06:08		06:31 (T01)	05:38		06:26 (T01)
	16:51	64	15:34 (T06)	17:29			18:07	43	07:59 (T04)	19:46			20:22	16	06:47 (T01)	20:55	19	06:45 (T01)
4	07:53		14:31 (T06)	07:34			06:51		07:16 (T04)	06:56			06:07		06:30 (T01)	05:37		06:27 (T01)
	16:52	63	15:34 (T06)	17:31			18:09	44	08:00 (T04)	19:47			20:23	18	06:48 (T01)	20:55	18	06:45 (T01)
5	07:53		14:32 (T06)	07:33			06:50		07:15 (T04)	06:54			06:05		06:28 (T01)	05:37		06:28 (T01)
	16:53	62	15:34 (T06)	17:32			18:10	45	08:00 (T04)	19:48			20:24	20	06:48 (T01)	20:56	15	06:43 (T01)
6	07:53		14:33 (T06)	07:32			06:48		07:15 (T04)	06:52			06:04		06:27 (T01)	05:37		06:29 (T01)
	16:54	62	15:35 (T06)	17:33			18:11	44	07:59 (T04)	19:49			20:26	22	06:49 (T01)	20:57	14	06:43 (T01)
7	07:53		14:34 (T06)	07:31			06:46		07:14 (T04)	06:50			06:03		06:26 (T01)	05:36		06:31 (T01)
	16:55	61	15:35 (T06)	17:35			18:12	44	07:58 (T04)	19:51			20:27	24	06:50 (T01)	20:58	11	06:42 (T01)
8	07:53		14:34 (T06)	07:29			07:44		08:15 (T04)	06:48			06:01		06:25 (T01)	05:36		06:32 (T01)
	16:56	60	15:34 (T06)	17:36			18:14	44	08:59 (T04)	19:52			20:28	26	06:51 (T01)	20:58	9	06:41 (T01)
9	07:53		14:35 (T06)	07:28			07:43		08:15 (T04)	06:47			06:00		06:23 (T01)	05:36		06:33 (T01)
	16:57	60	15:35 (T06)	17:37			19:15	43	08:58 (T04)	19:53			20:29	28	06:51 (T01)	20:59	6	06:39 (T01)
10	07:53		14:36 (T06)	07:27			07:41		08:15 (T04)	06:45			05:59		06:22 (T01)	05:35		
	16:58	59	15:35 (T06)	17:39			19:16	42	08:57 (T04)	19:54			20:30	29	06:51 (T01)	21:00		
11	07:52		14:36 (T06)	07:26			07:39		08:15 (T04)	06:43			05:58		06:21 (T01)	05:35		
	16:59	58	15:34 (T06)	17:40			19:17	41	08:56 (T04)	19:56			20:31	30	06:51 (T01)	21:00		
12	07:52		14:38 (T06)	07:24			07:37		08:15 (T04)	06:41			05:56		06:20 (T01)	05:35		
	17:01	57	15:35 (T06)	17:42			19:19	40	08:55 (T04)	19:57			20:33	32	06:52 (T01)	21:01		
13	07:52		14:38 (T06)	07:23			07:36		08:17 (T04)	06:40			05:55		06:19 (T01)	05:35		
	17:02	56	15:34 (T06)	17:43			19:20	37	08:54 (T04)	19:58			20:34	33	06:52 (T01)	21:01		
14	07:51		14:39 (T06)	07:21			07:34		08:17 (T04)	06:38			05:54		06:18 (T01)	05:35		
	17:03	55	15:34 (T06)	17:44			19:21	36	08:53 (T04)	19:59			20:35	34	06:52 (T01)	21:02		
15	07:51		14:40 (T06)	07:20			07:32		08:18 (T04)	06:36			05:53		06:17 (T01)	05:35		
	17:04	54	15:34 (T06)	17:46			19:23	33	08:51 (T04)	20:00			20:36	35	06:52 (T01)	21:02		
16	07:50		14:42 (T06)	07:19			07:30		08:19 (T04)	06:35			05:52		06:16 (T01)	05:35		
	17:05	52	15:34 (T06)	17:47			19:24	30	08:49 (T04)	20:02			20:37	36	06:52 (T01)	21:03		
17	07:50		14:43 (T06)	07:17			07:28		08:21 (T04)	06:33			05:51		06:16 (T01)	05:35		
	17:07	50	15:33 (T06)	17:48			19:25	26	08:47 (T04)	20:03			20:38	36	06:52 (T01)	21:03		
18	07:49		14:45 (T06)	07:16			07:27		08:23 (T04)	06:31			05:50		06:16 (T01)	05:35		
	17:08	48	15:33 (T06)	17:50			19:26	21	08:44 (T04)	20:04			20:39	36	06:52 (T01)	21:04		
19	07:49		14:46 (T06)	07:14			07:25		08:27 (T04)	06:30			05:49		06:17 (T01)	05:35		
	17:09	46	15:32 (T06)	17:51			19:27	14	08:41 (T04)	20:05			20:40	34	06:51 (T01)	21:04		
20	07:48		14:47 (T06)	07:13			07:23			06:28			05:48		06:17 (T01)	05:35		
	17:10	44	15:31 (T06)	17:53			19:29			20:06			20:41	34	06:51 (T01)	21:04		
21	07:47		14:48 (T06)	07:11		07:34 (T04)	07:21			06:26			05:47		06:17 (T01)	05:35		
	17:12	42	15:30 (T06)	17:54	13	07:47 (T04)	19:30			20:08			20:43	34	06:51 (T01)	21:05		
22	07:47		14:51 (T06)	07:10		07:32 (T04)	07:19			06:25			05:46		06:18 (T01)	05:35		
	17:13	39	15:30 (T06)	17:55	18	07:50 (T04)	19:31			20:09			20:44	33	06:51 (T01)	21:05		
23	07:46		14:53 (T06)	07:08		07:31 (T04)	07:17			06:23			05:45		06:18 (T01)	05:36		
	17:14	36	15:29 (T06)	17:57	22	07:53 (T04)	19:32			20:10			20:45	33	06:51 (T01)	21:05		
24	07:45		14:55 (T06)	07:06		07:29 (T04)	07:16			06:22			05:44		06:19 (T01)	05:36		
	17:16	32	15:27 (T06)	17:58	25	07:54 (T04)	19:34			20:11			20:46	31	06:50 (T01)	21:05		
25	07:44		14:57 (T06)	07:05		07:27 (T04)	07:14			06:20			05:43		06:19 (T01)	05:36		
	17:17	28	15:25 (T06)	17:59	28	07:55 (T04)	19:35			20:12			20:47	31	06:50 (T01)	21:05		
26	07:43		15:00 (T06)	07:03		07:26 (T04)	07:12			06:18			05:43		06:20 (T01)	05:37		
	17:18	23	15:23 (T06)	18:01	31	07:57 (T04)	19:36			20:14			20:48	30	06:50 (T01)	21:05		
27	07:43		15:04 (T06)	07:01		07:24 (T04)	07:10			06:17			05:42		06:20 (T01)	05:37		
	17:20	15	15:19 (T06)	18:01	33	07:57 (T04)	19:37			20:15			20:49	29	06:49 (T01)	21:05		
28	07:42			07:00		07:22 (T04)	07:08			06:15			05:41		06:21 (T01)	05:37		
	17:21			18:02	36	07:58 (T04)	19:39			20:16			20:49	27	06:48 (T01)	21:05		
29	07:41			06:58		07:21 (T04)	07:06			06:14			05:41		06:22 (T01)	05:38		
	17:22			18:03	38	07:59 (T04)	19:40			20:17			20:50	26	06:48 (T01)	21:05		
30	07:40						07:05			06:12		06:35 (T01)	05:40		06:22 (T01)	05:38		
	17:24						19:41			20:19	6	06:41 (T01)	20:51	26	06:48 (T01)	21:05		
31	07:39						07:03						05:39		06:24 (T01)			
	17:25						19:42						20:52	24	06:48 (T01)			
Potential sun hours	288			303			369			403			457			463		
Total, worst case		1353			244			709			6			870			135	
Sun reduction		0.53			0.59			0.57			0.56			0.62			0.67	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.55			0.68			0.68			0.59			0.59			0.59	
Total reduction		0.29			0.40			0.38			0.33			0.36			0.39	
Total, real		394			97			272			2			315			53	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 21 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1369)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September			October			November			December		
1	05:39			06:06		06:31 (T01)	06:41			07:15		07:55 (T04)	06:54			07:32		14:20 (T06)
	21:05			20:44	31	07:02 (T01)	19:57			19:02	39	08:34 (T04)	17:09			16:42	57	15:17 (T06)
2	05:39			06:07		06:32 (T01)	06:42			07:16		07:54 (T04)	06:55			07:33		14:19 (T06)
	21:05			20:43	30	07:02 (T01)	19:56			19:00	40	08:34 (T04)	17:08			16:41	58	15:17 (T06)
3	05:40		06:40 (T01)	06:08		06:33 (T01)	06:43			07:18		07:53 (T04)	06:57			07:35		14:19 (T06)
	21:05	3	06:43 (T01)	20:42	28	07:01 (T01)	19:54			18:57	41	08:34 (T04)	17:07			16:41	59	15:18 (T06)
4	05:41		06:38 (T01)	06:09		06:34 (T01)	06:44			07:19		07:52 (T04)	06:58			07:36		14:19 (T06)
	21:05	8	06:46 (T01)	20:41	27	07:01 (T01)	19:52			18:55	42	08:34 (T04)	17:05			16:41	60	15:19 (T06)
5	05:41		06:37 (T01)	06:10		06:35 (T01)	06:45			07:20		07:52 (T04)	06:59			07:37		14:19 (T06)
	21:05	11	06:48 (T01)	20:39	25	07:00 (T01)	19:50			18:53	43	08:35 (T04)	17:04			16:41	60	15:19 (T06)
6	05:42		06:36 (T01)	06:11		06:36 (T01)	06:46			07:21		07:51 (T04)	07:01			07:38		14:19 (T06)
	21:04	13	06:49 (T01)	20:38	24	07:00 (T01)	19:48			18:51	44	08:35 (T04)	17:03			16:40	61	15:20 (T06)
7	05:42		06:35 (T01)	06:12		06:37 (T01)	06:48			07:22		07:51 (T04)	07:02			07:39		14:19 (T06)
	21:04	15	06:50 (T01)	20:37	22	06:59 (T01)	19:47			18:50	44	08:35 (T04)	17:02			16:40	62	15:21 (T06)
8	05:43		06:34 (T01)	06:13		06:38 (T01)	06:49			07:24		07:50 (T04)	07:03			07:40		14:19 (T06)
	21:04	17	06:51 (T01)	20:35	20	06:58 (T01)	19:45			18:48	44	08:34 (T04)	17:00			16:40	62	15:21 (T06)
9	05:44		06:33 (T01)	06:14		06:39 (T01)	06:50			07:25		07:51 (T04)	07:05			07:41		14:19 (T06)
	21:03	19	06:52 (T01)	20:34	17	06:56 (T01)	19:43			18:46	44	08:35 (T04)	16:59			16:40	63	15:22 (T06)
10	05:45		06:33 (T01)	06:16		06:40 (T01)	06:51			07:26		07:50 (T04)	07:06			07:42		14:19 (T06)
	21:03	20	06:53 (T01)	20:33	15	06:55 (T01)	19:41			18:44	44	08:34 (T04)	16:58			16:40	64	15:23 (T06)
11	05:45		06:33 (T01)	06:17		06:41 (T01)	06:52			07:27		07:50 (T04)	07:07			07:42		14:20 (T06)
	21:02	21	06:54 (T01)	20:31	12	06:53 (T01)	19:39			18:43	43	08:33 (T04)	16:57			16:40	63	15:23 (T06)
12	05:46		06:31 (T01)	06:18		06:43 (T01)	06:53			07:28		07:51 (T04)	07:09			07:43		14:20 (T06)
	21:02	24	06:55 (T01)	20:30	9	06:52 (T01)	19:37			18:41	41	08:32 (T04)	16:56			16:40	64	15:24 (T06)
13	05:47		06:31 (T01)	06:19		06:44 (T01)	06:54			07:30		07:53 (T04)	07:10			07:44		14:20 (T06)
	21:01	25	06:56 (T01)	20:28	5	06:49 (T01)	19:36			18:39	39	08:32 (T04)	16:55			16:40	65	15:25 (T06)
14	05:48		06:31 (T01)	06:20			06:56			07:31		07:54 (T04)	07:11			07:45		14:21 (T06)
	21:01	25	06:56 (T01)	20:27			19:34			18:37	37	08:31 (T04)	16:54			16:40	65	15:26 (T06)
15	05:49		06:30 (T01)	06:21			06:57			07:32		07:55 (T04)	07:13			07:46		14:22 (T06)
	21:00	27	06:57 (T01)	20:25			19:32			18:36	35	08:30 (T04)	16:53			16:41	64	15:26 (T06)
16	05:50		06:30 (T01)	06:22			06:58			07:33		07:57 (T04)	07:14		14:37 (T06)	07:46		14:21 (T06)
	20:59	28	06:58 (T01)	20:24			19:30			18:34	33	08:30 (T04)	16:52	15	14:52 (T06)	16:41	65	15:26 (T06)
17	05:51		06:30 (T01)	06:24			06:59			07:35		07:58 (T04)	07:15		14:34 (T06)	07:47		14:22 (T06)
	20:59	29	06:59 (T01)	20:22			19:28			18:32	30	08:28 (T04)	16:51	23	14:57 (T06)	16:41	65	15:27 (T06)
18	05:51		06:29 (T01)	06:25			07:00			07:36		07:59 (T04)	07:16		14:31 (T06)	07:48		14:23 (T06)
	20:58	30	06:59 (T01)	20:21			19:26			18:31	27	08:26 (T04)	16:50	28	14:59 (T06)	16:41	65	15:28 (T06)
19	05:52		06:28 (T01)	06:26			07:01			07:37		08:01 (T04)	07:18		14:29 (T06)	07:48		14:22 (T06)
	20:57	31	06:59 (T01)	20:19			19:24			18:29	24	08:25 (T04)	16:49	32	15:01 (T06)	16:42	66	15:28 (T06)
20	05:53		06:28 (T01)	06:27			07:02			07:38		08:02 (T04)	07:19		14:28 (T06)	07:49		14:23 (T06)
	20:56	32	07:00 (T01)	20:18			19:23			18:27	21	08:23 (T04)	16:48	36	15:04 (T06)	16:42	66	15:29 (T06)
21	05:54		06:28 (T01)	06:28			07:04			07:40		08:03 (T04)	07:20		14:26 (T06)	07:50		14:23 (T06)
	20:56	33	07:01 (T01)	20:16			19:21			18:26	17	08:20 (T04)	16:47	39	15:05 (T06)	16:43	66	15:29 (T06)
22	05:55		06:28 (T01)	06:29			07:05			07:41		08:05 (T04)	07:22		14:24 (T06)	07:50		14:24 (T06)
	20:55	33	07:01 (T01)	20:14			19:19			18:24	12	08:17 (T04)	16:47	42	15:06 (T06)	16:43	66	15:30 (T06)
23	05:56		06:27 (T01)	06:30			07:06			07:42			07:23		14:24 (T06)	07:51		14:24 (T06)
	20:54	34	07:01 (T01)	20:13			19:17			18:23			16:46	44	15:08 (T06)	16:44	66	15:30 (T06)
24	05:57		06:27 (T01)	06:32			07:07		08:12 (T04)	07:44			07:24		14:23 (T06)	07:51		14:25 (T06)
	20:53	35	07:02 (T01)	20:11			19:15	10	08:22 (T04)	18:21			16:45	46	15:09 (T06)	16:44	66	15:31 (T06)
25	05:58		06:27 (T01)	06:33			07:08		08:07 (T04)	07:45			07:25		14:22 (T06)	07:51		14:26 (T06)
	20:52	35	07:02 (T01)	20:09			19:13	19	08:26 (T04)	18:20			16:45	48	15:10 (T06)	16:45	65	15:31 (T06)
26	05:59		06:27 (T01)	06:34			07:09		08:04 (T04)	07:46			07:26		14:22 (T06)	07:52		14:26 (T06)
	20:51	35	07:02 (T01)	20:08			19:12	24	08:28 (T04)	18:18			16:44	50	15:12 (T06)	16:46	65	15:31 (T06)
27	06:00		06:27 (T01)	06:35			07:10		08:01 (T04)	07:47			07:28		14:21 (T06)	07:52		14:26 (T06)
	20:50	36	07:03 (T01)	20:06			19:10	29	08:30 (T04)	18:17			16:44	52	15:13 (T06)	16:46	65	15:31 (T06)
28	06:01		06:27 (T01)	06:36			07:12		07:59 (T04)	07:49			07:29		14:20 (T06)	07:52		14:27 (T06)
	20:49	36	07:03 (T01)	20:04			19:08	32	08:31 (T04)	18:15			16:43	54	15:14 (T06)	16:47	65	15:32 (T06)
29	06:02		06:28 (T01)	06:37			07:13		07:57 (T04)	07:50			07:30		14:20 (T06)	07:53		14:28 (T06)
	20:48	35	07:03 (T01)	20:03			19:06	35	08:32 (T04)	18:14			16:43	54	15:14 (T06)	16:48	65	15:33 (T06)
30	06:03		06:29 (T01)	06:38			07:14		07:57 (T04)	07:51			07:31		14:20 (T06)	07:53		14:28 (T06)
	20:47	34	07:03 (T01)	20:01			19:04	37	08:34 (T04)	18:12			16:42	56	15:16 (T06)	16:48	65	15:33 (T06)
31	06:05		06:30 (T01)	06:40						07:53						07:53		14:29 (T06)
	20:45	32	07:02 (T01)	19:59						18:11						16:49	64	15:33 (T06)
Potential sun hours	469			434			377			342			290			278		
Total, worst case		756			265			186			784			619			1972	
Sun reduction		0.74			0.69			0.62			0.51			0.37			0.38	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.59			0.59			0.68			0.68			0.55			0.55	
Total reduction		0.43			0.40			0.42			0.34			0.20			0.21	
Total, real		326			107			77			269			126			411	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 22 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1370)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February	March	April			May			June		
1	07:53		08:32 (T11)	07:38	06:56	07:01			06:11		18:48 (T04)	05:39		19:14 (T04)
	16:49	20	08:52 (T11)	17:26	18:05	19:43			20:20	57	19:45 (T04)	20:53	7	19:21 (T04)
2	07:53		08:33 (T11)	07:37	06:55	06:59			06:09		18:47 (T04)	05:38		
	16:50	19	08:52 (T11)	17:28	18:06	19:45			20:21	57	19:44 (T04)	20:54		
3	07:53		08:34 (T11)	07:35	06:53	06:57			06:08		18:48 (T04)	05:38		
	16:51	18	08:52 (T11)	17:29	18:07	19:46			20:22	56	19:44 (T04)	20:55		
4	07:53		08:35 (T11)	07:34	06:51	06:56			06:07		18:48 (T04)	05:37		
	16:52	17	08:52 (T11)	17:30	18:08	19:47			20:23	56	19:44 (T04)	20:55		
5	07:53		08:36 (T11)	07:33	06:50	06:54			06:05		18:47 (T04)	05:37		
	16:53	16	08:52 (T11)	17:32	18:10	19:48			20:24	56	19:43 (T04)	20:56		
6	07:53		08:37 (T11)	07:32	06:48	06:52			06:04		18:48 (T04)	05:36		
	16:54	15	08:52 (T11)	17:33	18:11	19:49			20:26	55	19:43 (T04)	20:57		
7	07:53		08:38 (T11)	07:31	06:46	06:50			06:03		18:48 (T04)	05:36		
	16:55	13	08:51 (T11)	17:35	18:12	19:51			20:27	55	19:43 (T04)	20:58		
8	07:53		08:40 (T11)	07:29	07:44	06:48			06:01		18:49 (T04)	05:36		
	16:56	10	08:50 (T11)	17:36	18:14	19:52			20:28	54	19:43 (T04)	20:58		
9	07:53		08:42 (T11)	07:28	07:43	06:47			06:00		18:48 (T04)	05:36		
	16:57	7	08:49 (T11)	17:37	19:15	19:53			20:29	54	19:42 (T04)	20:59		
10	07:53			07:27	07:41	06:45			05:59		18:49 (T04)	05:35		
	16:58			17:39	19:16	19:54			20:30	53	19:42 (T04)	21:00		
11	07:52			07:26	07:39	06:43			05:58		18:49 (T04)	05:35		
	16:59			17:40	19:17	19:55			20:31	53	19:42 (T04)	21:00		
12	07:52			07:24	07:37	06:41		19:11 (T04)	05:56		18:50 (T04)	05:35		
	17:01			17:42	19:19	19:57	16	19:27 (T04)	20:33	51	19:41 (T04)	21:01		
13	07:52			07:23	07:35	06:40		19:08 (T04)	05:55		18:51 (T04)	05:35		
	17:02			17:43	19:20	19:58	24	19:32 (T04)	20:34	50	19:41 (T04)	21:01		
14	07:51			07:21	07:34	06:38		19:04 (T04)	05:54		18:51 (T04)	05:35		
	17:03			17:44	19:21	19:59	30	19:34 (T04)	20:35	49	19:40 (T04)	21:02		
15	07:51			07:20	07:32	06:36		19:02 (T04)	05:53		18:52 (T04)	05:35		
	17:04			17:46	19:22	20:00	34	19:36 (T04)	20:36	48	19:40 (T04)	21:02		
16	07:50			07:19	07:30	06:35		19:00 (T04)	05:52		18:53 (T04)	05:35		
	17:05			17:47	19:24	20:02	38	19:38 (T04)	20:37	46	19:39 (T04)	21:03		
17	07:50			07:17	07:28	06:33		18:58 (T04)	05:51		18:53 (T04)	05:35		
	17:06			17:48	19:25	20:03	41	19:39 (T04)	20:38	46	19:39 (T04)	21:03		
18	07:49			07:16	07:26	06:31		18:56 (T04)	05:50		18:54 (T04)	05:35		
	17:08			17:50	19:26	20:04	43	19:39 (T04)	20:39	44	19:38 (T04)	21:04		
19	07:49			07:14	07:25	06:30		18:55 (T04)	05:49		18:55 (T04)	05:35		
	17:09			17:51	19:27	20:05	46	19:41 (T04)	20:40	42	19:37 (T04)	21:04		
20	07:48			07:13	07:23	06:28		18:54 (T04)	05:48		18:56 (T04)	05:35		
	17:10			17:52	19:29	20:06	47	19:41 (T04)	20:41	40	19:36 (T04)	21:04		
21	07:47			07:11	07:21	06:26		18:52 (T04)	05:47		18:56 (T04)	05:35		
	17:12			17:54	19:30	20:08	50	19:42 (T04)	20:42	39	19:35 (T04)	21:04		
22	07:47			07:09	07:19	06:25		18:52 (T04)	05:46		18:57 (T04)	05:35		
	17:13			17:55	19:31	20:09	51	19:43 (T04)	20:43	37	19:34 (T04)	21:05		
23	07:46			07:08	07:17	06:23		18:51 (T04)	05:45		18:59 (T04)	05:36		
	17:14			17:57	19:32	20:10	52	19:43 (T04)	20:44	35	19:34 (T04)	21:05		
24	07:45			07:06	07:16	06:21		18:51 (T04)	05:44		19:00 (T04)	05:36		
	17:15			17:58	19:34	20:11	53	19:44 (T04)	20:45	33	19:33 (T04)	21:05		
25	07:44			07:05	07:14	06:20		18:49 (T04)	05:43		19:01 (T04)	05:36		
	17:17			17:59	19:35	20:12	55	19:44 (T04)	20:46	31	19:32 (T04)	21:05		
26	07:43			07:03	07:12	06:18		18:49 (T04)	05:43		19:02 (T04)	05:37		
	17:18			18:01	19:36	20:14	55	19:44 (T04)	20:47	29	19:31 (T04)	21:05		
27	07:43			07:01	07:10	06:17		18:48 (T04)	05:42		19:04 (T04)	05:37		
	17:19			18:01	19:37	20:15	56	19:44 (T04)	20:48	26	19:30 (T04)	21:05		
28	07:42			07:00	07:08	06:15		18:48 (T04)	05:41		19:05 (T04)	05:37		
	17:21			18:02	19:38	20:16	56	19:44 (T04)	20:49	24	19:29 (T04)	21:05		
29	07:41			06:58	07:06	06:14		18:48 (T04)	05:41		19:07 (T04)	05:38		
	17:22			18:03	19:40	20:17	56	19:44 (T04)	20:50	21	19:28 (T04)	21:05		
30	07:40				07:05	06:12		18:48 (T04)	05:40		19:09 (T04)	05:38		
	17:24				19:41	20:18	56	19:44 (T04)	20:51	17	19:26 (T04)	21:05		
31	07:39				07:03				05:39		19:11 (T04)			
	17:25				19:42				20:52	14	19:25 (T04)			
Potential sun hours	288			303	369	403			457			463		
Total, worst case		135					859			1328			7	
Sun reduction		0.53					0.56			0.62			0.67	
Oper. time red.		1.00					1.00			1.00			1.00	
Wind dir. red.		0.72					0.66			0.66			0.66	
Total reduction		0.38					0.37			0.41			0.44	
Total, real		51					319			546			3	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 22 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1370)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September	October	November	December		
1	05:39			06:06		19:00 (T04)	06:41	07:15	06:54	07:32		
	21:05			20:44	52	19:52 (T04)	19:57	19:02	17:09	16:42		
2	05:39			06:07		19:00 (T04)	06:42	07:16	06:55	07:33		
	21:05			20:43	52	19:52 (T04)	19:55	19:00	17:08	16:41		
3	05:40			06:08		18:59 (T04)	06:43	07:17	06:57	07:34		
	21:05			20:42	54	19:53 (T04)	19:54	18:57	17:07	16:41		
4	05:40			06:09		18:59 (T04)	06:44	07:19	06:58	07:36		08:26 (T11)
	21:05			20:41	54	19:53 (T04)	19:52	18:55	17:05	16:41	7	08:33 (T11)
5	05:41			06:10		18:58 (T04)	06:45	07:20	06:59	07:37		08:25 (T11)
	21:04			20:39	55	19:53 (T04)	19:50	18:53	17:04	16:41	10	08:35 (T11)
6	05:42			06:11		18:58 (T04)	06:46	07:21	07:00	07:38		08:24 (T11)
	21:04			20:38	55	19:53 (T04)	19:48	18:51	17:03	16:40	12	08:36 (T11)
7	05:42			06:12		18:57 (T04)	06:47	07:22	07:02	07:39		08:23 (T11)
	21:04			20:37	56	19:53 (T04)	19:46	18:50	17:02	16:40	15	08:38 (T11)
8	05:43			06:13		18:57 (T04)	06:49	07:23	07:03	07:40		08:23 (T11)
	21:03			20:35	56	19:53 (T04)	19:45	18:48	17:00	16:40	16	08:39 (T11)
9	05:44			06:14		18:56 (T04)	06:50	07:25	07:04	07:41		08:23 (T11)
	21:03			20:34	57	19:53 (T04)	19:43	18:46	16:59	16:40	17	08:40 (T11)
10	05:45			06:16		18:56 (T04)	06:51	07:26	07:06	07:41		08:23 (T11)
	21:03			20:33	57	19:53 (T04)	19:41	18:44	16:58	16:40	18	08:41 (T11)
11	05:45			06:17		18:56 (T04)	06:52	07:27	07:07	07:42		08:23 (T11)
	21:02			20:31	57	19:53 (T04)	19:39	18:43	16:57	16:40	19	08:42 (T11)
12	05:46		19:20 (T04)	06:18		18:56 (T04)	06:53	07:28	07:08	07:43		08:23 (T11)
	21:02	11	19:31 (T04)	20:30	56	19:52 (T04)	19:37	18:41	16:56	16:40	20	08:43 (T11)
13	05:47		19:18 (T04)	06:19		18:56 (T04)	06:54	07:30	07:10	07:44		08:24 (T11)
	21:01	16	19:34 (T04)	20:28	57	19:53 (T04)	19:36	18:39	16:55	16:40	20	08:44 (T11)
14	05:48		19:16 (T04)	06:20		18:56 (T04)	06:55	07:31	07:11	07:45		08:24 (T11)
	21:00	20	19:36 (T04)	20:27	57	19:53 (T04)	19:34	18:37	16:54	16:40	21	08:45 (T11)
15	05:49		19:15 (T04)	06:21		18:56 (T04)	06:57	07:32	07:12	07:46		08:24 (T11)
	21:00	23	19:38 (T04)	20:25	56	19:52 (T04)	19:32	18:36	16:53	16:41	21	08:45 (T11)
16	05:50		19:14 (T04)	06:22		18:56 (T04)	06:58	07:33	07:14	07:46		08:24 (T11)
	20:59	25	19:39 (T04)	20:24	55	19:51 (T04)	19:30	18:34	16:52	16:41	21	08:45 (T11)
17	05:50		19:12 (T04)	06:24		18:56 (T04)	06:59	07:35	07:15	07:47		08:25 (T11)
	20:59	28	19:40 (T04)	20:22	55	19:51 (T04)	19:28	18:32	16:51	16:41	21	08:46 (T11)
18	05:51		19:11 (T04)	06:25		18:56 (T04)	07:00	07:36	07:16	07:48		08:25 (T11)
	20:58	30	19:41 (T04)	20:21	54	19:50 (T04)	19:26	18:31	16:50	16:41	21	08:46 (T11)
19	05:52		19:10 (T04)	06:26		18:56 (T04)	07:01	07:37	07:18	07:48		08:25 (T11)
	20:57	32	19:42 (T04)	20:19	53	19:49 (T04)	19:24	18:29	16:49	16:42	22	08:47 (T11)
20	05:53		19:09 (T04)	06:27		18:57 (T04)	07:02	07:38	07:19	07:49		08:26 (T11)
	20:56	34	19:43 (T04)	20:17	51	19:48 (T04)	19:23	18:27	16:48	16:42	22	08:48 (T11)
21	05:54		19:08 (T04)	06:28		18:57 (T04)	07:03	07:40	07:20	07:50		08:26 (T11)
	20:55	36	19:44 (T04)	20:16	50	19:47 (T04)	19:21	18:26	16:47	16:43	22	08:48 (T11)
22	05:55		19:07 (T04)	06:29		18:57 (T04)	07:05	07:41	07:21	07:50		08:27 (T11)
	20:55	38	19:45 (T04)	20:14	49	19:46 (T04)	19:19	18:24	16:47	16:43	22	08:49 (T11)
23	05:56		19:06 (T04)	06:30		18:58 (T04)	07:06	07:42	07:23	07:51		08:27 (T11)
	20:54	40	19:46 (T04)	20:13	47	19:45 (T04)	19:17	18:23	16:46	16:44	22	08:49 (T11)
24	05:57		19:06 (T04)	06:32		18:58 (T04)	07:07	07:43	07:24	07:51		08:27 (T11)
	20:53	41	19:47 (T04)	20:11	46	19:44 (T04)	19:15	18:21	16:45	16:44	22	08:49 (T11)
25	05:58		19:05 (T04)	06:33		19:00 (T04)	07:08	07:45	07:25	07:51		08:28 (T11)
	20:52	43	19:48 (T04)	20:09	43	19:43 (T04)	19:13	18:20	16:45	16:45	22	08:50 (T11)
26	05:59		19:04 (T04)	06:34		19:01 (T04)	07:09	07:46	07:26	07:52		08:29 (T11)
	20:51	45	19:49 (T04)	20:08	40	19:41 (T04)	19:11	18:18	16:44	16:45	21	08:50 (T11)
27	06:00		19:04 (T04)	06:35		19:02 (T04)	07:10	07:47	07:28	07:52		08:29 (T11)
	20:50	46	19:50 (T04)	20:06	37	19:39 (T04)	19:10	18:16	16:44	16:46	21	08:50 (T11)
28	06:01		19:03 (T04)	06:36		19:04 (T04)	07:12	07:49	07:29	07:52		08:30 (T11)
	20:49	47	19:50 (T04)	20:04	33	19:37 (T04)	19:08	18:15	16:43	16:47	22	08:52 (T11)
29	06:02		19:02 (T04)	06:37		19:06 (T04)	07:13	07:50	07:30	07:53		08:31 (T11)
	20:48	49	19:51 (T04)	20:02	29	19:35 (T04)	19:06	18:14	16:43	16:48	21	08:52 (T11)
30	06:03		19:01 (T04)	06:38		19:08 (T04)	07:14	07:51	07:31	07:53		08:31 (T11)
	20:47	50	19:51 (T04)	20:01	24	19:32 (T04)	19:04	18:12	16:42	16:48	21	08:52 (T11)
31	06:04		19:01 (T04)	06:40		19:12 (T04)		07:53		07:53		08:32 (T11)
	20:45	51	19:52 (T04)	19:59	15	19:27 (T04)		18:11		16:49	20	08:52 (T11)
Potential sun hours	469			434			377	342	290	278		
Total, worst case		705			1512						539	
Sun reduction		0.74			0.69						0.38	
Oper. time red.		1.00			1.00						1.00	
Wind dir. red.		0.66			0.66						0.72	
Total reduction		0.49			0.46						0.27	
Total, real		346			692						147	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 23 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1371)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January	February			March			April	May			June		
1	07:53	07:38			06:56		16:42 (T04)	07:01	06:11			05:39		19:34 (T01)
	16:49	17:26			18:05	36	17:18 (T04)	19:43	20:20			20:53	51	20:25 (T01)
2	07:53	07:37			06:55		16:43 (T04)	06:59	06:09			05:38		19:35 (T01)
	16:50	17:28			18:06	34	17:17 (T04)	19:45	20:21			20:54	51	20:26 (T01)
3	07:53	07:35			06:53		16:44 (T04)	06:57	06:08			05:38		19:34 (T01)
	16:51	17:29			18:07	31	17:15 (T04)	19:46	20:22			20:55	52	20:26 (T01)
4	07:53	07:34			06:51		16:46 (T04)	06:56	06:07			05:37		19:34 (T01)
	16:52	17:30			18:08	27	17:13 (T04)	19:47	20:23			20:55	53	20:27 (T01)
5	07:53	07:33		16:56 (T04)	06:50		16:48 (T04)	06:54	06:05			05:37		19:33 (T01)
	16:53	17:32	10	17:06 (T04)	18:10	23	17:11 (T04)	19:48	20:24			20:56	54	20:27 (T01)
6	07:53	07:32		16:52 (T04)	06:48		16:51 (T04)	06:52	06:04			05:36		19:33 (T01)
	16:54	17:33	18	17:10 (T04)	18:11	16	17:07 (T04)	19:49	20:26			20:57	55	20:28 (T01)
7	07:53	07:31		16:49 (T04)	06:46		16:58 (T04)	06:50	06:03			05:36		19:33 (T01)
	16:55	17:35	23	17:12 (T04)	18:12	1	16:59 (T04)	19:51	20:27			20:58	56	20:29 (T01)
8	07:53	07:29		16:48 (T04)	07:44			06:48	06:01			05:36		19:33 (T01)
	16:56	17:36	25	17:13 (T04)	18:14			19:52	20:28			20:58	56	20:29 (T01)
9	07:53	07:28		16:46 (T04)	07:43			06:47	06:00			05:36		19:33 (T01)
	16:57	17:37	29	17:15 (T04)	19:15			19:53	20:29			20:59	56	20:29 (T01)
10	07:53	07:27		16:44 (T04)	07:41			06:45	05:59			05:35		19:33 (T01)
	16:58	17:39	32	17:16 (T04)	19:16			19:54	20:30			21:00	57	20:30 (T01)
11	07:52	07:26		16:44 (T04)	07:39			06:43	05:58			05:35		19:33 (T01)
	16:59	17:40	34	17:18 (T04)	19:17			19:55	20:31			21:00	57	20:30 (T01)
12	07:52	07:24		16:42 (T04)	07:37			06:41	05:56			05:35		19:33 (T01)
	17:00	17:42	37	17:19 (T04)	19:19			19:57	20:33			21:01	58	20:31 (T01)
13	07:52	07:23		16:42 (T04)	07:35			06:40	05:55			05:35		19:33 (T01)
	17:02	17:43	39	17:21 (T04)	19:20			19:58	20:34			21:01	58	20:31 (T01)
14	07:51	07:21		16:41 (T04)	07:34			06:38	05:54			05:35		19:33 (T01)
	17:03	17:44	41	17:22 (T04)	19:21			19:59	20:35			21:02	58	20:31 (T01)
15	07:51	07:20		16:40 (T04)	07:32			06:36	05:53			05:35		19:33 (T01)
	17:04	17:46	42	17:22 (T04)	19:22			20:00	20:36			21:02	59	20:32 (T01)
16	07:50	07:19		16:40 (T04)	07:30			06:35	05:52			05:35		19:33 (T01)
	17:05	17:47	43	17:23 (T04)	19:24			20:02	20:37			21:03	59	20:32 (T01)
17	07:50	07:17		16:39 (T04)	07:28			06:33	05:51			05:35		19:34 (T01)
	17:06	17:48	44	17:23 (T04)	19:25			20:03	20:38			21:03	58	20:32 (T01)
18	07:49	07:16		16:39 (T04)	07:26			06:31	05:50		19:52 (T01)	05:35		19:34 (T01)
	17:08	17:50	45	17:24 (T04)	19:26			20:04	20:39	13	20:05 (T01)	21:04	59	20:33 (T01)
19	07:49	07:14		16:39 (T04)	07:25			06:30	05:49		19:48 (T01)	05:35		19:34 (T01)
	17:09	17:51	44	17:23 (T04)	19:27			20:05	20:40	20	20:08 (T01)	21:04	59	20:33 (T01)
20	07:48	07:13		16:38 (T04)	07:23			06:28	05:48		19:46 (T01)	05:35		19:34 (T01)
	17:10	17:52	45	17:23 (T04)	19:29			20:06	20:41	25	20:11 (T01)	21:04	59	20:33 (T01)
21	07:47	07:11		16:38 (T04)	07:21			06:26	05:47		19:44 (T01)	05:35		19:34 (T01)
	17:12	17:54	46	17:24 (T04)	19:30			20:08	20:42	29	20:13 (T01)	21:04	59	20:33 (T01)
22	07:47	07:09		16:38 (T04)	07:19			06:25	05:46		19:42 (T01)	05:35		19:35 (T01)
	17:13	17:55	45	17:23 (T04)	19:31			20:09	20:43	32	20:14 (T01)	21:05	59	20:34 (T01)
23	07:46	07:08		16:39 (T04)	07:17			06:23	05:45		19:41 (T01)	05:36		19:35 (T01)
	17:14	17:57	45	17:24 (T04)	19:32			20:10	20:44	36	20:17 (T01)	21:05	59	20:34 (T01)
24	07:45	07:06		16:39 (T04)	07:15			06:21	05:44		19:40 (T01)	05:36		19:35 (T01)
	17:15	17:58	44	17:23 (T04)	19:34			20:11	20:46	38	20:18 (T01)	21:05	59	20:34 (T01)
25	07:44	07:05		16:38 (T04)	07:14			06:20	05:43		19:39 (T01)	05:36		19:36 (T01)
	17:17	17:59	44	17:22 (T04)	19:35			20:12	20:47	40	20:19 (T01)	21:05	58	20:34 (T01)
26	07:43	07:03		16:39 (T04)	07:12			06:18	05:43		19:37 (T01)	05:37		19:36 (T01)
	17:18	18:01	43	17:22 (T04)	19:36			20:14	20:47	42	20:19 (T01)	21:05	58	20:34 (T01)
27	07:43	07:01		16:40 (T04)	07:10			06:17	05:42		19:37 (T01)	05:37		19:35 (T01)
	17:19	18:01	41	17:21 (T04)	19:37			20:15	20:48	44	20:21 (T01)	21:05	59	20:34 (T01)
28	07:42	07:00		16:40 (T04)	07:08			06:15	05:41		19:36 (T01)	05:37		19:36 (T01)
	17:21	18:02	40	17:20 (T04)	19:38			20:16	20:49	46	20:22 (T01)	21:05	59	20:35 (T01)
29	07:41	06:58		16:41 (T04)	07:06			06:14	05:41		19:36 (T01)	05:38		19:36 (T01)
	17:22	18:03	39	17:20 (T04)	19:40			20:17	20:50	47	20:23 (T01)	21:05	58	20:34 (T01)
30	07:40				07:05			06:12	05:40		19:35 (T01)	05:38		19:37 (T01)
	17:24				19:41			20:18	20:51	48	20:23 (T01)	21:05	58	20:35 (T01)
31	07:39				07:03				05:39		19:35 (T01)			
	17:25				19:42				20:52	50	20:25 (T01)			
Potential sun hours	288	303			369			403	457			463		
Total, worst case			938			168				510			1711	
Sun reduction			0.59			0.57				0.62			0.67	
Oper. time red.			1.00			1.00				1.00			1.00	
Wind dir. red.			0.58			0.58				0.70			0.70	
Total reduction			0.34			0.33				0.43			0.46	
Total, real			319			55				218			792	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 23 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1371)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August	September	October			November			December
1	05:39		19:37 (T01)	06:06	06:41	07:15			06:54		16:14 (T04)	07:32
	21:05	57	20:34 (T01)	20:44	19:57	19:02			17:09	33	16:47 (T04)	16:42
2	05:39		19:38 (T01)	06:07	06:42	07:16			06:55		16:14 (T04)	07:33
	21:05	57	20:35 (T01)	20:43	19:55	19:00			17:08	32	16:46 (T04)	16:41
3	05:40		19:38 (T01)	06:08	06:43	07:17			06:57		16:15 (T04)	07:34
	21:05	56	20:34 (T01)	20:42	19:54	18:57			17:07	29	16:44 (T04)	16:41
4	05:40		19:39 (T01)	06:09	06:44	07:19			06:58		16:18 (T04)	07:36
	21:05	56	20:35 (T01)	20:41	19:52	18:55			17:05	25	16:43 (T04)	16:41
5	05:41		19:38 (T01)	06:10	06:45	07:20			06:59		16:19 (T04)	07:37
	21:04	56	20:34 (T01)	20:39	19:50	18:53			17:04	22	16:41 (T04)	16:40
6	05:42		19:39 (T01)	06:11	06:46	07:21			07:00		16:22 (T04)	07:38
	21:04	55	20:34 (T01)	20:38	19:48	18:51			17:03	17	16:39 (T04)	16:40
7	05:42		19:40 (T01)	06:12	06:47	07:22		17:29 (T04)	07:02		16:26 (T04)	07:39
	21:04	54	20:34 (T01)	20:37	19:46	18:50	12	17:41 (T04)	17:01	9	16:35 (T04)	16:40
8	05:43		19:40 (T01)	06:13	06:49	07:23		17:25 (T04)	07:03			07:40
	21:03	53	20:33 (T01)	20:35	19:45	18:48	19	17:44 (T04)	17:00			16:40
9	05:44		19:41 (T01)	06:14	06:50	07:25		17:22 (T04)	07:04			07:41
	21:03	53	20:34 (T01)	20:34	19:43	18:46	25	17:47 (T04)	16:59			16:40
10	05:45		19:42 (T01)	06:16	06:51	07:26		17:20 (T04)	07:06			07:41
	21:03	52	20:34 (T01)	20:33	19:41	18:44	29	17:49 (T04)	16:58			16:40
11	05:45		19:43 (T01)	06:17	06:52	07:27		17:18 (T04)	07:07			07:42
	21:02	50	20:33 (T01)	20:31	19:39	18:43	32	17:50 (T04)	16:57			16:40
12	05:46		19:42 (T01)	06:18	06:53	07:28		17:16 (T04)	07:08			07:43
	21:02	50	20:32 (T01)	20:30	19:37	18:41	34	17:50 (T04)	16:56			16:40
13	05:47		19:43 (T01)	06:19	06:54	07:30		17:15 (T04)	07:10			07:44
	21:01	49	20:32 (T01)	20:28	19:36	18:39	37	17:52 (T04)	16:55			16:40
14	05:48		19:44 (T01)	06:20	06:55	07:31		17:13 (T04)	07:11			07:45
	21:01	48	20:32 (T01)	20:27	19:34	18:37	39	17:52 (T04)	16:54			16:40
15	05:49		19:45 (T01)	06:21	06:57	07:32		17:12 (T04)	07:12			07:46
	21:00	46	20:31 (T01)	20:25	19:32	18:36	41	17:53 (T04)	16:53			16:41
16	05:50		19:46 (T01)	06:22	06:58	07:33		17:12 (T04)	07:14			07:46
	20:59	45	20:31 (T01)	20:24	19:30	18:34	42	17:54 (T04)	16:52			16:41
17	05:50		19:46 (T01)	06:23	06:59	07:35		17:11 (T04)	07:15			07:47
	20:59	43	20:29 (T01)	20:22	19:28	18:32	43	17:54 (T04)	16:51			16:41
18	05:51		19:48 (T01)	06:25	07:00	07:36		17:10 (T04)	07:16			07:48
	20:58	41	20:29 (T01)	20:21	19:26	18:31	44	17:54 (T04)	16:50			16:41
19	05:52		19:49 (T01)	06:26	07:01	07:37		17:10 (T04)	07:18			07:48
	20:57	39	20:28 (T01)	20:19	19:24	18:29	44	17:54 (T04)	16:49			16:42
20	05:53		19:50 (T01)	06:27	07:02	07:38		17:09 (T04)	07:19			07:49
	20:56	37	20:27 (T01)	20:17	19:23	18:27	45	17:54 (T04)	16:48			16:42
21	05:54		19:52 (T01)	06:28	07:03	07:40		17:09 (T04)	07:20			07:50
	20:55	33	20:25 (T01)	20:16	19:21	18:26	45	17:54 (T04)	16:47			16:43
22	05:55		19:53 (T01)	06:29	07:05	07:41		17:09 (T04)	07:21			07:50
	20:55	31	20:24 (T01)	20:14	19:19	18:24	45	17:54 (T04)	16:47			16:43
23	05:56		19:55 (T01)	06:30	07:06	07:42		17:09 (T04)	07:23			07:51
	20:54	27	20:22 (T01)	20:13	19:17	18:23	45	17:54 (T04)	16:46			16:44
24	05:57		19:58 (T01)	06:32	07:07	07:43		17:08 (T04)	07:24			07:51
	20:53	22	20:20 (T01)	20:11	19:15	18:21	45	17:53 (T04)	16:45			16:44
25	05:58		20:01 (T01)	06:33	07:08	07:45		17:09 (T04)	07:25			07:51
	20:52	16	20:17 (T01)	20:09	19:13	18:20	44	17:53 (T04)	16:45			16:45
26	05:59		20:06 (T01)	06:34	07:09	07:46		17:09 (T04)	07:26			07:52
	20:51	6	20:12 (T01)	20:08	19:11	18:18	43	17:52 (T04)	16:44			16:45
27	06:00			06:35	07:10	07:47		17:09 (T04)	07:28			07:52
	20:50			20:06	19:10	18:16	42	17:51 (T04)	16:43			16:46
28	06:01			06:36	07:12	07:49		17:10 (T04)	07:29			07:52
	20:49			20:04	19:08	18:15	41	17:51 (T04)	16:43			16:47
29	06:02			06:37	07:13	07:50		17:10 (T04)	07:30			07:53
	20:48			20:02	19:06	18:14	40	17:50 (T04)	16:42			16:48
30	06:03			06:38	07:14	07:51		17:12 (T04)	07:31			07:53
	20:47			20:01	19:04	18:12	38	17:50 (T04)	16:42			16:48
31	06:04			06:40		07:53		17:12 (T04)				07:53
	20:45			19:59		18:11	36	17:48 (T04)				16:49
Potential sun hours	469			434	377	342			290			278
Total, worst case		1132					950			167		
Sun reduction		0.74					0.51			0.37		
Oper. time red.		1.00					1.00			1.00		
Wind dir. red.		0.70					0.58			0.58		
Total reduction		0.51					0.29			0.21		
Total, real		579					279			36		

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 24 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1372)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April	May	June
1	07:53		14:05 (T11)	07:38		14:40 (T11)	06:56		07:19 (T10)	07:01	06:11	05:39
	16:49	78	15:23 (T11)	17:26	71	17:02 (T12)	18:04	12	07:31 (T10)	19:43	20:20	20:53
2	07:53		14:06 (T11)	07:36		14:42 (T11)	06:55		07:17 (T10)	06:59	06:09	05:38
	16:50	77	15:23 (T11)	17:28	67	17:02 (T12)	18:06	14	07:31 (T10)	19:44	20:21	20:54
3	07:53		14:06 (T11)	07:35		14:46 (T11)	06:53		07:15 (T10)	06:57	06:08	05:38
	16:51	78	15:24 (T11)	17:29	60	17:02 (T12)	18:07	16	07:31 (T10)	19:46	20:22	20:55
4	07:53		14:07 (T11)	07:34		14:53 (T11)	06:51		07:14 (T10)	06:55	06:07	05:37
	16:52	77	15:24 (T11)	17:30	48	17:03 (T12)	18:08	17	07:31 (T10)	19:47	20:23	20:55
5	07:53		14:08 (T11)	07:33		16:25 (T12)	06:50		07:12 (T10)	06:54	06:05	05:37
	16:53	76	15:24 (T11)	17:32	38	17:03 (T12)	18:10	18	07:30 (T10)	19:48	20:24	20:56
6	07:53		14:09 (T11)	07:32		16:25 (T12)	06:48		07:10 (T10)	06:52	06:04	05:36
	16:54	76	15:25 (T11)	17:33	39	17:04 (T12)	18:11	19	07:29 (T10)	19:49	20:25	20:57
7	07:53		14:08 (T11)	07:31		16:25 (T12)	06:46		07:08 (T10)	06:50	06:03	05:36
	16:55	76	15:24 (T11)	17:35	38	17:03 (T12)	18:12	20	07:28 (T10)	19:51	20:27	20:58
8	07:53		14:09 (T11)	07:29		16:25 (T12)	07:44		08:09 (T10)	06:48	06:01	05:36
	16:56	76	15:25 (T11)	17:36	38	17:03 (T12)	18:14	17	08:26 (T10)	19:52	20:28	20:58
9	07:53		14:10 (T11)	07:28		16:26 (T12)	07:43		08:11 (T10)	06:47	06:00	05:35
	16:57	75	15:25 (T11)	17:37	37	17:03 (T12)	19:15	14	08:25 (T10)	19:53	20:29	20:59
10	07:52		14:10 (T11)	07:27		16:26 (T12)	07:41		08:13 (T10)	06:45	05:59	05:35
	16:58	75	15:25 (T11)	17:39	36	17:02 (T12)	19:16	9	08:22 (T10)	19:54	20:30	20:59
11	07:52		14:11 (T11)	07:25		16:27 (T12)	07:39			06:43	05:57	05:35
	16:59	74	15:25 (T11)	17:40	35	17:02 (T12)	19:17			19:55	20:31	21:00
12	07:52		14:13 (T11)	07:24		16:27 (T12)	07:37			06:41	05:56	05:35
	17:00	73	15:26 (T11)	17:41	34	17:01 (T12)	19:19			19:57	20:32	21:01
13	07:51		14:13 (T11)	07:23		16:29 (T12)	07:35			06:40	05:55	05:35
	17:02	72	15:25 (T11)	17:43	31	17:00 (T12)	19:20			19:58	20:34	21:01
14	07:51		14:14 (T11)	07:21		16:30 (T12)	07:34			06:38	05:54	05:35
	17:03	72	15:26 (T11)	17:44	30	17:00 (T12)	19:21			19:59	20:35	21:02
15	07:51		14:14 (T11)	07:20		16:31 (T12)	07:32			06:36	05:53	05:35
	17:04	71	15:25 (T11)	17:46	27	16:58 (T12)	19:22			20:00	20:36	21:02
16	07:50		14:16 (T11)	07:18		16:33 (T12)	07:30			06:35	05:52	05:35
	17:05	70	15:26 (T11)	17:47	24	16:57 (T12)	19:24			20:01	20:37	21:03
17	07:50		14:16 (T11)	07:17		16:35 (T12)	07:28			06:33	05:51	05:35
	17:06	69	15:25 (T11)	17:48	19	16:54 (T12)	19:25			20:03	20:38	21:03
18	07:49		14:17 (T11)	07:15		16:37 (T12)	07:26			06:31	05:50	05:35
	17:08	76	16:43 (T12)	17:50	14	16:51 (T12)	19:26			20:04	20:39	21:03
19	07:49		14:19 (T11)	07:14			07:25			06:29	05:49	05:35
	17:09	78	16:45 (T12)	17:51			19:27			20:05	20:40	21:04
20	07:48		14:19 (T11)	07:12			07:23			06:28	05:48	05:35
	17:10	80	16:46 (T12)	17:52			19:29			20:06	20:41	21:04
21	07:47		14:20 (T11)	07:11			07:21			06:26	05:47	05:35
	17:11	81	16:47 (T12)	17:54			19:30			20:07	20:42	21:04
22	07:47		14:21 (T11)	07:09			07:19			06:25	05:46	05:35
	17:13	82	16:48 (T12)	17:55			19:31			20:09	20:43	21:05
23	07:46		14:23 (T11)	07:08			07:17			06:23	05:45	05:36
	17:14	82	16:50 (T12)	17:56			19:32			20:10	20:44	21:05
24	07:45		14:24 (T11)	07:06			07:15			06:21	05:44	05:36
	17:15	83	16:52 (T12)	17:58			19:34			20:11	20:45	21:05
25	07:44		14:26 (T11)	07:05			07:14			06:20	05:43	05:36
	17:17	83	16:53 (T12)	17:59			19:35			20:12	20:46	21:05
26	07:43		14:27 (T11)	07:03		07:26 (T10)	07:12			06:18	05:43	05:37
	17:18	82	16:54 (T12)	18:00	2	07:28 (T10)	19:36			20:14	20:47	21:05
27	07:42		14:29 (T11)	07:01		07:24 (T10)	07:10			06:17	05:42	05:37
	17:19	82	16:56 (T12)	18:00	5	07:29 (T10)	19:37			20:15	20:48	21:05
28	07:42		14:30 (T11)	07:00		07:22 (T10)	07:08			06:15	05:41	05:37
	17:21	81	16:57 (T12)	18:02	8	07:30 (T10)	19:38			20:16	20:49	21:05
29	07:41		14:32 (T11)	06:58		07:20 (T10)	07:06			06:14	05:40	05:38
	17:22	81	16:59 (T12)	18:03	10	07:30 (T10)	19:40			20:17	20:50	21:05
30	07:40		14:34 (T11)				07:05			06:12	05:40	05:38
	17:24	79	17:00 (T12)				19:41			20:18	20:51	21:05
31	07:39		14:37 (T11)				07:03				05:39	
	17:25	76	17:02 (T12)				19:42				20:52	
Potential sun hours	288			303			369			403	457	463
Total, worst case		2391			711			156				
Sun reduction		0.53			0.59			0.57				
Oper. time red.		1.00			1.00			1.00				
Wind dir. red.		0.55			0.57			0.67				
Total reduction		0.29			0.33			0.38				
Total, real		695			237			59				

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 24 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1372)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July		August		September		October			November			December		
1	05:39		06:06		06:41		07:15			06:54		15:56 (T12)	07:32		13:55 (T11)
	21:05		20:44		19:57		19:02			17:09	35	16:31 (T12)	16:42	73	15:08 (T11)
2	05:39		06:07		06:42		07:16			06:55		15:56 (T12)	07:33		13:54 (T11)
	21:05		20:43		19:55		19:00			17:08	36	16:32 (T12)	16:41	74	15:08 (T11)
3	05:40		06:08		06:43		07:17		07:54 (T10)	06:56		15:55 (T12)	07:34		13:54 (T11)
	21:05		20:42		19:54		18:57	3	07:57 (T10)	17:07	37	16:32 (T12)	16:41	75	15:09 (T11)
4	05:40		06:09		06:44		07:19		07:49 (T10)	06:58		15:55 (T12)	07:35		13:54 (T11)
	21:05		20:40		19:52		18:55	12	08:01 (T10)	17:05	38	16:33 (T12)	16:41	75	15:09 (T11)
5	05:41		06:10		06:45		07:20		07:46 (T10)	06:59		15:55 (T12)	07:36		13:54 (T11)
	21:04		20:39		19:50		18:53	16	08:02 (T10)	17:04	38	16:33 (T12)	16:40	76	15:10 (T11)
6	05:42		06:11		06:46		07:21		07:45 (T10)	07:00		15:55 (T12)	07:38		13:55 (T11)
	21:04		20:38		19:48		18:51	19	08:04 (T10)	17:03	38	16:33 (T12)	16:40	75	15:10 (T11)
7	05:42		06:12		06:47		07:22		07:45 (T10)	07:02		15:55 (T12)	07:39		13:55 (T11)
	21:04		20:37		19:46		18:50	20	08:05 (T10)	17:01	38	16:33 (T12)	16:40	76	15:11 (T11)
8	05:43		06:13		06:49		07:23		07:46 (T10)	07:03		14:23 (T11)	07:40		13:55 (T11)
	21:03		20:35		19:45		18:48	19	08:05 (T10)	17:00	50	16:34 (T12)	16:40	76	15:11 (T11)
9	05:44		06:14		06:50		07:25		07:47 (T10)	07:04		14:17 (T11)	07:40		13:55 (T11)
	21:03		20:34		19:43		18:46	18	08:05 (T10)	16:59	60	16:33 (T12)	16:40	77	15:12 (T11)
10	05:45		06:15		06:51		07:26		07:49 (T10)	07:06		14:13 (T11)	07:41		13:56 (T11)
	21:03		20:32		19:41		18:44	16	08:05 (T10)	16:58	67	16:33 (T12)	16:40	77	15:13 (T11)
11	05:45		06:17		06:52		07:27		07:50 (T10)	07:07		14:10 (T11)	07:42		13:56 (T11)
	21:02		20:31		19:39		18:42	15	08:05 (T10)	16:57	72	16:33 (T12)	16:40	77	15:13 (T11)
12	05:46		06:18		06:53		07:28		07:51 (T10)	07:08		14:08 (T11)	07:43		13:56 (T11)
	21:02		20:30		19:37		18:41	13	08:04 (T10)	16:56	76	16:33 (T12)	16:40	78	15:14 (T11)
13	05:47		06:19		06:54		07:29		07:53 (T10)	07:10		14:06 (T11)	07:44		13:57 (T11)
	21:01		20:28		19:35		18:39	11	08:04 (T10)	16:55	79	16:32 (T12)	16:40	78	15:15 (T11)
14	05:48		06:20		06:55		07:31		07:54 (T10)	07:11		14:04 (T11)	07:45		13:57 (T11)
	21:00		20:27		19:34		18:37	9	08:03 (T10)	16:54	81	16:31 (T12)	16:40	78	15:15 (T11)
15	05:49		06:21		06:57		07:32		07:55 (T10)	07:12		14:03 (T11)	07:46		13:57 (T11)
	21:00		20:25		19:32		18:36	7	08:02 (T10)	16:53	81	16:30 (T12)	16:41	78	15:15 (T11)
16	05:49		06:22		06:58		07:33		07:56 (T10)	07:14		14:02 (T11)	07:46		13:58 (T11)
	20:59		20:24		19:30		18:34	4	08:00 (T10)	16:52	82	16:29 (T12)	16:41	78	15:16 (T11)
17	05:50		06:23		06:59		07:34		07:58 (T10)	07:15		14:00 (T11)	07:47		13:58 (T11)
	20:58		20:22		19:28		18:32	1	07:59 (T10)	16:51	82	16:27 (T12)	16:41	79	15:17 (T11)
18	05:51		06:25		07:00		07:36			07:16		14:00 (T11)	07:48		13:58 (T11)
	20:58		20:21		19:26		18:31			16:50	83	16:27 (T12)	16:41	79	15:17 (T11)
19	05:52		06:26		07:01		07:37			07:18		13:58 (T11)	07:48		13:59 (T11)
	20:57		20:19		19:24		18:29			16:49	83	16:26 (T12)	16:42	78	15:17 (T11)
20	05:53		06:27		07:02		07:38			07:19		13:58 (T11)	07:49		14:00 (T11)
	20:56		20:17		19:22		18:27			16:48	82	16:25 (T12)	16:42	78	15:18 (T11)
21	05:54		06:28		07:03		07:40			07:20		13:57 (T11)	07:49		14:00 (T11)
	20:55		20:16		19:21		18:26			16:47	82	16:24 (T12)	16:43	78	15:18 (T11)
22	05:55		06:29		07:05		07:41			07:21		13:56 (T11)	07:50		14:01 (T11)
	20:54		20:14		19:19		18:24			16:47	81	16:23 (T12)	16:43	78	15:19 (T11)
23	05:56		06:30		07:06		07:42			07:23		13:56 (T11)	07:50		14:01 (T11)
	20:54		20:12		19:17		18:23			16:46	81	16:23 (T12)	16:44	78	15:19 (T11)
24	05:57		06:31		07:07		07:43		17:10 (T12)	07:24		13:56 (T11)	07:51		14:01 (T11)
	20:53		20:11		19:15		18:21	8	17:18 (T12)	16:45	78	16:22 (T12)	16:44	78	15:19 (T11)
25	05:58		06:33		07:08		07:45		17:07 (T12)	07:25		13:55 (T11)	07:51		14:02 (T11)
	20:52		20:09		19:13		18:19	16	17:23 (T12)	16:45	76	16:21 (T12)	16:45	79	15:21 (T11)
26	05:59		06:34		07:09		07:46		17:04 (T12)	07:26		13:55 (T11)	07:52		14:02 (T11)
	20:51		20:07		19:11		18:18	21	17:25 (T12)	16:44	69	15:04 (T11)	16:45	79	15:21 (T11)
27	06:00		06:35		07:10		07:47		17:01 (T12)	07:28		13:55 (T11)	07:52		14:03 (T11)
	20:50		20:06		19:10		18:16	25	17:26 (T12)	16:43	70	15:05 (T11)	16:46	78	15:21 (T11)
28	06:01		06:36		07:11		07:49		17:00 (T12)	07:29		13:54 (T11)	07:52		14:03 (T11)
	20:49		20:04		19:08		18:15	28	17:28 (T12)	16:43	71	15:05 (T11)	16:47	78	15:21 (T11)
29	06:02		06:37		07:13		07:50		16:59 (T12)	07:30		13:54 (T11)	07:53		14:04 (T11)
	20:48		20:02		19:06		18:13	30	17:29 (T12)	16:42	72	15:06 (T11)	16:48	78	15:22 (T11)
30	06:03		06:38		07:14		07:51		16:58 (T12)	07:31		13:54 (T11)	07:53		14:05 (T11)
	20:46		20:01		19:04		18:12	32	17:30 (T12)	16:42	72	15:06 (T11)	16:48	78	15:23 (T11)
31	06:04		06:39				07:52		16:57 (T12)				07:53		14:05 (T11)
	20:45		19:59				18:11	34	17:31 (T12)				16:49	78	15:23 (T11)
Potential sun hours	469		434		377		342			290			278		
Total, worst case								377			1990			2395	
Sun reduction								0.51			0.37			0.38	
Oper. time red.								1.00			1.00			1.00	
Wind dir. red.								0.62			0.55			0.55	
Total reduction								0.31			0.20			0.21	
Total, real								118			407			497	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 26 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1374)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March	April			May			June		
1	07:53		09:41 (T10)	07:37		10:12 (T10)	06:56	07:01			06:11		06:44 (T08)	05:39		06:04 (T05)
	16:49	88	11:09 (T10)	17:26	41	10:53 (T10)	18:04	19:43			20:19	35	07:19 (T08)	20:53	17	06:21 (T05)
2	07:53		09:42 (T10)	07:36		10:14 (T10)	06:55	06:59			06:09		06:44 (T08)	05:38		06:03 (T05)
	16:50	87	11:09 (T10)	17:28	36	10:50 (T10)	18:06	19:44			20:21	33	07:17 (T08)	20:54	18	06:21 (T05)
3	07:53		09:42 (T10)	07:35		10:17 (T10)	06:53	06:57			06:08		06:45 (T08)	05:38		06:03 (T05)
	16:51	88	11:10 (T10)	17:29	29	10:46 (T10)	18:07	19:46			20:22	32	07:17 (T08)	20:54	19	06:22 (T05)
4	07:53		09:43 (T10)	07:34		10:22 (T10)	06:51	06:55			06:07		06:46 (T08)	05:37		06:03 (T05)
	16:52	87	11:10 (T10)	17:30	20	10:42 (T10)	18:08	19:47			20:23	30	07:16 (T08)	20:55	19	06:22 (T05)
5	07:53		09:44 (T10)	07:33			06:49	06:54			06:05		06:47 (T08)	05:37		06:02 (T05)
	16:53	86	11:10 (T10)	17:32			18:10	19:48			20:24	27	07:14 (T08)	20:56	20	06:22 (T05)
6	07:53		09:44 (T10)	07:32			06:48	06:52			06:04		06:48 (T08)	05:36		06:02 (T05)
	16:54	86	11:10 (T10)	17:33			18:11	19:49			20:25	25	07:13 (T08)	20:57	21	06:23 (T05)
7	07:53		09:44 (T10)	07:31			06:46	06:50			06:02		06:50 (T08)	05:36		06:02 (T05)
	16:55	86	11:10 (T10)	17:35			18:12	19:50			20:27	22	07:12 (T08)	20:57	21	06:23 (T05)
8	07:53		09:45 (T10)	07:29			07:44	06:48			06:01		06:50 (T08)	05:36		06:01 (T05)
	16:56	85	11:10 (T10)	17:36			18:13	19:52			20:28	19	07:09 (T08)	20:58	22	06:23 (T05)
9	07:53		09:46 (T10)	07:28			07:42	06:47			06:00		06:53 (T08)	05:35		06:01 (T05)
	16:57	85	11:11 (T10)	17:37			19:15	19:53			20:29	14	07:07 (T08)	20:59	22	06:23 (T05)
10	07:52		09:46 (T10)	07:27			07:41	06:45			05:59		06:57 (T08)	05:35		06:01 (T05)
	16:58	84	11:10 (T10)	17:39			19:16	19:54			20:30	7	07:04 (T08)	20:59	23	06:24 (T05)
11	07:52		09:47 (T10)	07:25			07:39	06:43			05:57			05:35		06:01 (T05)
	16:59	83	11:10 (T10)	17:40			19:17	19:55			20:31			21:00	23	06:24 (T05)
12	07:52		09:48 (T10)	07:24			07:37	06:41		07:03 (T08)	05:56			05:35		06:01 (T05)
	17:00	83	11:11 (T10)	17:41			19:19	19:57	9	07:12 (T08)	20:32			21:01	23	06:24 (T05)
13	07:51		09:49 (T10)	07:23			07:35	06:40		07:01 (T08)	05:55			05:35		06:01 (T05)
	17:02	81	11:10 (T10)	17:43			19:20	19:58	14	07:15 (T08)	20:34			21:01	24	06:25 (T05)
14	07:51		09:50 (T10)	07:21			07:34	06:38		07:00 (T08)	05:54			05:35		06:01 (T05)
	17:03	81	11:11 (T10)	17:44			19:21	19:59	17	07:17 (T08)	20:35			21:02	24	06:25 (T05)
15	07:51		09:50 (T10)	07:20			07:32	06:36		06:58 (T08)	05:53			05:35		06:01 (T05)
	17:04	80	11:10 (T10)	17:46			19:22	20:00	20	07:18 (T08)	20:36			21:02	24	06:25 (T05)
16	07:50		09:51 (T10)	07:18			07:30	06:34		06:56 (T08)	05:52			05:35		06:01 (T05)
	17:05	79	11:10 (T10)	17:47			19:24	20:01	23	07:19 (T08)	20:37			21:03	24	06:25 (T05)
17	07:50		09:52 (T10)	07:17			07:28	06:33		06:55 (T08)	05:51			05:35		06:01 (T05)
	17:06	78	11:10 (T10)	17:48			19:25	20:03	25	07:20 (T08)	20:38			21:03	24	06:25 (T05)
18	07:49		09:52 (T10)	07:15			07:26	06:31		06:53 (T08)	05:50			05:35		06:01 (T05)
	17:08	77	11:09 (T10)	17:50			19:26	20:04	28	07:21 (T08)	20:39			21:03	25	06:26 (T05)
19	07:48		09:54 (T10)	07:14			07:24	06:29		06:52 (T08)	05:49			05:35		06:01 (T05)
	17:09	75	11:09 (T10)	17:51			19:27	20:05	30	07:22 (T08)	20:40			21:04	25	06:26 (T05)
20	07:48		09:55 (T10)	07:12			07:23	06:28		06:50 (T08)	05:48			05:35		06:01 (T05)
	17:10	73	11:08 (T10)	17:52			19:29	20:06	31	07:21 (T08)	20:41			21:04	25	06:26 (T05)
21	07:47		09:55 (T10)	07:11			07:21	06:26		06:48 (T08)	05:47			05:35		06:01 (T05)
	17:11	73	11:08 (T10)	17:54			19:30	20:07	33	07:21 (T08)	20:42			21:04	25	06:26 (T05)
22	07:46		09:56 (T10)	07:09			07:19	06:25		06:47 (T08)	05:46		06:10 (T05)	05:35		06:02 (T05)
	17:13	71	11:07 (T10)	17:55			19:31	20:09	35	07:22 (T08)	20:43	3	06:13 (T05)	21:05	25	06:27 (T05)
23	07:46		09:58 (T10)	07:08			07:17	06:23		06:45 (T08)	05:45		06:10 (T05)	05:36		06:02 (T05)
	17:14	69	11:07 (T10)	17:56			19:32	20:10	36	07:21 (T08)	20:44	5	06:15 (T05)	21:05	25	06:27 (T05)
24	07:45		09:59 (T10)	07:06			07:15	06:21		06:44 (T08)	05:44		06:09 (T05)	05:36		06:02 (T05)
	17:15	67	11:06 (T10)	17:58			19:33	20:11	38	07:22 (T08)	20:45	7	06:16 (T05)	21:05	25	06:27 (T05)
25	07:44		10:00 (T10)	07:05			07:14	06:20		06:43 (T08)	05:43		06:08 (T05)	05:36		06:02 (T05)
	17:17	65	11:05 (T10)	17:59			19:35	20:12	38	07:21 (T08)	20:46	9	06:17 (T05)	21:05	25	06:27 (T05)
26	07:43		10:01 (T10)	07:03			07:12	06:18		06:43 (T08)	05:43		06:07 (T05)	05:36		06:03 (T05)
	17:18	63	11:04 (T10)	18:00			19:36	20:13	38	07:21 (T08)	20:47	10	06:17 (T05)	21:05	24	06:27 (T05)
27	07:42		10:03 (T10)	07:01			07:10	06:17		06:43 (T08)	05:42		06:07 (T05)	05:37		06:03 (T05)
	17:19	59	11:02 (T10)	18:00			19:37	20:15	37	07:20 (T08)	20:48	12	06:19 (T05)	21:05	24	06:27 (T05)
28	07:41		10:04 (T10)	07:00			07:08	06:15		06:43 (T08)	05:41		06:06 (T05)	05:37		06:04 (T05)
	17:21	57	11:01 (T10)	18:02			19:38	20:16	37	07:20 (T08)	20:49	13	06:19 (T05)	21:05	24	06:28 (T05)
29	07:40		10:06 (T10)	06:58			07:06	06:14		06:43 (T08)	05:40		06:05 (T05)	05:38		06:04 (T05)
	17:22	53	10:59 (T10)	18:03			19:40	20:17	36	07:19 (T08)	20:50	14	06:19 (T05)	21:05	24	06:28 (T05)
30	07:40		10:08 (T10)				07:04	06:12		06:44 (T08)	05:40		06:05 (T05)	05:38		06:05 (T05)
	17:23	50	10:58 (T10)				19:41	20:18	35	07:19 (T08)	20:51	15	06:20 (T05)	21:05	23	06:28 (T05)
31	07:38		10:10 (T10)				07:03				05:39		06:04 (T05)			
	17:25	46	10:56 (T10)				19:42				20:52	16	06:20 (T05)			
Potential sun hours	288			303			369	403			457			463		
Total, worst case		2325			126				560			348			687	
Sun reduction		0.53			0.59				0.56			0.62			0.67	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.71			0.71				0.60			0.59			0.57	
Total reduction		0.38			0.42				0.34			0.37			0.39	
Total, real		887			54				190			129			267	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 26 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1374)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September	October	November			December		
1	05:39		06:05 (T05)	06:05			06:41	07:15	06:54			07:32		09:30 (T10)
	21:05	23	06:28 (T05)	20:44			19:57	19:02	17:09			16:42	83	10:53 (T10)
2	05:39		06:06 (T05)	06:07			06:42	07:16	06:55			07:33		09:30 (T10)
	21:05	23	06:29 (T05)	20:43			19:55	19:00	17:08			16:41	83	10:53 (T10)
3	05:40		06:06 (T05)	06:08		07:05 (T08)	06:43	07:17	06:56			07:34		09:30 (T10)
	21:05	22	06:28 (T05)	20:42	11	07:16 (T08)	19:54	18:57	17:06			16:41	84	10:54 (T10)
4	05:40		06:07 (T05)	06:09		07:02 (T08)	06:44	07:18	06:58			07:35		09:30 (T10)
	21:05	22	06:29 (T05)	20:40	17	07:19 (T08)	19:52	18:55	17:05			16:41	85	10:55 (T10)
5	05:41		06:07 (T05)	06:10		07:00 (T08)	06:45	07:20	06:59			07:36		09:30 (T10)
	21:04	21	06:28 (T05)	20:39	21	07:21 (T08)	19:50	18:53	17:04			16:40	85	10:55 (T10)
6	05:42		06:08 (T05)	06:11		06:59 (T08)	06:46	07:21	07:00			07:37		09:31 (T10)
	21:04	21	06:29 (T05)	20:38	23	07:22 (T08)	19:48	18:51	17:03			16:40	85	10:56 (T10)
7	05:42		06:09 (T05)	06:12		06:57 (T08)	06:47	07:22	07:02			07:38		09:31 (T10)
	21:04	20	06:29 (T05)	20:36	26	07:23 (T08)	19:46	18:49	17:01			16:40	86	10:57 (T10)
8	05:43		06:09 (T05)	06:13		06:56 (T08)	06:48	07:23	07:03		09:52 (T10)	07:39		09:31 (T10)
	21:03	20	06:29 (T05)	20:35	28	07:24 (T08)	19:45	18:48	17:00	20	10:12 (T10)	16:40	86	10:57 (T10)
9	05:44		06:10 (T05)	06:14		06:55 (T08)	06:50	07:24	07:04		09:48 (T10)	07:40		09:31 (T10)
	21:03	19	06:29 (T05)	20:34	30	07:25 (T08)	19:43	18:46	16:59	30	10:18 (T10)	16:40	87	10:58 (T10)
10	05:44		06:11 (T05)	06:15		06:54 (T08)	06:51	07:26	07:06		09:45 (T10)	07:41		09:32 (T10)
	21:02	18	06:29 (T05)	20:32	32	07:26 (T08)	19:41	18:44	16:58	36	10:21 (T10)	16:40	87	10:59 (T10)
11	05:45		06:11 (T05)	06:17		06:53 (T08)	06:52	07:27	07:07		09:43 (T10)	07:42		09:32 (T10)
	21:02	17	06:28 (T05)	20:31	33	07:26 (T08)	19:39	18:42	16:57	42	10:25 (T10)	16:40	87	10:59 (T10)
12	05:46		06:12 (T05)	06:18		06:52 (T08)	06:53	07:28	07:08		09:41 (T10)	07:43		09:32 (T10)
	21:01	17	06:29 (T05)	20:30	35	07:27 (T08)	19:37	18:41	16:56	46	10:27 (T10)	16:40	88	11:00 (T10)
13	05:47		06:13 (T05)	06:19		06:51 (T08)	06:54	07:29	07:10		09:39 (T10)	07:44		09:33 (T10)
	21:01	16	06:29 (T05)	20:28	36	07:27 (T08)	19:35	18:39	16:55	51	10:30 (T10)	16:40	88	11:01 (T10)
14	05:48		06:14 (T05)	06:20		06:50 (T08)	06:55	07:31	07:11		09:38 (T10)	07:45		09:34 (T10)
	21:00	15	06:29 (T05)	20:27	37	07:27 (T08)	19:34	18:37	16:54	54	10:32 (T10)	16:40	88	11:02 (T10)
15	05:49		06:15 (T05)	06:21		06:51 (T08)	06:56	07:32	07:12		09:36 (T10)	07:45		09:33 (T10)
	21:00	13	06:28 (T05)	20:25	37	07:28 (T08)	19:32	18:36	16:53	57	10:33 (T10)	16:40	88	11:01 (T10)
16	05:49		06:15 (T05)	06:22		06:50 (T08)	06:58	07:33	07:14		09:36 (T10)	07:46		09:34 (T10)
	20:59	12	06:27 (T05)	20:24	38	07:28 (T08)	19:30	18:34	16:52	59	10:35 (T10)	16:41	88	11:02 (T10)
17	05:50		06:16 (T05)	06:23		06:50 (T08)	06:59	07:34	07:15		09:34 (T10)	07:47		09:35 (T10)
	20:58	11	06:27 (T05)	20:22	38	07:28 (T08)	19:28	18:32	16:51	63	10:37 (T10)	16:41	88	11:03 (T10)
18	05:51		06:17 (T05)	06:25		06:49 (T08)	07:00	07:36	07:16		09:34 (T10)	07:48		09:34 (T10)
	20:58	9	06:26 (T05)	20:20	39	07:28 (T08)	19:26	18:31	16:50	65	10:39 (T10)	16:41	89	11:03 (T10)
19	05:52		06:18 (T05)	06:26		06:50 (T08)	07:01	07:37	07:17		09:33 (T10)	07:48		09:35 (T10)
	20:57	8	06:26 (T05)	20:19	38	07:28 (T08)	19:24	18:29	16:49	67	10:40 (T10)	16:42	89	11:04 (T10)
20	05:53		06:19 (T05)	06:27		06:51 (T08)	07:02	07:38	07:19		09:32 (T10)	07:49		09:35 (T10)
	20:56	6	06:25 (T05)	20:17	36	07:27 (T08)	19:22	18:27	16:48	69	10:41 (T10)	16:42	89	11:04 (T10)
21	05:54		06:20 (T05)	06:28		06:52 (T08)	07:03	07:39	07:20		09:32 (T10)	07:49		09:36 (T10)
	20:55	4	06:24 (T05)	20:16	35	07:27 (T08)	19:21	18:26	16:47	71	10:43 (T10)	16:43	89	11:05 (T10)
22	05:55		06:21 (T05)	06:29		06:53 (T08)	07:04	07:41	07:21		09:31 (T10)	07:50		09:36 (T10)
	20:54	2	06:23 (T05)	20:14	33	07:26 (T08)	19:19	18:24	16:47	73	10:44 (T10)	16:43	89	11:05 (T10)
23	05:56			06:30		06:54 (T08)	07:06	07:42	07:23		09:32 (T10)	07:50		09:37 (T10)
	20:54			20:12	31	07:25 (T08)	19:17	18:22	16:46	73	10:45 (T10)	16:44	89	11:06 (T10)
24	05:57			06:31		06:55 (T08)	07:07	07:43	07:24		09:31 (T10)	07:51		09:37 (T10)
	20:53			20:11	29	07:24 (T08)	19:15	18:21	16:45	75	10:46 (T10)	16:44	89	11:06 (T10)
25	05:58			06:33		06:56 (T08)	07:08	07:45	07:25		09:30 (T10)	07:51		09:38 (T10)
	20:52			20:09	27	07:23 (T08)	19:13	18:19	16:45	77	10:47 (T10)	16:45	89	11:07 (T10)
26	05:59			06:34		06:57 (T08)	07:09	07:46	07:26		09:30 (T10)	07:52		09:38 (T10)
	20:51			20:07	25	07:22 (T08)	19:11	18:18	16:44	78	10:48 (T10)	16:45	89	11:07 (T10)
27	06:00			06:35		06:59 (T08)	07:10	07:47	07:27		09:31 (T10)	07:52		09:39 (T10)
	20:50			20:06	23	07:22 (T08)	19:09	18:16	16:43	78	10:49 (T10)	16:46	88	11:07 (T10)
28	06:01			06:36		07:00 (T08)	07:11	07:48	07:29		09:30 (T10)	07:52		09:39 (T10)
	20:49			20:04	20	07:20 (T08)	19:08	18:15	16:43	80	10:50 (T10)	16:47	88	11:07 (T10)
29	06:02			06:37		07:01 (T08)	07:13	07:50	07:30		09:30 (T10)	07:52		09:40 (T10)
	20:47			20:02	17	07:18 (T08)	19:06	18:13	16:42	81	10:51 (T10)	16:47	89	11:09 (T10)
30	06:03			06:38		07:02 (T08)	07:14	07:51	07:31		09:30 (T10)	07:53		09:41 (T10)
	20:46			20:01	13	07:15 (T08)	19:04	18:12	16:42	81	10:51 (T10)	16:48	88	11:09 (T10)
31	06:04			06:39		07:03 (T08)		07:52				07:53		09:41 (T10)
	20:45			19:59	9	07:12 (T08)		18:11				16:49	88	11:09 (T10)
Potential sun hours	469			434			377	342	290			278		
Total, worst case		339			817					1426			2708	
Sun reduction		0.74			0.69					0.37			0.38	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.57			0.60					0.71			0.71	
Total reduction		0.43			0.42					0.27			0.27	
Total, real		146			342					380			741	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 29 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1377)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January		February		March		April			May			June	
1	07:53		07:37		06:56		17:40 (T08)	07:01			06:11		19:15 (T05)	05:38
	16:49		17:26		18:04	5	17:45 (T08)	19:43			20:19	43	19:58 (T05)	20:53
2	07:53		07:36		06:54		17:35 (T08)	06:59			06:09		19:15 (T05)	05:38
	16:50		17:27		18:06	11	17:46 (T08)	19:44			20:21	43	19:58 (T05)	20:54
3	07:53		07:35		06:53		17:32 (T08)	06:57			06:08		19:15 (T05)	05:37
	16:51		17:29		18:07	15	17:47 (T08)	19:46			20:22	44	19:59 (T05)	20:54
4	07:53		07:34		06:51		17:30 (T08)	06:55			06:06		19:14 (T05)	05:37
	16:52		17:30		18:08	18	17:48 (T08)	19:47			20:23	44	19:58 (T05)	20:55
5	07:53		07:33		06:49		17:29 (T08)	06:54		07:15 (T07)	06:05		19:15 (T05)	05:37
	16:53		17:32		18:09	21	17:50 (T08)	19:48	5	07:20 (T07)	20:24	43	19:58 (T05)	20:56
6	07:53		07:32		06:48		17:28 (T08)	06:52		07:13 (T07)	06:04		19:15 (T05)	05:36
	16:54		17:33		18:11	24	17:52 (T08)	19:49	10	07:23 (T07)	20:25	43	19:58 (T05)	20:57
7	07:53		07:30		06:46		17:26 (T08)	06:50		07:12 (T07)	06:02		19:15 (T05)	05:36
	16:55		17:34		18:12	27	17:53 (T08)	19:50	13	07:25 (T07)	20:27	43	19:58 (T05)	20:57
8	07:53		07:29		07:44		18:25 (T08)	06:48		07:10 (T07)	06:01		19:15 (T05)	05:36
	16:56		17:36		18:13	29	18:54 (T08)	19:52	16	07:26 (T07)	20:28	42	19:57 (T05)	20:58
9	07:52		07:28		07:42		18:24 (T08)	06:46		07:08 (T07)	06:00		19:15 (T05)	05:35
	16:57		17:37		19:15	31	18:55 (T08)	19:53	19	07:27 (T07)	20:29	42	19:57 (T05)	20:59
10	07:52		07:27		07:41		18:25 (T08)	06:45		07:06 (T07)	05:59		19:15 (T05)	05:35
	16:58		17:39		19:16	32	18:57 (T08)	19:54	21	07:27 (T07)	20:30	42	19:57 (T05)	20:59
11	07:52		07:25		07:39		18:24 (T08)	06:43		07:05 (T07)	05:57		19:16 (T05)	05:35
	16:59		17:40		19:17	34	18:58 (T08)	19:55	23	07:28 (T07)	20:31	41	19:57 (T05)	21:00
12	07:52		07:24		07:37		18:23 (T08)	06:41		07:03 (T07)	05:56		19:16 (T05)	05:35
	17:00		17:41		19:18	35	18:58 (T08)	19:56	25	07:28 (T07)	20:32	40	19:56 (T05)	21:01
13	07:51		07:23		07:35		18:23 (T08)	06:39		07:01 (T07)	05:55		19:17 (T05)	05:35
	17:01		17:43		19:20	34	18:57 (T08)	19:58	27	07:28 (T07)	20:33	39	19:56 (T05)	21:01
14	07:51		07:21		07:33		18:23 (T08)	06:38		07:00 (T07)	05:54		19:18 (T05)	05:35
	17:03		17:44		19:21	33	18:56 (T08)	19:59	28	07:28 (T07)	20:35	37	19:55 (T05)	21:02
15	07:50		07:20		07:32		18:24 (T08)	06:36		06:58 (T07)	05:53		19:18 (T05)	05:34
	17:04		17:45		19:22	32	18:56 (T08)	20:00	30	07:28 (T07)	20:36	37	19:55 (T05)	21:02
16	07:50		07:18		07:30		18:24 (T08)	06:34		06:56 (T07)	05:52		19:19 (T05)	05:34
	17:05		17:47		19:23	31	18:55 (T08)	20:01	31	07:27 (T07)	20:37	35	19:54 (T05)	21:02
17	07:49		07:17		07:28		18:25 (T08)	06:33		06:57 (T07)	05:51		19:20 (T05)	05:34
	17:06		17:48		19:25	29	18:54 (T08)	20:02	30	07:27 (T07)	20:38	34	19:54 (T05)	21:03
18	07:49		07:15		07:26		18:25 (T08)	06:31		06:56 (T07)	05:50		19:21 (T05)	05:35
	17:07		17:50		19:26	28	18:53 (T08)	20:04	34	19:41 (T05)	20:39	32	19:53 (T05)	21:03
19	07:48		07:14		07:24		18:26 (T08)	06:29		06:56 (T07)	05:49		19:22 (T05)	05:35
	17:09		17:51		19:27	25	18:51 (T08)	20:05	43	19:44 (T05)	20:40	30	19:52 (T05)	21:04
20	07:48		07:12		07:23		18:27 (T08)	06:28		06:57 (T07)	05:48		19:22 (T05)	05:35
	17:10		17:52		19:28	22	18:49 (T08)	20:06	46	19:46 (T05)	20:41	29	19:51 (T05)	21:04
21	07:47		07:11		07:21		18:30 (T08)	06:26		06:57 (T07)	05:47		19:23 (T05)	05:35
	17:11		17:54		19:30	17	18:47 (T08)	20:07	48	19:47 (T05)	20:42	27	19:50 (T05)	21:04
22	07:46		07:09		07:19		18:33 (T08)	06:24		06:59 (T07)	05:46		19:24 (T05)	05:35
	17:13		17:55		19:31	10	18:43 (T08)	20:09	48	19:48 (T05)	20:43	24	19:48 (T05)	21:04
23	07:46		07:08		07:17			06:23		06:59 (T07)	05:45		19:26 (T05)	05:35
	17:14		17:56		19:32			20:10	49	19:49 (T05)	20:44	21	19:47 (T05)	21:05
24	07:45		07:06		07:15			06:21		07:01 (T07)	05:44		19:28 (T05)	05:36
	17:15		17:58		19:33			20:11	48	19:51 (T05)	20:45	18	19:46 (T05)	21:05
25	07:44		07:04		07:13			06:20		07:03 (T07)	05:43		19:30 (T05)	05:36
	17:17		17:59		19:35			20:12	46	19:51 (T05)	20:46	14	19:44 (T05)	21:05
26	07:43		07:03		07:12			06:18		07:07 (T07)	05:42		19:32 (T05)	05:36
	17:18		18:00		19:36			20:13	40	19:53 (T05)	20:47	10	19:42 (T05)	21:05
27	07:42		07:01		07:10			06:17		19:17 (T05)	05:42			05:37
	17:19		18:00		19:37			20:15	36	19:53 (T05)	20:48			21:05
28	07:41		07:00		07:08			06:15		19:17 (T05)	05:41			05:37
	17:21		18:02		19:38			20:16	38	19:55 (T05)	20:49			21:05
29	07:40		06:58		07:06			06:14		19:16 (T05)	05:40			05:38
	17:22		18:03		19:39			20:17	40	19:56 (T05)	20:50			21:05
30	07:39				07:04			06:12		19:16 (T05)	05:40			05:38
	17:23				19:41			20:18	41	19:57 (T05)	20:51			21:05
31	07:38				07:03						05:39			
	17:25				19:42						20:52			
Potential sun hours	288		303		369			403			457			463
Total, worst case						543			835			897		
Sun reduction						0.57			0.56			0.62		
Oper. time red.						1.00			1.00			1.00		
Wind dir. red.						0.60			0.64			0.68		
Total reduction						0.34			0.36			0.42		
Total, real						185			298			374		

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 29 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1377)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September			October			November	December
1	05:39			06:05		19:27 (T05)	06:40		07:04 (T07)	07:15		18:02 (T08)	06:54	07:32
	21:05			20:44	40	20:07 (T05)	19:57	23	07:27 (T07)	19:02	34	18:36 (T08)	17:09	16:41
2	05:39			06:06		19:26 (T05)	06:42		07:05 (T07)	07:16		18:03 (T08)	06:55	07:33
	21:05			20:43	41	20:07 (T05)	19:55	21	07:26 (T07)	19:00	34	18:37 (T08)	17:08	16:41
3	05:40			06:08		19:26 (T05)	06:43		07:06 (T07)	07:17		18:02 (T08)	06:56	07:34
	21:05			20:42	42	20:08 (T05)	19:53	19	07:25 (T07)	18:57	33	18:35 (T08)	17:06	16:41
4	05:40			06:09		19:25 (T05)	06:44		07:07 (T07)	07:18		18:02 (T08)	06:58	07:35
	21:04			20:40	43	20:08 (T05)	19:52	16	07:23 (T07)	18:55	31	18:33 (T08)	17:05	16:40
5	05:41			06:10		19:25 (T05)	06:45		07:08 (T07)	07:20		18:02 (T08)	06:59	07:36
	21:04			20:39	43	20:08 (T05)	19:50	13	07:21 (T07)	18:53	29	18:31 (T08)	17:04	16:40
6	05:42			06:11		19:25 (T05)	06:46		07:09 (T07)	07:21		18:03 (T08)	07:00	07:37
	21:04			20:38	43	20:08 (T05)	19:48	10	07:19 (T07)	18:51	27	18:30 (T08)	17:03	16:40
7	05:42			06:12		19:24 (T05)	06:47		07:10 (T07)	07:22		18:03 (T08)	07:02	07:38
	21:04			20:36	44	20:08 (T05)	19:46	5	07:15 (T07)	18:49	25	18:28 (T08)	17:01	16:40
8	05:43			06:13		19:24 (T05)	06:48			07:23		18:03 (T08)	07:03	07:39
	21:03			20:35	44	20:08 (T05)	19:44			18:48	23	18:26 (T08)	17:00	16:40
9	05:44			06:14		19:24 (T05)	06:50			07:24		18:04 (T08)	07:04	07:40
	21:03			20:34	43	20:07 (T05)	19:43			18:46	20	18:24 (T08)	16:59	16:40
10	05:44			06:15		19:24 (T05)	06:51			07:26		18:06 (T08)	07:06	07:41
	21:02			20:32	43	20:07 (T05)	19:41			18:44	17	18:23 (T08)	16:58	16:40
11	05:45			06:16		19:24 (T05)	06:52			07:27		18:07 (T08)	07:07	07:42
	21:02			20:31	43	20:07 (T05)	19:39			18:42	14	18:21 (T08)	16:57	16:40
12	05:46			06:18		19:24 (T05)	06:53			07:28		18:10 (T08)	07:08	07:43
	21:01			20:29	42	20:06 (T05)	19:37			18:41	9	18:19 (T08)	16:56	16:40
13	05:47			06:19		19:24 (T05)	06:54			07:29			07:10	07:44
	21:01			20:28	40	20:04 (T05)	19:35			18:39			16:54	16:40
14	05:48			06:20		19:24 (T05)	06:55			07:31			07:11	07:45
	21:00			20:26	39	20:03 (T05)	19:33			18:37			16:53	16:40
15	05:48			06:21		19:24 (T05)	06:56			07:32			07:12	07:45
	21:00			20:25	37	20:01 (T05)	19:32			18:35			16:52	16:40
16	05:49			06:22		19:25 (T05)	06:57			07:33			07:13	07:46
	20:59			20:23	36	20:01 (T05)	19:30			18:34			16:51	16:41
17	05:50		19:43 (T05)	06:23		07:13 (T07)	06:59			07:34			07:15	07:47
	20:58	6	19:49 (T05)	20:22	41	19:59 (T05)	19:28			18:32			16:51	16:41
18	05:51		19:40 (T05)	06:24		07:09 (T07)	07:00			07:36			07:16	07:48
	20:58	13	19:53 (T05)	20:20	47	19:58 (T05)	19:26			18:30			16:50	16:41
19	05:52		19:38 (T05)	06:26		07:07 (T07)	07:01			07:37			07:17	07:48
	20:57	17	19:55 (T05)	20:19	48	19:56 (T05)	19:24			18:29			16:49	16:42
20	05:53		19:37 (T05)	06:27		07:05 (T07)	07:02			07:38			07:19	07:49
	20:56	20	19:57 (T05)	20:17	48	19:54 (T05)	19:22			18:27			16:48	16:42
21	05:54		19:36 (T05)	06:28		07:03 (T07)	07:03		18:20 (T08)	07:39			07:20	07:49
	20:55	22	19:58 (T05)	20:16	49	19:53 (T05)	19:20	7	18:27 (T08)	18:26			16:47	16:42
22	05:55		19:34 (T05)	06:29		07:02 (T07)	07:04		18:15 (T08)	07:41			07:21	07:50
	20:54	26	20:00 (T05)	20:14	47	19:51 (T05)	19:19	16	18:31 (T08)	18:24			16:46	16:43
23	05:56		19:33 (T05)	06:30		07:01 (T07)	07:06		18:12 (T08)	07:42			07:22	07:50
	20:53	28	20:01 (T05)	20:12	45	19:49 (T05)	19:17	21	18:33 (T08)	18:22			16:46	16:43
24	05:57		19:32 (T05)	06:31		07:00 (T07)	07:07		18:10 (T08)	07:43			07:24	07:51
	20:52	30	20:02 (T05)	20:11	42	19:48 (T05)	19:15	24	18:34 (T08)	18:21			16:45	16:44
25	05:58		19:32 (T05)	06:32		06:59 (T07)	07:08		18:08 (T08)	07:44			07:25	07:51
	20:52	31	20:03 (T05)	20:09	30	07:29 (T07)	19:13	27	18:35 (T08)	18:19			16:44	16:45
26	05:59		19:31 (T05)	06:34		06:58 (T07)	07:09		18:07 (T08)	07:46			07:26	07:52
	20:51	33	20:04 (T05)	20:07	31	07:29 (T07)	19:11	29	18:36 (T08)	18:18			16:44	16:45
27	06:00		19:30 (T05)	06:35		06:58 (T07)	07:10		18:06 (T08)	07:47			07:27	07:52
	20:50	34	20:04 (T05)	20:06	31	07:29 (T07)	19:09	31	18:37 (T08)	18:16			16:43	16:46
28	06:01		19:29 (T05)	06:36		07:00 (T07)	07:11		18:05 (T08)	07:48			07:29	07:52
	20:48	36	20:05 (T05)	20:04	30	07:30 (T07)	19:07	32	18:37 (T08)	18:15			16:43	16:47
29	06:02		19:29 (T05)	06:37		07:01 (T07)	07:12		18:04 (T08)	07:50			07:30	07:52
	20:47	37	20:06 (T05)	20:02	28	07:29 (T07)	19:06	33	18:37 (T08)	18:13			16:42	16:47
30	06:03		19:28 (T05)	06:38		07:02 (T07)	07:14		18:03 (T08)	07:51			07:31	07:53
	20:46	38	20:06 (T05)	20:00	27	07:29 (T07)	19:04	34	18:37 (T08)	18:12			16:42	16:48
31	06:04		19:27 (T05)	06:39		07:03 (T07)				07:52				07:53
	20:45	40	20:07 (T05)	19:59	25	07:28 (T07)				18:10				16:49
Potential sun hours	469			434			377			342			290	278
Total, worst case		411			1232			361			296			
Sun reduction		0.74			0.69			0.62			0.51			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.68			0.66			0.60			0.60			
Total reduction		0.50			0.45			0.37			0.31			
Total, real		205			556			135			90			

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 30 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1378)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January		February		March			April			May			June		
1	07:53		07:37		06:56			07:01			06:11		07:02 (T07)	05:38		19:35 (T05)
	16:49		17:26		18:04			19:43			20:19	34	19:58 (T05)	20:53	20	19:55 (T05)
2	07:53		07:36		06:54			06:59			06:09		19:24 (T05)	05:38		19:36 (T05)
	16:50		17:27		18:06			19:44			20:21	35	19:59 (T05)	20:54	17	19:53 (T05)
3	07:53		07:35		06:53			06:57			06:08		19:24 (T05)	05:37		19:38 (T05)
	16:51		17:29		18:07			19:46			20:22	37	20:01 (T05)	20:54	14	19:52 (T05)
4	07:53		07:34		06:51			06:55			06:06		19:23 (T05)	05:37		19:40 (T05)
	16:52		17:30		18:08			19:47			20:23	38	20:01 (T05)	20:55	11	19:51 (T05)
5	07:53		07:33		06:49		17:46 (T08)	06:54			06:05		19:23 (T05)	05:37		19:42 (T05)
	16:53		17:32		18:09	4	17:50 (T08)	19:48			20:24	40	20:03 (T05)	20:56	7	19:49 (T05)
6	07:53		07:32		06:48		17:41 (T08)	06:52			06:04		19:23 (T05)	05:36		
	16:54		17:33		18:11	11	17:52 (T08)	19:49			20:25	41	20:04 (T05)	20:57		
7	07:53		07:30		06:46		17:38 (T08)	06:50			06:02		19:23 (T05)	05:36		
	16:55		17:34		18:12	15	17:53 (T08)	19:50			20:26	42	20:05 (T05)	20:57		
8	07:53		07:29		07:44		18:36 (T08)	06:48			06:01		19:22 (T05)	05:36		
	16:56		17:36		18:13	18	18:54 (T08)	19:52			20:28	42	20:04 (T05)	20:58		
9	07:52		07:28		07:42		18:34 (T08)	06:46		07:08 (T07)	06:00		19:22 (T05)	05:35		
	16:57		17:37		19:15	21	18:55 (T08)	19:53	6	07:14 (T07)	20:29	42	20:04 (T05)	20:59		
10	07:52		07:27		07:41		18:33 (T08)	06:45		07:06 (T07)	05:59		19:22 (T05)	05:35		
	16:58		17:39		19:16	24	18:57 (T08)	19:54	10	07:16 (T07)	20:30	43	20:05 (T05)	20:59		
11	07:52		07:25		07:39		18:32 (T08)	06:43		07:05 (T07)	05:57		19:22 (T05)	05:35		
	16:59		17:40		19:17	26	18:58 (T08)	19:55	13	07:18 (T07)	20:31	43	20:05 (T05)	21:00		
12	07:52		07:24		07:37		18:31 (T08)	06:41		07:03 (T07)	05:56		19:22 (T05)	05:35		
	17:00		17:41		19:18	28	18:59 (T08)	19:56	16	07:19 (T07)	20:32	43	20:05 (T05)	21:01		
13	07:51		07:23		07:35		18:30 (T08)	06:39		07:01 (T07)	05:55		19:22 (T05)	05:35		
	17:01		17:43		19:20	30	19:00 (T08)	19:58	19	07:20 (T07)	20:33	43	20:05 (T05)	21:01		
14	07:51		07:21		07:33		18:29 (T08)	06:38		07:00 (T07)	05:54		19:23 (T05)	05:35		
	17:03		17:44		19:21	32	19:01 (T08)	19:59	21	07:21 (T07)	20:35	41	20:04 (T05)	21:02		
15	07:50		07:20		07:32		18:30 (T08)	06:36		06:58 (T07)	05:53		19:23 (T05)	05:34		
	17:04		17:45		19:22	33	19:03 (T08)	20:00	23	07:21 (T07)	20:36	41	20:04 (T05)	21:02		
16	07:50		07:18		07:30		18:29 (T08)	06:34		06:56 (T07)	05:52		19:23 (T05)	05:34		
	17:05		17:47		19:23	34	19:03 (T08)	20:01	25	07:21 (T07)	20:37	41	20:04 (T05)	21:02		
17	07:49		07:17		07:28		18:29 (T08)	06:33		06:55 (T07)	05:51		19:24 (T05)	05:34		
	17:06		17:48		19:25	33	19:02 (T08)	20:02	27	07:22 (T07)	20:38	40	20:04 (T05)	21:03		
18	07:49		07:15		07:26		18:29 (T08)	06:31		06:53 (T07)	05:50		19:24 (T05)	05:35		
	17:07		17:50		19:26	33	19:02 (T08)	20:04	29	07:22 (T07)	20:39	39	20:03 (T05)	21:03		
19	07:48		07:14		07:24		18:29 (T08)	06:29		06:51 (T07)	05:49		19:24 (T05)	05:35		
	17:09		17:51		19:27	32	19:01 (T08)	20:05	30	07:21 (T07)	20:40	39	20:03 (T05)	21:04		
20	07:48		07:12		07:23		18:29 (T08)	06:28		06:50 (T07)	05:48		19:25 (T05)	05:35		
	17:10		17:52		19:28	31	19:00 (T08)	20:06	31	07:21 (T07)	20:41	37	20:02 (T05)	21:04		
21	07:47		07:11		07:21		18:30 (T08)	06:26		06:49 (T07)	05:47		19:25 (T05)	05:35		
	17:11		17:54		19:30	29	18:59 (T08)	20:07	31	07:20 (T07)	20:42	37	20:02 (T05)	21:04		
22	07:46		07:09		07:19		18:31 (T08)	06:24		06:50 (T07)	05:46		19:26 (T05)	05:35		
	17:13		17:55		19:31	27	18:58 (T08)	20:09	31	07:21 (T07)	20:43	35	20:01 (T05)	21:04		
23	07:46		07:08		07:17		18:32 (T08)	06:23		06:50 (T07)	05:45		19:26 (T05)	05:35		
	17:14		17:56		19:32	24	18:56 (T08)	20:10	37	19:49 (T05)	20:44	34	20:00 (T05)	21:05		
24	07:45		07:06		07:15		18:33 (T08)	06:21		06:51 (T07)	05:44		19:28 (T05)	05:36		
	17:15		17:58		19:33	21	18:54 (T08)	20:11	42	19:51 (T05)	20:45	33	20:01 (T05)	21:05		
25	07:44		07:04		07:13		18:35 (T08)	06:20		06:51 (T07)	05:43		19:28 (T05)	05:36		
	17:17		17:59		19:35	16	18:51 (T08)	20:12	44	19:51 (T05)	20:46	32	20:00 (T05)	21:05		
26	07:43		07:03		07:12		18:38 (T08)	06:18		06:52 (T07)	05:42		19:29 (T05)	05:36		
	17:18		18:00		19:36	9	18:47 (T08)	20:13	46	19:53 (T05)	20:47	30	19:59 (T05)	21:05		
27	07:42		07:01		07:10			06:17		06:52 (T07)	05:42		19:30 (T05)	05:37		
	17:19		18:00		19:37			20:15	46	19:53 (T05)	20:48	29	19:59 (T05)	21:05		
28	07:41		07:00		07:08			06:15		06:54 (T07)	05:41		19:31 (T05)	05:37		
	17:21		18:02		19:38			20:16	46	19:55 (T05)	20:49	27	19:58 (T05)	21:05		
29	07:40		06:58		07:06			06:14		06:55 (T07)	05:40		19:31 (T05)	05:38		
	17:22		18:03		19:39			20:17	46	19:56 (T05)	20:50	26	19:57 (T05)	21:05		
30	07:39				07:04			06:12		06:57 (T07)	05:40		19:33 (T05)	05:38		
	17:23				19:41			20:18	44	19:57 (T05)	20:51	24	19:57 (T05)	21:05		
31	07:38				07:03						05:39		19:34 (T05)			
	17:25				19:42						20:52	21	19:55 (T05)			
Potential sun hours	288		303		369			403			457			463		
Total, worst case						531			663			1129			69	
Sun reduction						0.57			0.56			0.62			0.67	
Oper. time red.						1.00			1.00			1.00			1.00	
Wind dir. red.						0.61			0.62			0.68			0.68	
Total reduction						0.35			0.35			0.42			0.46	
Total, real						184			231			476			31	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 30 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1378)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July		August		September		October		November	December
1	05:39		06:05	19:33 (T05)	06:40	07:04 (T07)	07:15	18:09 (T08)	06:54	07:32
	21:05		20:44 42	20:15 (T05)	19:57 13	07:17 (T07)	19:02 29	18:38 (T08)	17:09	16:41
2	05:39		06:06	19:33 (T05)	06:42	07:05 (T07)	07:16	18:10 (T08)	06:55	07:33
	21:05		20:43 42	20:15 (T05)	19:55 10	07:15 (T07)	19:00 27	18:37 (T08)	17:08	16:41
3	05:40		06:08	19:32 (T05)	06:43	07:06 (T07)	07:17	18:11 (T08)	06:56	07:34
	21:05		20:42 43	20:15 (T05)	19:53 6	07:12 (T07)	18:57 24	18:35 (T08)	17:06	16:41
4	05:40		06:09	19:32 (T05)	06:44		07:18	18:11 (T08)	06:58	07:35
	21:04		20:40 43	20:15 (T05)	19:52		18:55 22	18:33 (T08)	17:05	16:40
5	05:41		06:10	19:32 (T05)	06:45		07:20	18:12 (T08)	06:59	07:36
	21:04		20:39 43	20:15 (T05)	19:50		18:53 19	18:31 (T08)	17:04	16:40
6	05:42		06:11	19:32 (T05)	06:46		07:21	18:14 (T08)	07:00	07:37
	21:04		20:38 42	20:14 (T05)	19:48		18:51 16	18:30 (T08)	17:03	16:40
7	05:42	19:50 (T05)	06:12	19:32 (T05)	06:47		07:22	18:15 (T08)	07:02	07:38
	21:04 3	19:53 (T05)	20:36 41	20:13 (T05)	19:46		18:49 13	18:28 (T08)	17:01	16:40
8	05:43	19:47 (T05)	06:13	19:32 (T05)	06:48		07:23	18:18 (T08)	07:03	07:39
	21:03 10	19:57 (T05)	20:35 40	20:12 (T05)	19:44		18:48 8	18:26 (T08)	17:00	16:40
9	05:44	19:46 (T05)	06:14	19:33 (T05)	06:50		07:24		07:04	07:40
	21:03 13	19:59 (T05)	20:34 37	20:10 (T05)	19:43		18:46		16:59	16:40
10	05:44	19:45 (T05)	06:15	19:33 (T05)	06:51		07:26		07:06	07:41
	21:02 16	20:01 (T05)	20:32 36	20:09 (T05)	19:41		18:44		16:58	16:40
11	05:45	19:43 (T05)	06:16	19:33 (T05)	06:52		07:27		07:07	07:42
	21:02 19	20:02 (T05)	20:31 34	20:07 (T05)	19:39		18:42		16:57	16:40
12	05:46	19:43 (T05)	06:18	07:08 (T07)	06:53		07:28		07:08	07:43
	21:01 20	20:03 (T05)	20:29 39	20:06 (T05)	19:37		18:41		16:56	16:40
13	05:47	19:42 (T05)	06:19	07:04 (T07)	06:54		07:29		07:10	07:44
	21:01 22	20:04 (T05)	20:28 44	20:04 (T05)	19:35		18:39		16:54	16:40
14	05:48	19:41 (T05)	06:20	07:02 (T07)	06:55		07:31		07:11	07:45
	21:00 25	20:06 (T05)	20:26 46	20:03 (T05)	19:33		18:37		16:53	16:40
15	05:48	19:41 (T05)	06:21	07:00 (T07)	06:56		07:32		07:12	07:45
	21:00 26	20:07 (T05)	20:25 46	20:01 (T05)	19:32		18:35		16:52	16:40
16	05:49	19:39 (T05)	06:22	07:00 (T07)	06:57		07:33		07:13	07:46
	20:59 28	20:07 (T05)	20:23 46	20:01 (T05)	19:30		18:34		16:51	16:41
17	05:50	19:39 (T05)	06:23	06:58 (T07)	06:59	18:28 (T08)	07:34		07:15	07:47
	20:58 29	20:08 (T05)	20:22 46	19:59 (T05)	19:28 6	18:34 (T08)	18:32		16:51	16:41
18	05:51	19:38 (T05)	06:24	06:57 (T07)	07:00	18:24 (T08)	07:36		07:16	07:48
	20:58 31	20:09 (T05)	20:20 45	19:58 (T05)	19:26 15	18:39 (T08)	18:30		16:50	16:41
19	05:52	19:37 (T05)	06:26	06:56 (T07)	07:01	18:21 (T08)	07:37		07:17	07:48
	20:57 33	20:10 (T05)	20:19 42	19:56 (T05)	19:24 20	18:41 (T08)	18:29		16:49	16:42
20	05:53	19:37 (T05)	06:27	06:55 (T07)	07:02	18:18 (T08)	07:38		07:19	07:49
	20:56 33	20:10 (T05)	20:17 35	19:53 (T05)	19:22 24	18:42 (T08)	18:27		16:48	16:42
21	05:54	19:37 (T05)	06:28	06:55 (T07)	07:03	18:17 (T08)	07:39		07:20	07:49
	20:55 34	20:11 (T05)	20:16 30	07:25 (T07)	19:20 26	18:43 (T08)	18:26		16:47	16:42
22	05:55	19:36 (T05)	06:29	06:54 (T07)	07:04	18:15 (T08)	07:41		07:21	07:50
	20:54 36	20:12 (T05)	20:14 31	07:25 (T07)	19:19 29	18:44 (T08)	18:24		16:46	16:43
23	05:56	19:36 (T05)	06:30	06:54 (T07)	07:06	18:13 (T08)	07:42		07:22	07:50
	20:53 37	20:13 (T05)	20:12 31	07:25 (T07)	19:17 31	18:44 (T08)	18:22		16:46	16:43
24	05:57	19:35 (T05)	06:31	06:55 (T07)	07:07	18:12 (T08)	07:43		07:24	07:51
	20:52 38	20:13 (T05)	20:11 30	07:25 (T07)	19:15 32	18:44 (T08)	18:21		16:45	16:44
25	05:58	19:35 (T05)	06:32	06:56 (T07)	07:08	18:11 (T08)	07:44		07:25	07:51
	20:52 39	20:14 (T05)	20:09 28	07:24 (T07)	19:13 33	18:44 (T08)	18:19		16:44	16:45
26	05:59	19:34 (T05)	06:34	06:57 (T07)	07:09	18:11 (T08)	07:46		07:26	07:52
	20:51 40	20:14 (T05)	20:07 27	07:24 (T07)	19:11 34	18:45 (T08)	18:18		16:44	16:45
27	06:00	19:34 (T05)	06:35	06:58 (T07)	07:10	18:11 (T08)	07:47		07:27	07:52
	20:50 40	20:14 (T05)	20:06 25	07:23 (T07)	19:09 34	18:45 (T08)	18:16		16:43	16:46
28	06:01	19:34 (T05)	06:36	07:00 (T07)	07:11	18:10 (T08)	07:48		07:29	07:52
	20:48 41	20:15 (T05)	20:04 23	07:23 (T07)	19:07 34	18:44 (T08)	18:15		16:43	16:47
29	06:02	19:33 (T05)	06:37	07:01 (T07)	07:12	18:10 (T08)	07:50		07:30	07:52
	20:47 42	20:15 (T05)	20:02 21	07:22 (T07)	19:06 32	18:42 (T08)	18:13		16:42	16:47
30	06:03	19:33 (T05)	06:38	07:02 (T07)	07:14	18:09 (T08)	07:51		07:31	07:53
	20:46 42	20:15 (T05)	20:00 19	07:21 (T07)	19:04 31	18:40 (T08)	18:12		16:42	16:48
31	06:04	19:33 (T05)	06:39	07:03 (T07)			07:52			07:53
	20:45 42	20:15 (T05)	19:59 16	07:19 (T07)			18:10			16:49
Potential sun hours	469		434		377		342		290	278
Total, worst case	739		1113		410		158			
Sun reduction	0.74		0.69		0.62		0.51			
Oper. time red.	1.00		1.00		1.00		1.00			
Wind dir. red.	0.68		0.65		0.61		0.61			
Total reduction	0.50		0.45		0.38		0.31			
Total, real	372		496		154		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)

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Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 33 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1381)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January		February		March		April			May			June
1	07:53		07:37		06:56		07:01		18:37 (T02)	06:11		18:26 (T02)	05:38
	16:49		17:26		18:04		19:43	43	19:20 (T02)	20:19	53	19:19 (T02)	20:53
2	07:53		07:36		06:54		06:59		18:36 (T02)	06:09		18:27 (T02)	05:38
	16:50		17:27		18:06		19:44	46	19:22 (T02)	20:21	51	19:18 (T02)	20:54
3	07:53		07:35		06:53		06:57		18:34 (T02)	06:08		18:29 (T02)	05:37
	16:51		17:29		18:07		19:45	49	19:23 (T02)	20:22	49	19:18 (T02)	20:54
4	07:53		07:34		06:51		06:55		18:32 (T02)	06:06		18:29 (T02)	05:37
	16:52		17:30		18:08		19:47	52	19:24 (T02)	20:23	47	19:16 (T02)	20:55
5	07:53		07:33		06:49		06:53		18:30 (T02)	06:05		18:30 (T02)	05:37
	16:53		17:32		18:09	3	17:50 (T03)	55	19:25 (T02)	20:24	45	19:15 (T02)	20:56
6	07:53		07:32		06:48		17:44 (T03)	06:52	18:29 (T02)	06:04		18:32 (T02)	05:36
	16:54		17:33		18:11	8	17:52 (T03)	19:49	56	19:25 (T02)	20:25	42	19:14 (T02)	20:57
7	07:53		07:30		06:46		17:42 (T03)	06:50	18:28 (T02)	06:02		18:33 (T02)	05:36
	16:55		17:34		18:12	11	17:53 (T03)	19:50	58	19:26 (T02)	20:26	40	19:13 (T02)	20:57
8	07:53		07:29		07:44		18:40 (T03)	06:48	18:27 (T02)	06:01		18:34 (T02)	05:35
	16:56		17:36		18:13	14	18:54 (T03)	19:52	60	19:27 (T02)	20:28	36	19:10 (T02)	20:58
9	07:52		07:28		07:42		18:39 (T03)	06:46	18:26 (T02)	06:00		18:36 (T02)	05:35
	16:57		17:37		19:15	16	18:55 (T03)	19:53	61	19:27 (T02)	20:29	33	19:09 (T02)	20:59
10	07:52		07:27		07:41		18:38 (T03)	06:45	18:25 (T02)	05:58		18:38 (T02)	05:35
	16:58		17:38		19:16	19	18:57 (T03)	19:54	62	19:27 (T02)	20:30	29	19:07 (T02)	20:59
11	07:52		07:25		07:39		18:37 (T03)	06:43	18:25 (T02)	05:57		18:41 (T02)	05:35
	16:59		17:40		19:17	21	18:58 (T03)	19:55	63	19:28 (T02)	20:31	24	19:05 (T02)	21:00
12	07:52		07:24		07:37		18:37 (T03)	06:41	18:24 (T02)	05:56		18:43 (T02)	05:35
	17:00		17:41		19:18	22	18:59 (T03)	19:56	64	19:28 (T02)	20:32	19	19:02 (T02)	21:00
13	07:51		07:22		07:35		18:36 (T03)	06:39	18:23 (T02)	05:55		18:48 (T02)	05:35
	17:01		17:43		19:20	24	19:00 (T03)	19:58	64	19:27 (T02)	20:33	10	18:58 (T02)	21:01
14	07:51		07:21		07:33		18:36 (T03)	06:38	18:23 (T02)	05:54				05:34
	17:03		17:44		19:21	25	19:01 (T03)	19:59	65	19:28 (T02)	20:35			21:02
15	07:50		07:20		07:32		18:37 (T03)	06:36	18:23 (T02)	05:53				05:34
	17:04		17:45		19:22	26	19:03 (T03)	20:00	65	19:28 (T02)	20:36			21:02
16	07:50		07:18		07:30		18:37 (T03)	06:34	18:22 (T02)	05:52				05:34
	17:05		17:47		19:23	25	19:02 (T03)	20:01	65	19:27 (T02)	20:37			21:02
17	07:49		07:17		07:28		18:37 (T03)	06:33	18:23 (T02)	05:50				05:34
	17:06		17:48		19:25	24	19:01 (T03)	20:02	65	19:28 (T02)	20:38			21:03
18	07:49		07:15		07:26		18:38 (T03)	06:31	18:22 (T02)	05:49				05:34
	17:07		17:49		19:26	21	18:59 (T03)	20:04	65	19:27 (T02)	20:39			21:03
19	07:48		07:14		07:24		18:39 (T03)	06:29	18:22 (T02)	05:48				05:35
	17:09		17:51		19:27	18	18:57 (T03)	20:05	64	19:26 (T02)	20:40			21:04
20	07:48		07:12		07:22		18:40 (T03)	06:28	18:22 (T02)	05:47				05:35
	17:10		17:52		19:28	15	18:55 (T03)	20:06	65	19:27 (T02)	20:41			21:04
21	07:47		07:11		07:21		18:44 (T03)	06:26	18:22 (T02)	05:47				05:35
	17:11		17:54		19:30	8	18:52 (T03)	20:07	64	19:26 (T02)	20:42			21:04
22	07:46		07:09		07:19			06:24	18:23 (T02)	05:46				05:35
	17:13		17:55		19:31			20:08	63	19:26 (T02)	20:43			21:04
23	07:46		07:08		07:17			06:23	18:22 (T02)	05:45				05:35
	17:14		17:56		19:32			20:10	63	19:25 (T02)	20:44			21:05
24	07:45		07:06		07:15			06:21	18:23 (T02)	05:44				05:36
	17:15		17:58		19:33			20:11	62	19:25 (T02)	20:45			21:05
25	07:44		07:04		07:13			06:20	18:23 (T02)	05:43				05:36
	17:16		17:59		19:35			20:12	61	19:24 (T02)	20:46			21:05
26	07:43		07:03		07:12			06:18	18:24 (T02)	05:42				05:36
	17:18		18:00		19:36			20:13	60	19:24 (T02)	20:47			21:05
27	07:42		07:01		07:10		18:54 (T02)	06:17	18:24 (T02)	05:42				05:37
	17:19		18:00		19:37	12	19:06 (T02)	20:15	58	19:22 (T02)	20:48			21:05
28	07:41		06:59		07:08		18:49 (T02)	06:15	18:25 (T02)	05:41				05:37
	17:21		18:02		19:38	23	19:12 (T02)	20:16	57	19:22 (T02)	20:49			21:05
29	07:40		06:58		07:06		18:45 (T02)	06:14	18:25 (T02)	05:40				05:38
	17:22		18:03		19:39	30	19:15 (T02)	20:17	56	19:21 (T02)	20:50			21:05
30	07:39				07:04		18:42 (T02)	06:12	18:26 (T02)	05:40				05:38
	17:23				19:41	35	19:17 (T02)	20:18	54	19:20 (T02)	20:51			21:05
31	07:38				07:02		18:39 (T02)			05:39				
	17:25				19:42	40	19:19 (T02)			20:52				
Potential sun hours	288		303		369			403			457			463
Total, worst case						440			1785			478		
Sun reduction						0.57			0.56			0.62		
Oper. time red.						1.00			1.00			1.00		
Wind dir. red.						0.62			0.65			0.65		
Total reduction						0.35			0.36			0.40		
Total, real						156			647			192		

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

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

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Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 33 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1381)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September			October			November	December
1	05:38			06:05		18:53 (T02)	06:40		18:24 (T02)	07:15		18:15 (T03)	06:54	07:32
	21:05			20:44	21	19:14 (T02)	19:57	63	19:27 (T02)	19:02	23	18:38 (T03)	17:09	16:41
2	05:39			06:06		18:50 (T02)	06:41		18:24 (T02)	07:16		18:16 (T03)	06:55	07:33
	21:05			20:43	27	19:17 (T02)	19:55	62	19:26 (T02)	19:00	21	18:37 (T03)	17:08	16:41
3	05:40			06:07		18:48 (T02)	06:43		18:24 (T02)	07:17		18:16 (T03)	06:56	07:34
	21:05			20:42	30	19:18 (T02)	19:53	61	19:25 (T02)	18:56	19	18:35 (T03)	17:06	16:41
4	05:40			06:09		18:46 (T02)	06:44		18:24 (T02)	07:18		18:16 (T03)	06:58	07:35
	21:04			20:40	34	19:20 (T02)	19:52	60	19:24 (T02)	18:55	17	18:33 (T03)	17:05	16:40
5	05:41			06:10		18:44 (T02)	06:45		18:24 (T02)	07:20		18:16 (T03)	06:59	07:36
	21:04			20:39	37	19:21 (T02)	19:50	58	19:22 (T02)	18:53	15	18:31 (T03)	17:04	16:40
6	05:41			06:11		18:42 (T02)	06:46		18:25 (T02)	07:21		18:18 (T03)	07:00	07:37
	21:04			20:38	41	19:23 (T02)	19:48	56	19:21 (T02)	18:51	12	18:30 (T03)	17:02	16:40
7	05:42			06:12		18:41 (T02)	06:47		18:25 (T02)	07:22		18:19 (T03)	07:02	07:38
	21:04			20:36	43	19:24 (T02)	19:46	55	19:20 (T02)	18:49	9	18:28 (T03)	17:01	16:40
8	05:43			06:13		18:40 (T02)	06:48		18:26 (T02)	07:23		18:20 (T03)	07:03	07:39
	21:03			20:35	45	19:25 (T02)	19:44	52	19:18 (T02)	18:47	6	18:26 (T03)	17:00	16:40
9	05:44			06:14		18:38 (T02)	06:49		18:27 (T02)	07:24			07:04	07:40
	21:03			20:34	48	19:26 (T02)	19:43	50	19:17 (T02)	18:46			16:59	16:40
10	05:44			06:15		18:37 (T02)	06:51		18:29 (T02)	07:26			07:06	07:41
	21:02			20:32	49	19:26 (T02)	19:41	47	19:16 (T02)	18:44			16:58	16:40
11	05:45			06:16		18:36 (T02)	06:52		18:30 (T02)	07:27			07:07	07:42
	21:02			20:31	51	19:27 (T02)	19:39	44	19:14 (T02)	18:42			16:57	16:40
12	05:46			06:18		18:34 (T02)	06:53		18:31 (T02)	07:28			07:08	07:43
	21:01			20:29	54	19:28 (T02)	19:37	40	19:11 (T02)	18:40			16:55	16:40
13	05:47			06:19		18:33 (T02)	06:54		18:33 (T02)	07:29			07:10	07:44
	21:01			20:28	55	19:28 (T02)	19:35	36	19:09 (T02)	18:39			16:54	16:40
14	05:47			06:20		18:32 (T02)	06:55		18:35 (T02)	07:30			07:11	07:45
	21:00			20:26	57	19:29 (T02)	19:33	31	19:06 (T02)	18:37			16:53	16:40
15	05:48			06:21		18:31 (T02)	06:56		18:38 (T02)	07:32			07:12	07:45
	21:00			20:25	58	19:29 (T02)	19:32	24	19:02 (T02)	18:35			16:52	16:40
16	05:49			06:22		18:30 (T02)	06:57		18:42 (T02)	07:33			07:13	07:46
	20:59			20:23	59	19:29 (T02)	19:30	15	18:57 (T02)	18:34			16:51	16:40
17	05:50			06:23		18:30 (T02)	06:59			07:34			07:15	07:47
	20:58			20:22	60	19:30 (T02)	19:28			18:32			16:50	16:41
18	05:51			06:24		18:30 (T02)	07:00			07:35			07:16	07:47
	20:58			20:20	61	19:31 (T02)	19:26			18:30			16:50	16:41
19	05:52			06:25		18:29 (T02)	07:01			07:37			07:17	07:48
	20:57			20:19	62	19:31 (T02)	19:24			18:29			16:49	16:41
20	05:53			06:27		18:28 (T02)	07:02			07:38			07:19	07:49
	20:56			20:17	63	19:31 (T02)	19:22			18:27			16:48	16:42
21	05:54			06:28		18:27 (T02)	07:03			07:39			07:20	07:49
	20:55			20:16	64	19:31 (T02)	19:20			18:25			16:47	16:42
22	05:55			06:29		18:27 (T02)	07:04		18:30 (T03)	07:41			07:21	07:50
	20:54			20:14	64	19:31 (T02)	19:19	5	18:35 (T03)	18:24			16:46	16:43
23	05:56			06:30		18:26 (T02)	07:05		18:25 (T03)	07:42			07:22	07:50
	20:53			20:12	64	19:30 (T02)	19:17	14	18:39 (T03)	18:22			16:46	16:43
24	05:57			06:31		18:25 (T02)	07:07		18:23 (T03)	07:43			07:24	07:51
	20:52			20:11	65	19:30 (T02)	19:15	17	18:40 (T03)	18:21			16:45	16:44
25	05:58			06:32		18:25 (T02)	07:08		18:21 (T03)	07:44			07:25	07:51
	20:51			20:09	65	19:30 (T02)	19:13	20	18:41 (T03)	18:19			16:44	16:45
26	05:59			06:34		18:24 (T02)	07:09		18:20 (T03)	07:46			07:26	07:51
	20:51			20:07	65	19:29 (T02)	19:11	23	18:43 (T03)	18:18			16:44	16:45
27	06:00			06:35		18:24 (T02)	07:10		18:19 (T03)	07:47			07:27	07:52
	20:49			20:06	65	19:29 (T02)	19:09	24	18:43 (T03)	18:16			16:43	16:46
28	06:01			06:36		18:24 (T02)	07:11		18:17 (T03)	07:48			07:29	07:52
	20:48			20:04	64	19:28 (T02)	19:07	26	18:43 (T03)	18:15			16:43	16:47
29	06:02			06:37		18:24 (T02)	07:12		18:17 (T03)	07:50			07:30	07:52
	20:47			20:02	65	19:29 (T02)	19:06	25	18:42 (T03)	18:13			16:42	16:47
30	06:03			06:38		18:24 (T02)	07:14		18:16 (T03)	07:51			07:31	07:53
	20:46			20:00	64	19:28 (T02)	19:04	24	18:40 (T03)	18:12			16:42	16:48
31	06:04		18:55 (T02)	06:39		18:24 (T02)				07:52				07:53
	20:45	15	19:10 (T02)	19:59	63	19:27 (T02)				18:10				16:49
Potential sun hours	469			434			377			342			290	278
Total, worst case		15			1663			932			122			
Sun reduction		0.74			0.69			0.62			0.51			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.65			0.65			0.64			0.61			
Total reduction		0.48			0.45			0.40			0.31			
Total, real		7			743			370			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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 34 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1382)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April			May			June		
1	07:53		08:22 (T17)	07:37			06:56		16:34 (T09)	07:01			06:11			05:38		20:06 (T05)
	16:49	33	08:55 (T17)	17:26			18:04	43	17:17 (T09)	19:43			20:19			20:53	23	20:29 (T05)
2	07:53		08:22 (T17)	07:36			06:54		16:34 (T09)	06:59			06:09			05:38		20:05 (T05)
	16:50	33	08:55 (T17)	17:27			18:06	41	17:15 (T09)	19:44			20:21			20:54	25	20:30 (T05)
3	07:53		08:23 (T17)	07:35		16:48 (T09)	06:53		16:35 (T09)	06:57			06:08			05:37		20:06 (T05)
	16:51	33	08:56 (T17)	17:29	14	17:02 (T09)	18:07	39	17:14 (T09)	19:46			20:22			20:54	25	20:31 (T05)
4	07:53		08:23 (T17)	07:34		16:45 (T09)	06:51		16:36 (T09)	06:55			06:06			05:37		20:07 (T05)
	16:52	33	08:56 (T17)	17:30	21	17:06 (T09)	18:08	36	17:12 (T09)	19:47			20:23			20:55	25	20:32 (T05)
5	07:53		08:23 (T17)	07:33		16:43 (T09)	06:49		16:38 (T09)	06:53		19:24 (T08)	06:05			05:37		20:06 (T05)
	16:53	33	08:56 (T17)	17:32	26	17:09 (T09)	18:09	33	17:11 (T09)	19:48	4	19:28 (T08)	20:24			20:56	26	20:32 (T05)
6	07:53		08:24 (T17)	07:32		16:40 (T09)	06:48		16:40 (T09)	06:52		19:22 (T08)	06:04			05:36		20:07 (T05)
	16:54	32	08:56 (T17)	17:33	30	17:10 (T09)	18:11	29	17:09 (T09)	19:49	7	19:29 (T08)	20:25			20:57	26	20:33 (T05)
7	07:53		08:24 (T17)	07:30		16:39 (T09)	06:46		16:42 (T09)	06:50		19:21 (T08)	06:02			05:36		20:07 (T05)
	16:55	33	08:57 (T17)	17:34	33	17:12 (T09)	18:12	24	17:06 (T09)	19:50	10	19:31 (T08)	20:26			20:57	26	20:33 (T05)
8	07:53		08:25 (T17)	07:29		07:53 (T16)	07:44		17:45 (T09)	06:48		19:19 (T08)	06:01			05:36		20:07 (T05)
	16:56	32	08:57 (T17)	17:36	39	17:13 (T09)	18:13	17	18:02 (T09)	19:52	13	19:32 (T08)	20:28			20:58	26	20:33 (T05)
9	07:52		08:26 (T17)	07:28		07:51 (T16)	07:42			06:46		19:18 (T08)	06:00			05:35		20:08 (T05)
	16:57	32	08:58 (T17)	17:37	45	17:14 (T09)	19:15			19:53	15	19:33 (T08)	20:29			20:59	25	20:33 (T05)
10	07:52		08:26 (T17)	07:27		07:50 (T16)	07:41			06:45		19:17 (T08)	05:59			05:35		20:08 (T05)
	16:58	31	08:57 (T17)	17:39	51	17:16 (T09)	19:16			19:54	17	19:34 (T08)	20:30			20:59	25	20:33 (T05)
11	07:52		08:27 (T17)	07:25		07:49 (T16)	07:39			06:43		19:17 (T08)	05:57			05:35		20:09 (T05)
	16:59	31	08:58 (T17)	17:40	54	17:17 (T09)	19:17			19:55	18	19:35 (T08)	20:31			21:00	24	20:33 (T05)
12	07:52		08:28 (T17)	07:24		07:47 (T16)	07:37			06:41		19:17 (T08)	05:56			05:35		20:09 (T05)
	17:00	30	08:58 (T17)	17:41	58	17:18 (T09)	19:18			19:56	19	19:36 (T08)	20:32			21:00	25	20:34 (T05)
13	07:51		08:28 (T17)	07:23		07:46 (T16)	07:35			06:39		19:16 (T08)	05:55			05:35		20:09 (T05)
	17:01	30	08:58 (T17)	17:43	62	17:19 (T09)	19:20			19:58	21	19:37 (T08)	20:33			21:01	25	20:34 (T05)
14	07:51		08:29 (T17)	07:21		07:44 (T16)	07:33			06:38		19:17 (T08)	05:54			05:34		20:10 (T05)
	17:03	29	08:58 (T17)	17:44	65	17:19 (T09)	19:21			19:59	22	19:39 (T08)	20:35			21:02	24	20:34 (T05)
15	07:50		08:29 (T17)	07:20		07:43 (T16)	07:32			06:36		19:17 (T08)	05:53		20:12 (T05)	05:34		20:10 (T05)
	17:04	29	08:58 (T17)	17:45	67	17:20 (T09)	19:22			20:00	22	19:39 (T08)	20:36	2	20:14 (T05)	21:02	24	20:34 (T05)
16	07:50		08:30 (T17)	07:18		07:41 (T16)	07:30			06:34		19:17 (T08)	05:52		20:11 (T05)	05:34		20:10 (T05)
	17:05	27	08:57 (T17)	17:47	70	17:20 (T09)	19:23			20:01	21	19:38 (T08)	20:37	4	20:15 (T05)	21:02	24	20:34 (T05)
17	07:49		08:31 (T17)	07:17		07:40 (T16)	07:28			06:33		19:18 (T08)	05:51		20:09 (T05)	05:34		20:11 (T05)
	17:06	27	08:58 (T17)	17:48	72	17:21 (T09)	19:25			20:02	20	19:38 (T08)	20:38	7	20:16 (T05)	21:03	23	20:34 (T05)
18	07:49		08:32 (T17)	07:15		07:38 (T16)	07:26			06:31		19:19 (T08)	05:49		20:08 (T05)	05:35		20:11 (T05)
	17:07	25	08:57 (T17)	17:50	74	17:21 (T09)	19:26			20:04	17	19:36 (T08)	20:39	9	20:17 (T05)	21:03	23	20:34 (T05)
19	07:48		08:34 (T17)	07:14		07:39 (T16)	07:24			06:29		19:20 (T08)	05:48		20:07 (T05)	05:35		20:11 (T05)
	17:09	23	08:57 (T17)	17:51	72	17:21 (T09)	19:27			20:05	13	19:33 (T08)	20:40	11	20:18 (T05)	21:04	23	20:34 (T05)
20	07:48		08:35 (T17)	07:12		07:39 (T16)	07:23			06:28		19:23 (T08)	05:48		20:07 (T05)	05:35		20:11 (T05)
	17:10	21	08:56 (T17)	17:52	72	17:21 (T09)	19:28			20:06	8	19:31 (T08)	20:41	12	20:19 (T05)	21:04	23	20:34 (T05)
21	07:47		08:36 (T17)	07:11		07:41 (T16)	07:21			06:26			05:47		20:06 (T05)	05:35		20:11 (T05)
	17:11	19	08:55 (T17)	17:54	69	17:22 (T09)	19:30			20:07			20:42	13	20:19 (T05)	21:04	23	20:34 (T05)
22	07:46		08:37 (T17)	07:09		07:42 (T16)	07:19			06:24			05:46		20:05 (T05)	05:35		20:11 (T05)
	17:13	17	08:54 (T17)	17:55	66	17:21 (T09)	19:31			20:09			20:43	15	20:20 (T05)	21:04	23	20:34 (T05)
23	07:46		08:39 (T17)	07:08		07:44 (T16)	07:17			06:23			05:45		20:05 (T05)	05:35		20:12 (T05)
	17:14	13	08:52 (T17)	17:56	62	17:21 (T09)	19:32			20:10			20:44	16	20:21 (T05)	21:05	23	20:35 (T05)
24	07:45		08:44 (T17)	07:06		16:31 (T09)	07:15			06:21			05:44		20:05 (T05)	05:36		20:12 (T05)
	17:15	6	08:50 (T17)	17:58	50	17:21 (T09)	19:33			20:11			20:45	18	20:23 (T05)	21:05	23	20:35 (T05)
25	07:44			07:04		16:30 (T09)	07:13			06:20			05:43		20:05 (T05)	05:36		20:12 (T05)
	17:17			17:59	50	17:20 (T09)	19:35			20:12			20:46	18	20:23 (T05)	21:05	23	20:35 (T05)
26	07:43			07:03		16:30 (T09)	07:12			06:18			05:42		20:05 (T05)	05:36		20:13 (T05)
	17:18			18:00	49	17:19 (T09)	19:36			20:13			20:47	19	20:24 (T05)	21:05	23	20:36 (T05)
27	07:42			07:01		16:32 (T09)	07:10			06:17			05:42		20:05 (T05)	05:37		20:12 (T05)
	17:19			18:00	47	17:19 (T09)	19:37			20:15			20:48	20	20:25 (T05)	21:05	24	20:36 (T05)
28	07:41			06:59		16:32 (T09)	07:08			06:15			05:41		20:05 (T05)	05:37		20:13 (T05)
	17:21			18:02	46	17:18 (T09)	19:38			20:16			20:49	21	20:26 (T05)	21:05	24	20:37 (T05)
29	07:40			06:58		16:32 (T09)	07:06			06:14			05:40		20:05 (T05)	05:38		20:13 (T05)
	17:22			18:03	45	17:17 (T09)	19:39			20:17			20:50	21	20:26 (T05)	21:05	24	20:37 (T05)
30	07:39						07:04			06:12			05:40		20:05 (T05)	05:38		20:12 (T05)
	17:23						19:41			20:18			20:51	23	20:28 (T05)	21:05	25	20:37 (T05)
31	07:38						07:03						05:39		20:05 (T05)			
	17:25						19:42						20:52	23	20:28 (T05)			
Potential sun hours	288			303			369			403			457			463		
Total, worst case		652			1409			262			247			252			725	
Sun reduction		0.53			0.59			0.57			0.56			0.62			0.67	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.71			0.60			0.58			0.65			0.70			0.70	
Total reduction		0.38			0.35			0.33			0.37			0.43			0.47	
Total, real		247			499			87			91			109			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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 34 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1382)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September			October			November			December		
1	05:39		20:13 (T05)	06:05			06:40		19:16 (T08)	07:15			06:54		07:18 (T16)	07:32		08:09 (T17)
	21:05	25	20:38 (T05)	20:44			19:57	18	19:34 (T08)	19:02			17:09	54	16:46 (T09)	16:41	30	08:39 (T17)
2	05:39		20:12 (T05)	06:06			06:42		19:16 (T08)	07:16			06:55		07:20 (T16)	07:33		08:10 (T17)
	21:05	25	20:37 (T05)	20:43			19:55	17	19:33 (T08)	19:00			17:08	50	16:46 (T09)	16:41	31	08:41 (T17)
3	05:40		20:13 (T05)	06:08			06:43		19:16 (T08)	07:17			06:56		07:21 (T16)	07:34		08:10 (T17)
	21:05	25	20:38 (T05)	20:42			19:53	15	19:31 (T08)	18:57			17:06	45	16:44 (T09)	16:41	31	08:41 (T17)
4	05:40		20:13 (T05)	06:09			06:44		19:16 (T08)	07:18			06:58		07:23 (T16)	07:35		08:10 (T17)
	21:04	26	20:39 (T05)	20:40			19:52	13	19:29 (T08)	18:55			17:05	39	16:43 (T09)	16:40	32	08:42 (T17)
5	05:41		20:13 (T05)	06:10			06:45		19:17 (T08)	07:20		17:24 (T09)	06:59		16:09 (T09)	07:36		08:10 (T17)
	21:04	26	20:39 (T05)	20:39			19:50	10	19:27 (T08)	18:53	12	17:36 (T09)	17:04	32	16:41 (T09)	16:40	32	08:42 (T17)
6	05:42		20:13 (T05)	06:11			06:46		19:18 (T08)	07:21		17:20 (T09)	07:00		16:10 (T09)	07:37		08:10 (T17)
	21:04	26	20:39 (T05)	20:38			19:48	7	19:25 (T08)	18:51	21	17:41 (T09)	17:02	30	16:40 (T09)	16:40	33	08:43 (T17)
7	05:42		20:13 (T05)	06:12			06:47		19:19 (T08)	07:22		17:17 (T09)	07:02		16:13 (T09)	07:38		08:11 (T17)
	21:04	25	20:38 (T05)	20:36			19:46	4	19:23 (T08)	18:49	26	17:43 (T09)	17:01	25	16:38 (T09)	16:40	32	08:43 (T17)
8	05:43		20:13 (T05)	06:13			06:48			07:23		17:14 (T09)	07:03		16:15 (T09)	07:39		08:11 (T17)
	21:03	25	20:38 (T05)	20:35			19:44			18:48	31	17:45 (T09)	17:00	20	16:35 (T09)	16:40	33	08:44 (T17)
9	05:44		20:13 (T05)	06:14			06:49			07:24		17:12 (T09)	07:04		16:19 (T09)	07:40		08:11 (T17)
	21:03	25	20:38 (T05)	20:34			19:43			18:46	34	17:46 (T09)	16:59	14	16:33 (T09)	16:40	33	08:44 (T17)
10	05:44		20:14 (T05)	06:15			06:51			07:26		17:11 (T09)	07:06			07:41		08:12 (T17)
	21:02	24	20:38 (T05)	20:32			19:41			18:44	37	17:48 (T09)	16:58			16:40	33	08:45 (T17)
11	05:45		20:13 (T05)	06:16			06:52			07:27		17:09 (T09)	07:07			07:42		08:12 (T17)
	21:02	24	20:37 (T05)	20:31			19:39			18:42	40	17:49 (T09)	16:57			16:40	33	08:45 (T17)
12	05:46		20:13 (T05)	06:18			06:53			07:28		17:07 (T09)	07:08			07:43		08:13 (T17)
	21:01	24	20:37 (T05)	20:29			19:37			18:41	42	17:49 (T09)	16:56			16:40	33	08:46 (T17)
13	05:47		20:14 (T05)	06:19			06:54			07:29		17:05 (T09)	07:10			07:44		08:14 (T17)
	21:01	22	20:36 (T05)	20:28			19:35			18:39	45	17:50 (T09)	16:54			16:40	32	08:46 (T17)
14	05:48		20:14 (T05)	06:20			06:55			07:30		17:05 (T09)	07:11			07:45		08:13 (T17)
	21:00	22	20:36 (T05)	20:26			19:33			18:37	46	17:51 (T09)	16:53			16:40	33	08:46 (T17)
15	05:48		20:14 (T05)	06:21			06:56			07:32		17:04 (T09)	07:12			07:45		08:14 (T17)
	21:00	22	20:36 (T05)	20:25			19:32			18:35	47	17:51 (T09)	16:52			16:40	33	08:47 (T17)
16	05:49		20:14 (T05)	06:22			06:57			07:33		17:03 (T09)	07:13			07:46		08:15 (T17)
	20:59	20	20:34 (T05)	20:23			19:30			18:34	48	17:51 (T09)	16:51			16:41	32	08:47 (T17)
17	05:50		20:14 (T05)	06:23			06:59			07:34		17:03 (T09)	07:15			07:47		08:15 (T17)
	20:58	20	20:34 (T05)	20:22			19:28			18:32	49	17:52 (T09)	16:51			16:41	33	08:48 (T17)
18	05:51		20:14 (T05)	06:24			07:00			07:36		17:02 (T09)	07:16			07:47		08:15 (T17)
	20:58	19	20:33 (T05)	20:20			19:26			18:30	50	17:52 (T09)	16:50			16:41	33	08:48 (T17)
19	05:52		20:15 (T05)	06:26			07:01			07:37		08:17 (T16)	07:17		08:18 (T17)	07:48		08:16 (T17)
	20:57	17	20:32 (T05)	20:19			19:24			18:29	56	17:51 (T09)	16:49	6	08:24 (T17)	16:42	33	08:49 (T17)
20	05:53		20:15 (T05)	06:27			07:02			07:38		08:14 (T16)	07:19		08:14 (T17)	07:49		08:16 (T17)
	20:56	17	20:32 (T05)	20:17			19:22			18:27	64	17:52 (T09)	16:48	13	08:27 (T17)	16:42	33	08:49 (T17)
21	05:54		20:16 (T05)	06:28			07:03			07:39		08:12 (T16)	07:20		08:13 (T17)	07:49		08:17 (T17)
	20:55	15	20:31 (T05)	20:16			19:20			18:26	67	17:52 (T09)	16:47	17	08:30 (T17)	16:42	33	08:50 (T17)
22	05:55		20:16 (T05)	06:29			07:04			07:41		08:10 (T16)	07:21		08:12 (T17)	07:50		08:17 (T17)
	20:54	14	20:30 (T05)	20:14			19:19			18:24	70	17:51 (T09)	16:46	19	08:31 (T17)	16:43	33	08:50 (T17)
23	05:56		20:17 (T05)	06:30		19:26 (T08)	07:06			07:42		08:10 (T16)	07:22		08:11 (T17)	07:50		08:18 (T17)
	20:53	13	20:30 (T05)	20:12	9	19:35 (T08)	19:17			18:22	72	17:52 (T09)	16:46	21	08:32 (T17)	16:43	33	08:51 (T17)
24	05:57		20:17 (T05)	06:31		19:23 (T08)	07:07			07:43		08:08 (T16)	07:24		08:11 (T17)	07:51		08:18 (T17)
	20:52	12	20:29 (T05)	20:11	14	19:37 (T08)	19:15			18:21	74	17:51 (T09)	16:45	23	08:34 (T17)	16:44	33	08:51 (T17)
25	05:58		20:18 (T05)	06:32		19:21 (T08)	07:08			07:44		08:08 (T16)	07:25		08:10 (T17)	07:51		08:19 (T17)
	20:51	10	20:28 (T05)	20:09	18	19:39 (T08)	19:13			18:19	73	17:50 (T09)	16:44	25	08:35 (T17)	16:45	33	08:52 (T17)
26	05:59		20:19 (T05)	06:34		19:20 (T08)	07:09			07:46		08:10 (T16)	07:26		08:09 (T17)	07:51		08:19 (T17)
	20:51	8	20:27 (T05)	20:07	20	19:40 (T08)	19:11			18:18	71	17:50 (T09)	16:44	27	08:36 (T17)	16:45	33	08:52 (T17)
27	06:00		20:20 (T05)	06:35		19:18 (T08)	07:10			07:47		08:11 (T16)	07:27		08:10 (T17)	07:52		08:20 (T17)
	20:49	6	20:26 (T05)	20:06	22	19:40 (T08)	19:09			18:16	70	17:50 (T09)	16:43	27	08:37 (T17)	16:46	32	08:52 (T17)
28	06:01		20:22 (T05)	06:36		19:17 (T08)	07:11			07:48		08:13 (T16)	07:29		08:10 (T17)	07:52		08:20 (T17)
	20:48	3	20:25 (T05)	20:04	23	19:40 (T08)	19:07			18:15	67	17:50 (T09)	16:43	28	08:38 (T17)	16:47	33	08:53 (T17)
29	06:02			06:37		19:18 (T08)	07:12			07:50		08:14 (T16)	07:30		08:09 (T17)	07:52		08:20 (T17)
	20:47			20:02	22	19:40 (T08)	19:06			18:13	64	17:49 (T09)	16:42	29	08:38 (T17)	16:47	33	08:53 (T17)
30	06:03			06:38		19:17 (T08)	07:14			07:51		08:15 (T16)	07:31		08:09 (T17)	07:53		08:21 (T17)
	20:46			20:00	21	19:38 (T08)	19:04			18:12	61	17:47 (T09)	16:42	30	08:39 (T17)	16:48	33	08:54 (T17)
31	06:04			06:39		19:16 (T08)				07:52		08:17 (T16)				07:53		08:22 (T17)
	20:45			19:59	20	19:36 (T08)				18:10	58	17:47 (T09)				16:49	33	08:55 (T17)
Potential sun hours	469			434			377			342			290			278		
Total, worst case		540			169			84			1395			574			1010	
Sun reduction		0.74			0.69			0.62			0.51			0.37			0.38	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.70			0.65			0.65			0.60			0.65			0.71	
Total reduction		0.52			0.45			0.41			0.31			0.24			0.27	
Total, real		279			76			34			426			138			274	

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

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

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 40 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1387)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April	May			June		
1	07:53			07:38		08:07 (T24)	06:56		07:19 (T25)	07:01	06:11			05:39		06:18 (T20)
	16:50			17:26	52	08:59 (T24)	18:05	29	07:48 (T25)	19:43	20:20			20:53	18	06:36 (T20)
2	07:53			07:36		08:06 (T24)	06:55		07:19 (T25)	06:59	06:10			05:38		06:19 (T20)
	16:50			17:28	53	08:59 (T24)	18:06	28	07:47 (T25)	19:45	20:21			20:54	17	06:36 (T20)
3	07:53			07:35		08:06 (T24)	06:53		07:19 (T25)	06:57	06:08			05:38		06:20 (T20)
	16:51			17:29	54	09:00 (T24)	18:07	27	07:46 (T25)	19:46	20:22			20:55	14	06:34 (T20)
4	07:53			07:34		08:06 (T24)	06:51		07:20 (T25)	06:56	06:07			05:37		06:21 (T20)
	16:52			17:31	54	09:00 (T24)	18:08	26	07:46 (T25)	19:47	20:23			20:55	13	06:34 (T20)
5	07:53			07:33		08:07 (T24)	06:50		07:21 (T25)	06:54	06:05		06:28 (T20)	05:37		06:22 (T20)
	16:53			17:32	54	09:01 (T24)	18:10	23	07:44 (T25)	19:48	20:24	4	06:32 (T20)	20:56	10	06:32 (T20)
6	07:53			07:32		08:07 (T24)	06:48		07:22 (T25)	06:52	06:04		06:27 (T20)	05:37		06:23 (T20)
	16:54			17:33	54	09:01 (T24)	18:11	20	07:42 (T25)	19:49	20:26	7	06:34 (T20)	20:57	8	06:31 (T20)
7	07:53			07:31		08:06 (T24)	06:46		07:23 (T25)	06:50	06:03		06:26 (T20)	05:36		06:26 (T20)
	16:55			17:35	54	09:00 (T24)	18:12	17	07:40 (T25)	19:51	20:27	10	06:36 (T20)	20:58	4	06:30 (T20)
8	07:53			07:29		08:07 (T24)	07:44		08:26 (T25)	06:48	06:01		06:25 (T20)	05:36		
	16:56			17:36	54	09:01 (T24)	18:14	12	08:38 (T25)	19:52	20:28	12	06:37 (T20)	20:58		
9	07:53			07:28		08:07 (T24)	07:43			06:47	06:00		06:23 (T20)	05:36		
	16:57			17:37	54	09:01 (T24)	19:15			19:53	20:29	14	06:37 (T20)	20:59		
10	07:52		08:24 (T24)	07:27		08:07 (T24)	07:41			06:45	05:59		06:22 (T20)	05:35		
	16:58	6	08:30 (T24)	17:39	53	09:00 (T24)	19:16			19:54	20:30	16	06:38 (T20)	21:00		
11	07:52		08:20 (T24)	07:25		08:07 (T24)	07:39			06:43	05:58		06:21 (T20)	05:35		
	16:59	13	08:33 (T24)	17:40	53	09:00 (T24)	19:17			19:55	20:31	18	06:39 (T20)	21:00		
12	07:52		08:19 (T24)	07:24		08:07 (T24)	07:37			06:41	05:56		06:20 (T20)	05:35		
	17:01	17	08:36 (T24)	17:42	52	08:59 (T24)	19:19			19:57	20:32	19	06:39 (T20)	21:01		
13	07:52		08:17 (T24)	07:23		08:08 (T24)	07:35			06:40	05:55		06:19 (T20)	05:35		
	17:02	21	08:38 (T24)	17:43	51	08:59 (T24)	19:20			19:58	20:34	21	06:40 (T20)	21:01		
14	07:51		08:17 (T24)	07:21		08:09 (T24)	07:34			06:38	05:54		06:18 (T20)	05:35		
	17:03	23	08:40 (T24)	17:44	50	08:59 (T24)	19:21			19:59	20:35	22	06:40 (T20)	21:02		
15	07:51		08:16 (T24)	07:20		08:09 (T24)	07:32			06:36	05:53		06:17 (T20)	05:35		
	17:04	26	08:42 (T24)	17:46	49	08:58 (T24)	19:22			20:00	20:36	23	06:40 (T20)	21:02		
16	07:50		08:16 (T24)	07:18		08:10 (T24)	07:30			06:35	05:52		06:16 (T20)	05:35		
	17:05	28	08:44 (T24)	17:47	48	08:58 (T24)	19:24			20:01	20:37	24	06:40 (T20)	21:03		
17	07:50		08:15 (T24)	07:17		08:10 (T24)	07:28			06:33	05:51		06:15 (T20)	05:35		
	17:07	30	08:45 (T24)	17:48	46	08:56 (T24)	19:25			20:03	20:38	25	06:40 (T20)	21:03		
18	07:49		08:14 (T24)	07:16		08:12 (T24)	07:26			06:31	05:50		06:14 (T20)	05:35		
	17:08	32	08:46 (T24)	17:50	44	08:56 (T24)	19:26			20:04	20:39	26	06:40 (T20)	21:03		
19	07:49		08:14 (T24)	07:14		07:37 (T25)	07:25			06:30	05:49		06:13 (T20)	05:35		
	17:09	34	08:48 (T24)	17:51	45	08:54 (T24)	19:27			20:05	20:40	27	06:40 (T20)	21:04		
20	07:48		08:13 (T24)	07:13		07:35 (T25)	07:23			06:28	05:48		06:12 (T20)	05:35		
	17:10	36	08:49 (T24)	17:53	46	08:52 (T24)	19:29			20:06	20:41	28	06:40 (T20)	21:04		
21	07:47		08:12 (T24)	07:11		07:34 (T25)	07:21			06:26	05:47		06:11 (T20)	05:35		
	17:12	38	08:50 (T24)	17:54	47	08:51 (T24)	19:30			20:08	20:42	29	06:40 (T20)	21:04		
22	07:47		08:11 (T24)	07:09		07:32 (T25)	07:19			06:25	05:46		06:11 (T20)	05:35		
	17:13	40	08:51 (T24)	17:55	46	08:49 (T24)	19:31			20:09	20:43	28	06:39 (T20)	21:05		
23	07:46		08:11 (T24)	07:08		07:31 (T25)	07:17			06:23	05:45		06:12 (T20)	05:36		
	17:14	42	08:53 (T24)	17:57	44	08:47 (T24)	19:32			20:10	20:44	28	06:40 (T20)	21:05		
24	07:45		08:10 (T24)	07:06		07:29 (T25)	07:16			06:22	05:44		06:13 (T20)	05:36		
	17:16	44	08:54 (T24)	17:58	41	08:44 (T24)	19:34			20:11	20:45	26	06:39 (T20)	21:05		
25	07:44		08:09 (T24)	07:05		07:27 (T25)	07:14			06:20	05:43		06:13 (T20)	05:36		
	17:17	45	08:54 (T24)	17:59	37	08:40 (T24)	19:35			20:12	20:46	26	06:39 (T20)	21:05		
26	07:43		08:08 (T24)	07:03		07:26 (T25)	07:12			06:18	05:43		06:14 (T20)	05:37		
	17:18	47	08:55 (T24)	18:01	23	07:49 (T25)	19:36			20:14	20:47	25	06:39 (T20)	21:05		
27	07:42		08:08 (T24)	07:01		07:24 (T25)	07:10			06:17	05:42		06:14 (T20)	05:37		
	17:20	48	08:56 (T24)	18:01	24	07:48 (T25)	19:37			20:15	20:48	24	06:38 (T20)	21:05		
28	07:42		08:08 (T24)	07:00		07:22 (T25)	07:08			06:15	05:41		06:14 (T20)	05:37		
	17:21	49	08:57 (T24)	18:02	26	07:48 (T25)	19:38			20:16	20:49	24	06:38 (T20)	21:05		
29	07:41		08:07 (T24)	06:58		07:21 (T25)	07:06			06:14	05:41		06:16 (T20)	05:38		
	17:22	50	08:57 (T24)	18:03	27	07:48 (T25)	19:40			20:17	20:50	22	06:38 (T20)	21:05		
30	07:40		08:07 (T24)				07:05			06:12	05:40		06:16 (T20)	05:38		
	17:24	51	08:58 (T24)				19:41			20:18	20:51	21	06:37 (T20)	21:05		
31	07:39		08:07 (T24)				07:03				05:39		06:17 (T20)			
	17:25	52	08:59 (T24)				19:42				20:52	20	06:37 (T20)			
Potential sun hours	288			303			369			403	456			463		
Total, worst case		772			1335			182				569			84	
Sun reduction		0.53			0.59			0.57				0.62			0.67	
Oper. time red.		1.00			1.00			1.00				1.00			1.00	
Wind dir. red.		0.70			0.70			0.68				0.58			0.58	
Total reduction		0.37			0.41			0.39				0.37			0.40	
Total, real		289			553			71				208			33	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 40 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1387)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September	October			November			December		
1	05:39			06:06		06:31 (T20)	06:41	07:15			06:54		07:37 (T24)	07:32		08:01 (T24)
	21:05			20:44	19	06:50 (T20)	19:57	19:02			17:09	53	08:30 (T24)	16:42	17	08:18 (T24)
2	05:39			06:07		06:32 (T20)	06:42	07:16			06:55		07:36 (T24)	07:33		08:03 (T24)
	21:05			20:43	17	06:49 (T20)	19:55	19:00			17:08	54	08:30 (T24)	16:41	13	08:16 (T24)
3	05:40			06:08		06:33 (T20)	06:43	07:17			06:56		07:36 (T24)	07:34		08:07 (T24)
	21:05			20:42	15	06:48 (T20)	19:54	18:57			17:07	54	08:30 (T24)	16:41	6	08:13 (T24)
4	05:41			06:09		06:34 (T20)	06:44	07:19			06:58		07:36 (T24)	07:35		
	21:05			20:40	13	06:47 (T20)	19:52	18:55			17:05	54	08:30 (T24)	16:41		
5	05:41			06:10		06:35 (T20)	06:45	07:20		08:05 (T25)	06:59		07:36 (T24)	07:37		
	21:04			20:39	11	06:46 (T20)	19:50	18:53	8	08:13 (T25)	17:04	54	08:30 (T24)	16:41		
6	05:42		06:30 (T20)	06:11		06:36 (T20)	06:46	07:21		08:01 (T25)	07:00		07:37 (T24)	07:38		
	21:04	7	06:37 (T20)	20:38	9	06:45 (T20)	19:48	18:51	15	08:16 (T25)	17:03	54	08:31 (T24)	16:40		
7	05:43		06:29 (T20)	06:12		06:37 (T20)	06:47	07:22		07:58 (T25)	07:02		07:36 (T24)	07:39		
	21:04	10	06:39 (T20)	20:37	6	06:43 (T20)	19:46	18:50	19	08:17 (T25)	17:02	54	08:30 (T24)	16:40		
8	05:43		06:28 (T20)	06:13		06:38 (T20)	06:49	07:23		07:56 (T25)	07:03		07:37 (T24)	07:40		
	21:03	12	06:40 (T20)	20:35	3	06:41 (T20)	19:45	18:48	22	08:18 (T25)	17:00	54	08:31 (T24)	16:40		
9	05:44		06:27 (T20)	06:14			06:50	07:25		07:55 (T25)	07:04		07:37 (T24)	07:40		
	21:03	14	06:41 (T20)	20:34			19:43	18:46	25	08:20 (T25)	16:59	53	08:30 (T24)	16:40		
10	05:45		06:27 (T20)	06:16			06:51	07:26		07:54 (T25)	07:06		07:37 (T24)	07:41		
	21:03	15	06:42 (T20)	20:32			19:41	18:44	26	08:20 (T25)	16:58	53	08:30 (T24)	16:40		
11	05:45		06:26 (T20)	06:17			06:52	07:27		07:53 (T25)	07:07		07:38 (T24)	07:42		
	21:02	18	06:44 (T20)	20:31			19:39	18:43	28	08:21 (T25)	16:57	52	08:30 (T24)	16:40		
12	05:46		06:25 (T20)	06:18			06:53	07:28		07:52 (T25)	07:08		07:38 (T24)	07:43		
	21:02	19	06:44 (T20)	20:30			19:37	18:41	28	08:20 (T25)	16:56	52	08:30 (T24)	16:40		
13	05:47		06:25 (T20)	06:19			06:54	07:30		07:53 (T25)	07:10		07:39 (T24)	07:44		
	21:01	20	06:45 (T20)	20:28			19:36	18:39	28	08:21 (T25)	16:55	51	08:30 (T24)	16:40		
14	05:48		06:24 (T20)	06:20			06:55	07:31		07:54 (T25)	07:11		07:39 (T24)	07:45		
	21:00	22	06:46 (T20)	20:27			19:34	18:37	27	08:21 (T25)	16:54	50	08:29 (T24)	16:40		
15	05:49		06:24 (T20)	06:21			06:57	07:32		07:55 (T25)	07:12		07:41 (T24)	07:46		
	21:00	23	06:47 (T20)	20:25			19:32	18:36	25	08:20 (T25)	16:53	49	08:30 (T24)	16:41		
16	05:50		06:24 (T20)	06:22			06:58	07:33		07:56 (T25)	07:14		07:41 (T24)	07:46		
	20:59	23	06:47 (T20)	20:24			19:30	18:34	24	08:20 (T25)	16:52	48	08:29 (T24)	16:41		
17	05:51		06:24 (T20)	06:24			06:59	07:34		07:58 (T25)	07:15		07:41 (T24)	07:47		
	20:58	24	06:48 (T20)	20:22			19:28	18:32	31	09:08 (T24)	16:51	47	08:28 (T24)	16:41		
18	05:51		06:22 (T20)	06:25			07:00	07:36		07:59 (T25)	07:16		07:43 (T24)	07:48		
	20:58	26	06:48 (T20)	20:21			19:26	18:31	39	09:13 (T24)	16:50	45	08:28 (T24)	16:42		
19	05:52		06:22 (T20)	06:26			07:01	07:37		08:00 (T25)	07:18		07:44 (T24)	07:48		
	20:57	26	06:48 (T20)	20:19			19:24	18:29	44	09:16 (T24)	16:49	44	08:28 (T24)	16:42		
20	05:53		06:22 (T20)	06:27			07:02	07:38		08:02 (T25)	07:19		07:46 (T24)	07:49		
	20:56	27	06:49 (T20)	20:17			19:23	18:27	46	09:19 (T24)	16:48	42	08:28 (T24)	16:42		
21	05:54		06:22 (T20)	06:28			07:03	07:40		08:03 (T25)	07:20		07:47 (T24)	07:49		
	20:55	27	06:49 (T20)	20:16			19:21	18:26	47	09:20 (T24)	16:47	40	08:27 (T24)	16:43		
22	05:55		06:22 (T20)	06:29			07:05	07:41		08:05 (T25)	07:21		07:48 (T24)	07:50		
	20:55	28	06:50 (T20)	20:14			19:19	18:24	47	09:22 (T24)	16:47	38	08:26 (T24)	16:43		
23	05:56		06:22 (T20)	06:30			07:06	07:42		08:06 (T25)	07:23		07:50 (T24)	07:50		
	20:54	28	06:50 (T20)	20:13			19:17	18:23	46	09:23 (T24)	16:46	36	08:26 (T24)	16:44		
24	05:57		06:23 (T20)	06:32			07:07	07:43		08:07 (T25)	07:24		07:51 (T24)	07:51		
	20:53	27	06:50 (T20)	20:11			19:15	18:21	43	09:24 (T24)	16:45	34	08:25 (T24)	16:44		
25	05:58		06:24 (T20)	06:33			07:08	07:45		08:41 (T24)	07:25		07:52 (T24)	07:51		
	20:52	27	06:51 (T20)	20:09			19:13	18:20	45	09:26 (T24)	16:45	32	08:24 (T24)	16:45		
26	05:59		06:25 (T20)	06:34			07:09	07:46		08:40 (T24)	07:26		07:54 (T24)	07:52		
	20:51	26	06:51 (T20)	20:08			19:11	18:18	46	09:26 (T24)	16:44	30	08:24 (T24)	16:46		
27	06:00		06:26 (T20)	06:35			07:10	07:47		08:39 (T24)	07:28		07:55 (T24)	07:52		
	20:50	25	06:51 (T20)	20:06			19:10	18:17	48	09:27 (T24)	16:44	28	08:23 (T24)	16:46		
28	06:01		06:27 (T20)	06:36			07:12	07:49		08:39 (T24)	07:29		07:56 (T24)	07:52		
	20:49	24	06:51 (T20)	20:04			19:08	18:15	49	09:28 (T24)	16:43	26	08:22 (T24)	16:47		
29	06:02		06:28 (T20)	06:37			07:13	07:50		08:38 (T24)	07:30		07:57 (T24)	07:53		
	20:48	23	06:51 (T20)	20:02			19:06	18:14	50	09:28 (T24)	16:43	23	08:20 (T24)	16:48		
30	06:03		06:29 (T20)	06:38			07:14	07:51		08:38 (T24)	07:31		07:59 (T24)	07:53		
	20:46	21	06:50 (T20)	20:01			19:04	18:12	51	09:29 (T24)	16:42	21	08:20 (T24)	16:48		
31	06:05		06:30 (T20)	06:40				07:53		08:37 (T24)				07:53		
	20:45	20	06:50 (T20)	19:59				18:11	52	09:29 (T24)				16:49		
Potential sun hours	469			434			377	342			290			278		
Total, worst case		562			93				959			1325			36	
Sun reduction		0.74			0.69				0.51			0.37			0.38	
Oper. time red.		1.00			1.00				1.00			1.00			1.00	
Wind dir. red.		0.58			0.58				0.69			0.70			0.70	
Total reduction		0.44			0.41				0.36			0.26			0.27	
Total, real		246			38				341			346			10	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 41 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1388)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January		February		March		April	May	June		
1	07:53	08:20 (T13)	07:38	08:28 (T13)	06:56	07:19 (T12)	07:01	06:11	05:39		
	16:50	41 09:01 (T13)	17:26	46 09:14 (T13)	18:05	25 07:44 (T12)	19:43	20:20	20:53		
2	07:53	08:20 (T13)	07:37	08:28 (T13)	06:55	07:17 (T12)	06:59	06:10	05:38		
	16:50	42 09:02 (T13)	17:28	46 09:14 (T13)	18:06	26 07:43 (T12)	19:45	20:21	20:54		
3	07:53	08:20 (T13)	07:35	08:28 (T13)	06:53	07:17 (T12)	06:57	06:08	05:38		
	16:51	42 09:02 (T13)	17:29	45 09:13 (T13)	18:07	26 07:43 (T12)	19:46	20:22	20:55		
4	07:53	08:21 (T13)	07:34	08:29 (T13)	06:51	07:18 (T12)	06:56	06:07	05:37		
	16:52	42 09:03 (T13)	17:31	43 09:12 (T13)	18:08	25 07:43 (T12)	19:47	20:23	20:55		
5	07:53	08:21 (T13)	07:33	08:30 (T13)	06:50	07:18 (T12)	06:54	06:05	05:37		
	16:53	43 09:04 (T13)	17:32	42 09:12 (T13)	18:10	23 07:41 (T12)	19:48	20:24	20:56		
6	07:53	08:21 (T13)	07:32	08:32 (T13)	06:48	07:19 (T12)	06:52	06:04	05:37		
	16:54	44 09:05 (T13)	17:33	39 09:11 (T13)	18:11	21 07:40 (T12)	19:49	20:26	20:57		
7	07:53	08:20 (T13)	07:31	08:32 (T13)	06:46	07:20 (T12)	06:50	06:03	05:36		
	16:55	45 09:05 (T13)	17:35	37 09:09 (T13)	18:12	18 07:38 (T12)	19:51	20:27	20:58		
8	07:53	08:21 (T13)	07:29	08:34 (T13)	07:44	08:22 (T12)	06:48	06:01	05:36		20:32 (T06)
	16:56	45 09:06 (T13)	17:36	34 09:08 (T13)	18:14	14 08:36 (T12)	19:52	20:28	20:58	3	20:35 (T06)
9	07:53	08:21 (T13)	07:28	08:36 (T13)	07:43	08:26 (T12)	06:47	06:00	05:36		20:29 (T06)
	16:57	46 09:07 (T13)	17:37	31 09:07 (T13)	19:15	5 08:31 (T12)	19:53	20:29	20:59	6	20:35 (T06)
10	07:53	08:22 (T13)	07:27	08:37 (T13)	07:41		06:45	05:59	05:35		20:29 (T06)
	16:58	46 09:08 (T13)	17:39	28 09:05 (T13)	19:16		19:54	20:30	21:00	6	20:35 (T06)
11	07:52	08:21 (T13)	07:26	08:39 (T13)	07:39		06:43	05:58	05:35		20:28 (T06)
	16:59	47 09:08 (T13)	17:40	24 09:03 (T13)	19:17		19:55	20:31	21:00	8	20:36 (T06)
12	07:52	08:22 (T13)	07:24	08:43 (T13)	07:37		06:41	05:56	05:35		20:28 (T06)
	17:01	47 09:09 (T13)	17:42	17 09:00 (T13)	19:19		19:57	20:33	21:01	9	20:37 (T06)
13	07:52	08:21 (T13)	07:23	08:47 (T13)	07:35		06:40	05:55	05:35		20:28 (T06)
	17:02	48 09:09 (T13)	17:43	8 08:55 (T13)	19:20		19:58	20:34	21:01	9	20:37 (T06)
14	07:51	08:22 (T13)	07:21		07:34		06:38	05:54	05:35		20:28 (T06)
	17:03	48 09:10 (T13)	17:44		19:21		19:59	20:35	21:02	10	20:38 (T06)
15	07:51	08:22 (T13)	07:20		07:32		06:36	05:53	05:35		20:27 (T06)
	17:04	48 09:10 (T13)	17:46		19:22		20:00	20:36	21:02	11	20:38 (T06)
16	07:50	08:22 (T13)	07:19		07:30		06:35	05:52	05:35		20:27 (T06)
	17:05	49 09:11 (T13)	17:47		19:24		20:02	20:37	21:03	11	20:38 (T06)
17	07:50	08:22 (T13)	07:17		07:28		06:33	05:51	05:35		20:27 (T06)
	17:07	49 09:11 (T13)	17:48		19:25		20:03	20:38	21:03	12	20:39 (T06)
18	07:49	08:23 (T13)	07:16		07:26		06:31	05:50	05:35		20:27 (T06)
	17:08	50 09:13 (T13)	17:50		19:26		20:04	20:39	21:04	12	20:39 (T06)
19	07:49	08:23 (T13)	07:14		07:25		06:30	05:49	05:35		20:27 (T06)
	17:09	50 09:13 (T13)	17:51		19:27		20:05	20:40	21:04	12	20:39 (T06)
20	07:48	08:23 (T13)	07:13		07:23		06:28	05:48	05:35		20:27 (T06)
	17:10	50 09:13 (T13)	17:53		19:29		20:06	20:41	21:04	12	20:39 (T06)
21	07:47	08:23 (T13)	07:11	07:34 (T12)	07:21		06:26	05:47	05:35		20:28 (T06)
	17:12	50 09:13 (T13)	17:54	3 07:37 (T12)	19:30		20:08	20:42	21:04	12	20:40 (T06)
22	07:47	08:24 (T13)	07:09	07:32 (T12)	07:19		06:25	05:46	05:35		20:28 (T06)
	17:13	50 09:14 (T13)	17:55	7 07:39 (T12)	19:31		20:09	20:43	21:05	12	20:40 (T06)
23	07:46	08:24 (T13)	07:08	07:31 (T12)	07:17		06:23	05:45	05:36		20:28 (T06)
	17:14	50 09:14 (T13)	17:57	10 07:41 (T12)	19:32		20:10	20:45	21:05	12	20:40 (T06)
24	07:45	08:24 (T13)	07:06	07:29 (T12)	07:16		06:22	05:44	05:36		20:28 (T06)
	17:16	50 09:14 (T13)	17:58	13 07:42 (T12)	19:34		20:11	20:46	21:05	12	20:40 (T06)
25	07:44	08:24 (T13)	07:05	07:27 (T12)	07:14		06:20	05:43	05:36		20:29 (T06)
	17:17	50 09:14 (T13)	17:59	16 07:43 (T12)	19:35		20:12	20:47	21:05	12	20:41 (T06)
26	07:43	08:24 (T13)	07:03	07:26 (T12)	07:12		06:18	05:43	05:37		20:29 (T06)
	17:18	51 09:15 (T13)	18:01	18 07:44 (T12)	19:36		20:14	20:47	21:05	12	20:41 (T06)
27	07:43	08:25 (T13)	07:01	07:24 (T12)	07:10		06:17	05:42	05:37		20:29 (T06)
	17:20	50 09:15 (T13)	18:01	20 07:44 (T12)	19:37		20:15	20:48	21:05	11	20:40 (T06)
28	07:42	08:25 (T13)	07:00	07:22 (T12)	07:08		06:15	05:41	05:37		20:31 (T06)
	17:21	50 09:15 (T13)	18:02	22 07:44 (T12)	19:39		20:16	20:49	21:05	10	20:41 (T06)
29	07:41	08:26 (T13)	06:58	07:21 (T12)	07:06		06:14	05:41	05:38		20:31 (T06)
	17:22	49 09:15 (T13)	18:03	24 07:45 (T12)	19:40		20:17	20:50	21:05	9	20:40 (T06)
30	07:40	08:26 (T13)			07:05		06:12	05:40	05:38		20:32 (T06)
	17:24	48 09:14 (T13)			19:41		20:18	20:51	21:05	9	20:41 (T06)
31	07:39	08:27 (T13)			07:03			05:39			
	17:25	47 09:14 (T13)			19:42			20:52			
Potential sun hours	288		303		369		403	457	463		
Total, worst case		1467		573		183				232	
Sun reduction		0.53		0.59		0.57				0.67	
Oper. time red.		1.00		1.00		1.00				1.00	
Wind dir. red.		0.71		0.70		0.68				0.70	
Total reduction		0.38		0.42		0.39				0.47	
Total, real		554		238		71				109	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 41 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1388)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August	September	October			November			December		
1	05:39		20:32 (T06)	06:06	06:41	07:15			06:54		08:09 (T13)	07:32		08:04 (T13)
	21:05	8	20:40 (T06)	20:44	19:57	19:02			17:09	24	08:33 (T13)	16:42	47	08:51 (T13)
2	05:39		20:34 (T06)	06:07	06:42	07:16			06:55		08:06 (T13)	07:33		08:04 (T13)
	21:05	7	20:41 (T06)	20:43	19:55	19:00			17:08	29	08:35 (T13)	16:41	47	08:51 (T13)
3	05:40		20:34 (T06)	06:08	06:43	07:17			06:57		08:04 (T13)	07:34		08:05 (T13)
	21:05	6	20:40 (T06)	20:42	19:54	18:57			17:07	32	08:36 (T13)	16:41	46	08:51 (T13)
4	05:41		20:36 (T06)	06:09	06:44	07:19			06:58		08:03 (T13)	07:36		08:05 (T13)
	21:05	4	20:40 (T06)	20:41	19:52	18:55			17:05	35	08:38 (T13)	16:41	46	08:51 (T13)
5	05:41		20:39 (T06)	06:10	06:45	07:20		08:01 (T12)	06:59		08:02 (T13)	07:37		08:06 (T13)
	21:04	1	20:40 (T06)	20:39	19:50	18:53	10	08:11 (T12)	17:04	37	08:39 (T13)	16:41	45	08:51 (T13)
6	05:42			06:11	06:46	07:21		07:57 (T12)	07:01		08:01 (T13)	07:38		08:06 (T13)
	21:04			20:38	19:48	18:51	16	08:13 (T12)	17:03	40	08:41 (T13)	16:40	45	08:51 (T13)
7	05:42			06:12	06:48	07:22		07:55 (T12)	07:02		08:00 (T13)	07:39		08:07 (T13)
	21:04			20:37	19:47	18:50	20	08:15 (T12)	17:02	42	08:42 (T13)	16:40	44	08:51 (T13)
8	05:43			06:13	06:49	07:23		07:53 (T12)	07:03		08:00 (T13)	07:40		08:08 (T13)
	21:03			20:35	19:45	18:48	22	08:15 (T12)	17:00	43	08:43 (T13)	16:40	43	08:51 (T13)
9	05:44			06:14	06:50	07:25		07:53 (T12)	07:05		07:59 (T13)	07:41		08:09 (T13)
	21:03			20:34	19:43	18:46	24	08:17 (T12)	16:59	44	08:43 (T13)	16:40	42	08:51 (T13)
10	05:45			06:16	06:51	07:26		07:52 (T12)	07:06		07:58 (T13)	07:41		08:09 (T13)
	21:03			20:33	19:41	18:44	25	08:17 (T12)	16:58	46	08:44 (T13)	16:40	43	08:52 (T13)
11	05:45			06:17	06:52	07:27		07:51 (T12)	07:07		07:58 (T13)	07:42		08:10 (T13)
	21:02			20:31	19:39	18:43	26	08:17 (T12)	16:57	47	08:45 (T13)	16:40	42	08:52 (T13)
12	05:46			06:18	06:53	07:28		07:51 (T12)	07:08		07:58 (T13)	07:43		08:11 (T13)
	21:02			20:30	19:37	18:41	26	08:17 (T12)	16:56	47	08:45 (T13)	16:40	41	08:52 (T13)
13	05:47			06:19	06:54	07:30		07:53 (T12)	07:10		07:58 (T13)	07:44		08:12 (T13)
	21:01			20:28	19:36	18:39	24	08:17 (T12)	16:55	48	08:46 (T13)	16:40	41	08:53 (T13)
14	05:48			06:20	06:55	07:31		07:54 (T12)	07:11		07:57 (T13)	07:45		08:13 (T13)
	21:01			20:27	19:34	18:37	23	08:17 (T12)	16:54	49	08:46 (T13)	16:40	40	08:53 (T13)
15	05:49			06:21	06:57	07:32		07:55 (T12)	07:12		07:58 (T13)	07:46		08:13 (T13)
	21:00			20:25	19:32	18:36	21	08:16 (T12)	16:53	50	08:48 (T13)	16:41	40	08:53 (T13)
16	05:50			06:22	06:58	07:33		07:57 (T12)	07:14		07:58 (T13)	07:46		08:14 (T13)
	20:59			20:24	19:30	18:34	19	08:16 (T12)	16:52	50	08:48 (T13)	16:41	39	08:53 (T13)
17	05:51			06:24	06:59	07:35		07:58 (T12)	07:15		07:57 (T13)	07:47		08:15 (T13)
	20:59			20:22	19:28	18:32	17	08:15 (T12)	16:51	51	08:48 (T13)	16:41	39	08:54 (T13)
18	05:51			06:25	07:00	07:36		07:59 (T12)	07:16		07:58 (T13)	07:48		08:15 (T13)
	20:58			20:21	19:26	18:31	15	08:14 (T12)	16:50	50	08:48 (T13)	16:41	38	08:53 (T13)
19	05:52			06:26	07:01	07:37		08:01 (T12)	07:18		07:58 (T13)	07:48		08:16 (T13)
	20:57			20:19	19:24	18:29	12	08:13 (T12)	16:49	50	08:48 (T13)	16:42	38	08:54 (T13)
20	05:53			06:27	07:02	07:38		08:02 (T12)	07:19		07:59 (T13)	07:49		08:17 (T13)
	20:56			20:17	19:23	18:27	9	08:11 (T12)	16:48	50	08:49 (T13)	16:42	38	08:55 (T13)
21	05:54			06:28	07:04	07:40		08:03 (T12)	07:20		07:59 (T13)	07:50		08:17 (T13)
	20:55			20:16	19:21	18:26	6	08:09 (T12)	16:47	50	08:49 (T13)	16:43	38	08:55 (T13)
22	05:55			06:29	07:05	07:41		08:05 (T12)	07:21		07:59 (T13)	07:50		08:18 (T13)
	20:55			20:14	19:19	18:24	1	08:06 (T12)	16:47	50	08:49 (T13)	16:43	38	08:56 (T13)
23	05:56			06:30	07:06	07:42			07:23		08:00 (T13)	07:51		08:18 (T13)
	20:54			20:13	19:17	18:23			16:46	50	08:50 (T13)	16:44	38	08:56 (T13)
24	05:57			06:32	07:07	07:43			07:24		08:00 (T13)	07:51		08:18 (T13)
	20:53			20:11	19:15	18:21			16:45	50	08:50 (T13)	16:44	38	08:56 (T13)
25	05:58			06:33	07:08	07:45			07:25		08:00 (T13)	07:51		08:19 (T13)
	20:52			20:09	19:13	18:20			16:45	50	08:50 (T13)	16:45	38	08:57 (T13)
26	05:59			06:34	07:09	07:46			07:26		08:01 (T13)	07:52		08:19 (T13)
	20:51			20:08	19:11	18:18			16:44	50	08:51 (T13)	16:46	39	08:58 (T13)
27	06:00			06:35	07:10	07:47			07:28		08:01 (T13)	07:52		08:19 (T13)
	20:50			20:06	19:10	18:17			16:44	49	08:50 (T13)	16:46	39	08:58 (T13)
28	06:01			06:36	07:12	07:49			07:29		08:02 (T13)	07:52		08:20 (T13)
	20:49			20:04	19:08	18:15			16:43	48	08:50 (T13)	16:47	39	08:59 (T13)
29	06:02			06:37	07:13	07:50			07:30		08:02 (T13)	07:53		08:20 (T13)
	20:48			20:02	19:06	18:14			16:43	48	08:50 (T13)	16:48	40	09:00 (T13)
30	06:03			06:38	07:14	07:51		09:15 (T13)	07:31		08:03 (T13)	07:53		08:20 (T13)
	20:47			20:01	19:04	18:12	11	09:26 (T13)	16:42	48	08:51 (T13)	16:48	40	09:00 (T13)
31	06:05			06:40		07:53		09:11 (T13)				07:53		08:20 (T13)
	20:45			19:59		18:11	19	09:30 (T13)				16:49	41	09:01 (T13)
Potential sun hours	469			434	377	342			290			278		
Total, worst case		26					346			1357			1272	
Sun reduction		0.74					0.51			0.37			0.38	
Oper. time red.		1.00					1.00			1.00			1.00	
Wind dir. red.		0.70					0.68			0.71			0.71	
Total reduction		0.52					0.35			0.26			0.27	
Total, real		13					120			358			344	

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)

Licensed user:
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217 Montgomery St., Suite 1000
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Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 42 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1389)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April			May			June		
1	07:53		15:52 (T25)	07:37		15:46 (T25)	06:56		17:09 (T24)	07:01			06:11			05:39		20:07 (T19)
	16:49	29	16:21 (T25)	17:26	63	16:49 (T25)	18:04	31	17:40 (T24)	19:43			20:20			20:53	22	20:29 (T19)
2	07:53		15:51 (T25)	07:36		15:45 (T25)	06:55		17:10 (T24)	06:59			06:09			05:38		20:07 (T19)
	16:50	31	16:22 (T25)	17:28	63	16:48 (T25)	18:06	29	17:39 (T24)	19:44			20:21			20:54	23	20:30 (T19)
3	07:53		15:51 (T25)	07:35		15:45 (T25)	06:53		17:10 (T24)	06:57			06:08			05:38		20:07 (T19)
	16:51	33	16:24 (T25)	17:29	63	16:48 (T25)	18:07	27	17:37 (T24)	19:46			20:22			20:54	24	20:31 (T19)
4	07:53		15:51 (T25)	07:34		15:46 (T25)	06:51		17:12 (T24)	06:55			06:07			05:37		20:07 (T19)
	16:52	34	16:25 (T25)	17:30	63	16:49 (T25)	18:08	25	17:37 (T24)	19:47			20:23			20:55	25	20:32 (T19)
5	07:53		15:51 (T25)	07:33		15:46 (T25)	06:49		17:13 (T24)	06:54			06:05			05:37		20:06 (T19)
	16:53	35	16:26 (T25)	17:32	63	16:49 (T25)	18:10	22	17:35 (T24)	19:48			20:24			20:56	26	20:32 (T19)
6	07:53		15:50 (T25)	07:32		15:45 (T25)	06:48		17:14 (T24)	06:52			06:04			05:36		20:06 (T19)
	16:54	36	16:26 (T25)	17:33	64	16:49 (T25)	18:11	19	17:33 (T24)	19:49			20:25			20:57	27	20:33 (T19)
7	07:53		15:50 (T25)	07:31		15:46 (T25)	06:46		17:16 (T24)	06:50			06:03			05:36		20:07 (T19)
	16:55	38	16:28 (T25)	17:35	63	16:49 (T25)	18:12	14	17:30 (T24)	19:51			20:27			20:57	27	20:34 (T19)
8	07:53		15:50 (T25)	07:29		15:47 (T25)	07:44		18:21 (T24)	06:48			06:01			05:36		20:07 (T19)
	16:56	39	16:29 (T25)	17:36	62	16:49 (T25)	18:14	3	18:24 (T24)	19:52			20:28			20:58	28	20:35 (T19)
9	07:53		15:50 (T25)	07:28		15:47 (T25)	07:42			06:47			06:00			05:36		20:06 (T19)
	16:57	40	16:30 (T25)	17:37	62	16:49 (T25)	19:15			19:53			20:29			20:59	28	20:34 (T19)
10	07:52		15:49 (T25)	07:27		15:47 (T25)	07:41			06:45			05:59			05:35		20:06 (T19)
	16:58	42	16:31 (T25)	17:39	61	16:48 (T25)	19:16			19:54			20:30			20:59	29	20:35 (T19)
11	07:52		15:49 (T25)	07:25		15:48 (T25)	07:39			06:43			05:58			05:35		20:07 (T19)
	16:59	43	16:32 (T25)	17:40	60	16:48 (T25)	19:17			19:55			20:31			21:00	29	20:36 (T19)
12	07:52		15:49 (T25)	07:24		15:48 (T25)	07:37			06:41			05:56			05:35		20:07 (T19)
	17:00	45	16:34 (T25)	17:42	59	16:47 (T25)	19:19			19:57			20:32			21:01	29	20:36 (T19)
13	07:51		15:48 (T25)	07:23		15:49 (T25)	07:35			06:40			05:55			05:35		20:07 (T19)
	17:02	46	16:34 (T25)	17:43	58	16:47 (T25)	19:20			19:58			20:34			21:01	30	20:37 (T19)
14	07:51		15:48 (T25)	07:21		15:49 (T25)	07:34			06:38			05:54			05:35		20:07 (T19)
	17:03	48	16:36 (T25)	17:44	57	16:46 (T25)	19:21			19:59			20:35			21:02	31	20:38 (T19)
15	07:51		15:47 (T25)	07:20		15:50 (T25)	07:32			06:36			05:53			05:35		20:07 (T19)
	17:04	49	16:36 (T25)	17:46	56	16:46 (T25)	19:22			20:00			20:36			21:02	31	20:38 (T19)
16	07:50		15:48 (T25)	07:18		15:51 (T25)	07:30			06:35			05:52			05:35		20:07 (T19)
	17:05	50	16:38 (T25)	17:47	57	17:25 (T24)	19:24			20:01			20:37			21:03	31	20:38 (T19)
17	07:50		15:47 (T25)	07:17		15:52 (T25)	07:28			06:33			05:51			05:35		20:08 (T19)
	17:06	51	16:38 (T25)	17:48	62	17:27 (T24)	19:25			20:03			20:38			21:03	31	20:39 (T19)
18	07:49		15:47 (T25)	07:15		15:53 (T25)	07:26			06:31			05:50			05:35		20:08 (T19)
	17:08	52	16:39 (T25)	17:50	62	17:28 (T24)	19:26			20:04			20:39			21:03	31	20:39 (T19)
19	07:48		15:47 (T25)	07:14		15:55 (T25)	07:25			06:30			05:49			05:35		20:08 (T19)
	17:09	53	16:40 (T25)	17:51	64	17:30 (T24)	19:27			20:05			20:40			21:04	31	20:39 (T19)
20	07:48		15:46 (T25)	07:12		15:56 (T25)	07:23			06:28			05:48			05:35		20:08 (T19)
	17:10	55	16:41 (T25)	17:52	63	17:31 (T24)	19:29			20:06			20:41			21:04	31	20:39 (T19)
21	07:47		15:46 (T25)	07:11		15:58 (T25)	07:21			06:26			05:47			05:35		20:08 (T19)
	17:12	56	16:42 (T25)	17:54	63	17:33 (T24)	19:30			20:07			20:42			21:04	31	20:39 (T19)
22	07:46		15:46 (T25)	07:09		15:59 (T25)	07:19			06:25			05:46		20:17 (T19)	05:35		20:09 (T19)
	17:13	56	16:42 (T25)	17:55	62	17:34 (T24)	19:31			20:09			20:43	3	20:20 (T19)	21:05	31	20:40 (T19)
23	07:46		15:46 (T25)	07:08		16:01 (T25)	07:17			06:23			05:45		20:15 (T19)	05:36		20:09 (T19)
	17:14	58	16:44 (T25)	17:56	59	17:35 (T24)	19:32			20:10			20:44	7	20:22 (T19)	21:05	31	20:40 (T19)
24	07:45		15:46 (T25)	07:06		16:04 (T25)	07:15			06:21			05:44		20:13 (T19)	05:36		20:09 (T19)
	17:15	58	16:44 (T25)	17:58	57	17:37 (T24)	19:33			20:11			20:45	10	20:23 (T19)	21:05	31	20:40 (T19)
25	07:44		15:46 (T25)	07:05		16:06 (T25)	07:14			06:20			05:43		20:11 (T19)	05:36		20:10 (T19)
	17:17	59	16:45 (T25)	17:59	53	17:38 (T24)	19:35			20:12			20:46	12	20:23 (T19)	21:05	31	20:41 (T19)
26	07:43		15:46 (T25)	07:03		16:11 (T25)	07:12			06:18			05:43		20:10 (T19)	05:37		20:10 (T19)
	17:18	60	16:46 (T25)	18:00	47	17:40 (T24)	19:36			20:14			20:47	14	20:24 (T19)	21:05	30	20:40 (T19)
27	07:42		15:45 (T25)	07:01		17:09 (T24)	07:10			06:17			05:42		20:10 (T19)	05:37		20:09 (T19)
	17:19	61	16:46 (T25)	18:00	32	17:41 (T24)	19:37			20:15			20:48	15	20:25 (T19)	21:05	31	20:40 (T19)
28	07:41		15:45 (T25)	07:00		17:09 (T24)	07:08			06:15			05:41		20:09 (T19)	05:37		20:10 (T19)
	17:21	62	16:47 (T25)	18:02	31	17:40 (T24)	19:38			20:16			20:49	17	20:26 (T19)	21:05	31	20:41 (T19)
29	07:41		15:45 (T25)	06:58		17:08 (T24)	07:06			06:14			05:41		20:09 (T19)	05:38		20:10 (T19)
	17:22	62	16:47 (T25)	18:03	32	17:40 (T24)	19:40			20:17			20:50	18	20:27 (T19)	21:05	30	20:40 (T19)
30	07:40		15:45 (T25)				07:05			06:12			05:40		20:08 (T19)	05:38		20:11 (T19)
	17:24	63	16:48 (T25)				19:41			20:18			20:51	20	20:28 (T19)	21:05	30	20:41 (T19)
31	07:39		15:45 (T25)				07:03						05:39		20:08 (T19)			
	17:25	63	16:48 (T25)				19:42						20:52	21	20:29 (T19)			
Potential sun hours	288			303			369			402			456			463		
Total, worst case		1507			1661			170						137			871	
Sun reduction		0.53			0.59			0.57						0.62			0.67	
Oper. time red.		1.00			1.00			1.00						1.00			1.00	
Wind dir. red.		0.55			0.56			0.59						0.70			0.70	
Total reduction		0.29			0.32			0.33						0.43			0.46	
Total, real		434			539			56						58			402	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 42 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1389)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August	September	October			November			December		
1	05:39		20:11 (T19)	06:06	06:41	07:15			06:54		15:17 (T25)	07:32		15:31 (T25)
	21:05	29	20:40 (T19)	20:44	19:57	19:02			17:09	60	16:17 (T25)	16:42	45	16:16 (T25)
2	05:39		20:11 (T19)	06:07	06:42	07:16			06:55		15:17 (T25)	07:33		15:32 (T25)
	21:05	29	20:40 (T19)	20:43	19:55	19:00			17:08	61	16:18 (T25)	16:41	43	16:15 (T25)
3	05:40		20:11 (T19)	06:08	06:43	07:17			06:56		15:16 (T25)	07:34		15:33 (T25)
	21:05	29	20:40 (T19)	20:42	19:54	18:57			17:07	62	16:18 (T25)	16:41	42	16:15 (T25)
4	05:40		20:12 (T19)	06:09	06:44	07:19			06:58		15:16 (T25)	07:35		15:34 (T25)
	21:05	28	20:40 (T19)	20:40	19:52	18:55			17:05	63	16:19 (T25)	16:41	40	16:14 (T25)
5	05:41		20:12 (T19)	06:10	06:45	07:20			06:59		15:16 (T25)	07:36		15:35 (T25)
	21:04	27	20:39 (T19)	20:39	19:50	18:53			17:04	63	16:19 (T25)	16:40	39	16:14 (T25)
6	05:42		20:12 (T19)	06:11	06:46	07:21		17:55 (T24)	07:00		15:16 (T25)	07:37		15:36 (T25)
	21:04	27	20:39 (T19)	20:38	19:48	18:51	10	18:05 (T24)	17:03	63	16:19 (T25)	16:40	38	16:14 (T25)
7	05:42		20:13 (T19)	06:12	06:47	07:22		17:51 (T24)	07:02		15:16 (T25)	07:38		15:37 (T25)
	21:04	26	20:39 (T19)	20:36	19:46	18:50	17	18:08 (T24)	17:01	63	16:19 (T25)	16:40	36	16:13 (T25)
8	05:43		20:13 (T19)	06:13	06:49	07:23		17:48 (T24)	07:03		15:15 (T25)	07:39		15:38 (T25)
	21:03	25	20:38 (T19)	20:35	19:45	18:48	21	18:09 (T24)	17:00	64	16:19 (T25)	16:40	35	16:13 (T25)
9	05:44		20:14 (T19)	06:14	06:50	07:25		17:46 (T24)	07:04		15:16 (T25)	07:40		15:39 (T25)
	21:03	24	20:38 (T19)	20:34	19:43	18:46	24	18:10 (T24)	16:59	63	16:19 (T25)	16:40	34	16:13 (T25)
10	05:45		20:14 (T19)	06:16	06:51	07:26		17:45 (T24)	07:06		15:16 (T25)	07:41		15:40 (T25)
	21:02	24	20:38 (T19)	20:32	19:41	18:44	27	18:12 (T24)	16:58	63	16:19 (T25)	16:40	33	16:13 (T25)
11	05:45		20:15 (T19)	06:17	06:52	07:27		17:44 (T24)	07:07		15:17 (T25)	07:42		15:41 (T25)
	21:02	23	20:38 (T19)	20:31	19:39	18:42	28	18:12 (T24)	16:57	63	16:20 (T25)	16:40	32	16:13 (T25)
12	05:46		20:15 (T19)	06:18	06:53	07:28		17:43 (T24)	07:08		15:16 (T25)	07:43		15:43 (T25)
	21:01	22	20:37 (T19)	20:30	19:37	18:41	29	18:12 (T24)	16:56	63	16:19 (T25)	16:40	30	16:13 (T25)
13	05:47		20:16 (T19)	06:19	06:54	07:29		17:43 (T24)	07:10		15:17 (T25)	07:44		15:44 (T25)
	21:01	20	20:36 (T19)	20:28	19:35	18:39	30	18:13 (T24)	16:55	63	16:20 (T25)	16:40	29	16:13 (T25)
14	05:48		20:17 (T19)	06:20	06:55	07:31		17:42 (T24)	07:11		15:17 (T25)	07:45		15:45 (T25)
	21:00	19	20:36 (T19)	20:27	19:34	18:37	31	18:13 (T24)	16:54	62	16:19 (T25)	16:40	28	16:13 (T25)
15	05:49		20:18 (T19)	06:21	06:57	07:32		17:41 (T24)	07:12		15:17 (T25)	07:45		15:45 (T25)
	21:00	17	20:35 (T19)	20:25	19:32	18:36	32	18:13 (T24)	16:53	62	16:19 (T25)	16:41	27	16:12 (T25)
16	05:50		20:19 (T19)	06:22	06:58	07:33		16:48 (T25)	07:14		15:18 (T25)	07:46		15:46 (T25)
	20:59	16	20:35 (T19)	20:24	19:30	18:34	36	18:12 (T24)	16:52	61	16:19 (T25)	16:41	26	16:12 (T25)
17	05:50		20:19 (T19)	06:23	06:59	07:34		16:41 (T25)	07:15		15:18 (T25)	07:47		15:48 (T25)
	20:58	15	20:34 (T19)	20:22	19:28	18:32	49	18:11 (T24)	16:51	61	16:19 (T25)	16:41	25	16:13 (T25)
18	05:51		20:20 (T19)	06:25	07:00	07:36		16:37 (T25)	07:16		15:20 (T25)	07:48		15:48 (T25)
	20:58	13	20:33 (T19)	20:20	19:26	18:31	54	18:09 (T24)	16:50	59	16:19 (T25)	16:41	24	16:12 (T25)
19	05:52		20:21 (T19)	06:26	07:01	07:37		16:33 (T25)	07:18		15:20 (T25)	07:48		15:49 (T25)
	20:57	11	20:32 (T19)	20:19	19:24	18:29	59	18:07 (T24)	16:49	58	16:18 (T25)	16:42	24	16:13 (T25)
20	05:53		20:23 (T19)	06:27	07:02	07:38		16:31 (T25)	07:19		15:20 (T25)	07:49		15:49 (T25)
	20:56	9	20:32 (T19)	20:17	19:22	18:27	62	18:06 (T24)	16:48	58	16:18 (T25)	16:42	23	16:12 (T25)
21	05:54		20:25 (T19)	06:28	07:03	07:39		16:29 (T25)	07:20		15:22 (T25)	07:49		15:50 (T25)
	20:55	6	20:31 (T19)	20:16	19:21	18:26	62	18:04 (T24)	16:47	56	16:18 (T25)	16:43	23	16:13 (T25)
22	05:55			06:29	07:05	07:41		16:27 (T25)	07:21		15:22 (T25)	07:50		15:50 (T25)
	20:54			20:14	19:19	18:24	63	18:02 (T24)	16:47	56	16:18 (T25)	16:43	23	16:13 (T25)
23	05:56			06:30	07:06	07:42		16:26 (T25)	07:23		15:23 (T25)	07:50		15:51 (T25)
	20:54			20:12	19:17	18:23	63	18:01 (T24)	16:46	55	16:18 (T25)	16:44	23	16:14 (T25)
24	05:57			06:31	07:07	07:43		16:24 (T25)	07:24		15:24 (T25)	07:51		15:51 (T25)
	20:53			20:11	19:15	18:21	63	17:59 (T24)	16:45	54	16:18 (T25)	16:44	23	16:14 (T25)
25	05:58			06:33	07:08	07:45		16:23 (T25)	07:25		15:25 (T25)	07:51		15:52 (T25)
	20:52			20:09	19:13	18:19	62	17:58 (T24)	16:45	52	16:17 (T25)	16:45	24	16:16 (T25)
26	05:59			06:34	07:09	07:46		16:22 (T25)	07:26		15:25 (T25)	07:52		15:52 (T25)
	20:51			20:07	19:11	18:18	59	17:56 (T24)	16:44	51	16:16 (T25)	16:45	24	16:16 (T25)
27	06:00			06:35	07:10	07:47		16:20 (T25)	07:27		15:27 (T25)	07:52		15:51 (T25)
	20:50			20:06	19:10	18:16	56	17:54 (T24)	16:43	50	16:17 (T25)	16:46	26	16:17 (T25)
28	06:01			06:36	07:11	07:49		16:20 (T25)	07:29		15:27 (T25)	07:52		15:51 (T25)
	20:49			20:04	19:08	18:15	56	17:16 (T25)	16:43	49	16:16 (T25)	16:47	27	16:18 (T25)
29	06:02			06:37	07:13	07:50		16:19 (T25)	07:30		15:28 (T25)	07:52		15:52 (T25)
	20:47			20:02	19:06	18:14	57	17:16 (T25)	16:42	48	16:16 (T25)	16:48	27	16:19 (T25)
30	06:03			06:38	07:14	07:51		16:19 (T25)	07:31		15:29 (T25)	07:53		15:52 (T25)
	20:46			20:01	19:04	18:12	58	17:17 (T25)	16:42	46	16:15 (T25)	16:48	28	16:20 (T25)
31	06:04			06:39		07:52		16:18 (T25)				07:53		15:52 (T25)
	20:45			19:59		18:11	59	17:17 (T25)				16:49	29	16:21 (T25)
Potential sun hours	469			434	377	342			290			278		
Total, worst case		439					1167			1752			930	
Sun reduction		0.74					0.51			0.37			0.38	
Oper. time red.		1.00					1.00			1.00			1.00	
Wind dir. red.		0.70					0.57			0.55			0.55	
Total reduction		0.51					0.29			0.20			0.21	
Total, real		224					333			352			192	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
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(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 45 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1392)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March	April	May			June		
1	07:53			07:37		08:01 (T21)	06:56	07:01	06:11			05:39		06:11 (T09)
	16:49			17:26	16	08:17 (T21)	18:04	19:43	20:19			20:53	88	20:28 (T10)
2	07:53			07:36		08:00 (T21)	06:55	06:59	06:09			05:38		06:11 (T09)
	16:50			17:28	19	08:19 (T21)	18:06	19:44	20:21			20:54	87	20:27 (T10)
3	07:53			07:35		07:59 (T21)	06:53	06:57	06:08			05:38		06:12 (T09)
	16:51			17:29	21	08:20 (T21)	18:07	19:46	20:22			20:54	87	20:28 (T10)
4	07:53			07:34		07:58 (T21)	06:51	06:55	06:06			05:37		06:12 (T09)
	16:52			17:30	23	08:21 (T21)	18:08	19:47	20:23			20:55	87	20:29 (T10)
5	07:53			07:33		07:57 (T21)	06:49	06:54	06:05		06:28 (T09)	05:37		06:12 (T09)
	16:53			17:32	26	08:23 (T21)	18:10	19:48	20:24	7	06:35 (T09)	20:56	86	20:28 (T10)
6	07:53			07:32		07:55 (T21)	06:48	06:52	06:04		06:27 (T09)	05:36		06:13 (T09)
	16:54			17:33	28	08:23 (T21)	18:11	19:49	20:25	11	06:38 (T09)	20:57	87	20:29 (T10)
7	07:53			07:30		07:54 (T21)	06:46	06:50	06:02		06:26 (T09)	05:36		06:14 (T09)
	16:55			17:34	30	08:24 (T21)	18:12	19:50	20:27	14	06:40 (T09)	20:57	86	20:30 (T10)
8	07:53			07:29		07:53 (T21)	07:44	06:48	06:01		06:24 (T09)	05:36		06:13 (T09)
	16:56			17:36	32	08:25 (T21)	18:13	19:52	20:28	16	06:40 (T09)	20:58	86	20:29 (T10)
9	07:53			07:28		07:51 (T21)	07:42	06:46	06:00		06:23 (T09)	05:35		06:14 (T09)
	16:57			17:37	34	08:25 (T21)	19:15	19:53	20:29	19	06:42 (T09)	20:59	84	20:29 (T10)
10	07:52			07:27		07:50 (T21)	07:41	06:45	05:59		06:22 (T09)	05:35		06:14 (T09)
	16:58			17:39	35	08:25 (T21)	19:16	19:54	20:30	35	20:08 (T10)	20:59	86	20:30 (T10)
11	07:52			07:25		07:49 (T21)	07:39	06:43	05:57		06:21 (T09)	05:35		06:15 (T09)
	16:59			17:40	37	08:26 (T21)	19:17	19:55	20:31	41	20:09 (T10)	21:00	85	20:30 (T10)
12	07:52			07:24		07:47 (T21)	07:37	06:41	05:56		06:20 (T09)	05:35		06:16 (T09)
	17:00			17:41	39	08:26 (T21)	19:18	19:56	20:32	46	20:10 (T10)	21:01	84	20:31 (T10)
13	07:51			07:23		07:48 (T21)	07:35	06:40	05:55		06:19 (T09)	05:35		06:16 (T09)
	17:02			17:43	38	08:26 (T21)	19:20	19:58	20:33	51	20:12 (T10)	21:01	84	20:31 (T10)
14	07:51			07:21		07:47 (T21)	07:33	06:38	05:54		06:18 (T09)	05:35		06:16 (T09)
	17:03			17:44	38	08:25 (T21)	19:21	19:59	20:35	56	20:13 (T10)	21:02	84	20:31 (T10)
15	07:51			07:20		07:48 (T21)	07:32	06:36	05:53		06:17 (T09)	05:35		06:17 (T09)
	17:04			17:46	38	08:26 (T21)	19:22	20:00	20:36	59	20:14 (T10)	21:02	83	20:31 (T10)
16	07:50			07:18		07:48 (T21)	07:30	06:34	05:52		06:16 (T09)	05:35		06:17 (T09)
	17:05			17:47	37	08:25 (T21)	19:23	20:01	20:37	63	20:15 (T10)	21:03	83	20:32 (T10)
17	07:50			07:17		07:49 (T21)	07:28	06:33	05:51		06:15 (T09)	05:35		06:17 (T09)
	17:06			17:48	36	08:25 (T21)	19:25	20:03	20:38	66	20:16 (T10)	21:03	83	20:32 (T10)
18	07:49			07:15		07:49 (T21)	07:26	06:31	05:50		06:14 (T09)	05:35		06:18 (T09)
	17:08			17:50	35	08:24 (T21)	19:26	20:04	20:39	69	20:17 (T10)	21:03	82	20:32 (T10)
19	07:48			07:14		07:50 (T21)	07:24	06:29	05:49		06:13 (T09)	05:35		06:18 (T09)
	17:09			17:51	34	08:24 (T21)	19:27	20:05	20:40	72	20:18 (T10)	21:04	82	20:32 (T10)
20	07:48			07:12		07:50 (T21)	07:23	06:28	05:48		06:12 (T09)	05:35		06:18 (T09)
	17:10			17:52	32	08:22 (T21)	19:28	20:06	20:41	75	20:19 (T10)	21:04	82	20:32 (T10)
21	07:47			07:11		07:52 (T21)	07:21	06:26	05:47		06:11 (T09)	05:35		06:18 (T09)
	17:11			17:54	30	08:22 (T21)	19:30	20:07	20:42	77	20:19 (T10)	21:04	82	20:32 (T10)
22	07:46			07:09		07:52 (T21)	07:19	06:25	05:46		06:10 (T09)	05:35		06:19 (T09)
	17:13			17:55	28	08:20 (T21)	19:31	20:09	20:43	80	20:20 (T10)	21:04	82	20:33 (T10)
23	07:46			07:08		07:53 (T21)	07:17	06:23	05:45		06:09 (T09)	05:36		06:19 (T09)
	17:14			17:56	25	08:18 (T21)	19:32	20:10	20:44	81	20:21 (T10)	21:05	82	20:33 (T10)
24	07:45			07:06		07:56 (T21)	07:15	06:21	05:44		06:09 (T09)	05:36		06:19 (T09)
	17:15			17:58	21	08:17 (T21)	19:33	20:11	20:45	84	20:23 (T10)	21:05	82	20:33 (T10)
25	07:44			07:04		07:58 (T21)	07:14	06:20	05:43		06:09 (T09)	05:36		06:18 (T09)
	17:17			17:59	15	08:13 (T21)	19:35	20:12	20:46	84	20:23 (T10)	21:05	83	20:33 (T10)
26	07:43			07:03		08:03 (T21)	07:12	06:18	05:42		06:09 (T09)	05:36		06:19 (T09)
	17:18			18:00	4	08:07 (T21)	19:36	20:13	20:47	86	20:24 (T10)	21:05	83	20:34 (T10)
27	07:42			07:01			07:10	06:17	05:42		06:10 (T09)	05:37		06:19 (T09)
	17:19			18:00			19:37	20:15	20:48	85	20:25 (T10)	21:05	83	20:33 (T10)
28	07:41			07:00			07:08	06:15	05:41		06:10 (T09)	05:37		06:20 (T09)
	17:21			18:02			19:38	20:16	20:49	87	20:26 (T10)	21:05	83	20:34 (T10)
29	07:40		08:05 (T21)	06:58			07:06	06:14	05:40		06:10 (T09)	05:38		06:19 (T09)
	17:22	5	08:10 (T21)	18:03			19:40	20:17	20:50	87	20:26 (T10)	21:05	84	20:34 (T10)
30	07:39		08:04 (T21)				07:04	06:12	05:40		06:10 (T09)	05:38		06:20 (T09)
	17:23	9	08:13 (T21)				19:41	20:18	20:51	88	20:27 (T10)	21:05	84	20:35 (T10)
31	07:38		08:03 (T21)				07:03		05:39		06:10 (T09)			
	17:25	13	08:16 (T21)				19:42		20:52	88	20:27 (T10)			
Potential sun hours	288			303			369	403	457			463		
Total, worst case		27			751					1627			2524	
Sun reduction		0.53			0.59					0.62			0.67	
Oper. time red.		1.00			1.00					1.00			1.00	
Wind dir. red.		0.70			0.70					0.64			0.65	
Total reduction		0.37			0.41					0.40			0.44	
Total, real		10			310					648			1107	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 45 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1392)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September	October			November			December
1	05:39		06:19 (T09)	06:05		06:31 (T09)	06:40	07:15			06:54		07:18 (T21)	07:32
	21:05	85	20:34 (T10)	20:44	45	20:21 (T10)	19:57	19:02			17:09	37	07:55 (T21)	16:42
2	05:39		06:20 (T09)	06:07		06:32 (T09)	06:42	07:16			06:55		07:20 (T21)	07:33
	21:05	85	20:35 (T10)	20:43	39	20:19 (T10)	19:55	19:00			17:08	35	07:55 (T21)	16:41
3	05:40		06:19 (T09)	06:08		06:33 (T09)	06:43	07:17			06:56		07:21 (T21)	07:34
	21:05	85	20:35 (T10)	20:42	31	20:17 (T10)	19:53	18:57			17:06	33	07:54 (T21)	16:41
4	05:40		06:20 (T09)	06:09		06:34 (T09)	06:44	07:18			06:58		07:23 (T21)	07:35
	21:04	85	20:35 (T10)	20:40	18	06:52 (T09)	19:52	18:55			17:05	32	07:55 (T21)	16:41
5	05:41		06:19 (T09)	06:10		06:35 (T09)	06:45	07:20			06:59		07:24 (T21)	07:36
	21:04	86	20:35 (T10)	20:39	15	06:50 (T09)	19:50	18:53			17:04	30	07:54 (T21)	16:40
6	05:42		06:19 (T09)	06:11		06:36 (T09)	06:46	07:21			07:00		07:25 (T21)	07:37
	21:04	86	20:35 (T10)	20:38	13	06:49 (T09)	19:48	18:51			17:03	28	07:53 (T21)	16:40
7	05:42		06:20 (T09)	06:12		06:37 (T09)	06:47	07:22			07:02		07:27 (T21)	07:38
	21:04	87	20:36 (T10)	20:36	9	06:46 (T09)	19:46	18:49			17:01	25	07:52 (T21)	16:40
8	05:43		06:19 (T09)	06:13		06:38 (T09)	06:48	07:23			07:03		07:28 (T21)	07:39
	21:03	86	20:35 (T10)	20:35	5	06:43 (T09)	19:44	18:48			17:00	23	07:51 (T21)	16:40
9	05:44		06:19 (T09)	06:14			06:50	07:24			07:04		07:30 (T21)	07:40
	21:03	87	20:35 (T10)	20:34			19:43	18:46			16:59	21	07:51 (T21)	16:40
10	05:44		06:19 (T09)	06:15			06:51	07:26			07:06		07:31 (T21)	07:41
	21:02	88	20:36 (T10)	20:32			19:41	18:44			16:58	18	07:49 (T21)	16:40
11	05:45		06:18 (T09)	06:17			06:52	07:27			07:07		07:33 (T21)	07:42
	21:02	88	20:35 (T10)	20:31			19:39	18:42			16:57	16	07:49 (T21)	16:40
12	05:46		06:19 (T09)	06:18			06:53	07:28			07:08		07:34 (T21)	07:43
	21:01	87	20:35 (T10)	20:29			19:37	18:41			16:56	13	07:47 (T21)	16:40
13	05:47		06:19 (T09)	06:19			06:54	07:29			07:10		07:36 (T21)	07:44
	21:01	87	20:35 (T10)	20:28			19:35	18:39			16:55	9	07:45 (T21)	16:40
14	05:48		06:19 (T09)	06:20			06:55	07:31			07:11		07:37 (T21)	07:45
	21:00	88	20:36 (T10)	20:27			19:33	18:37			16:54	5	07:42 (T21)	16:40
15	05:49		06:19 (T09)	06:21			06:56	07:32			07:12			07:45
	21:00	88	20:36 (T10)	20:25			19:32	18:35			16:53			16:40
16	05:49		06:18 (T09)	06:22			06:58	07:33			07:14			07:46
	20:59	87	20:34 (T10)	20:23			19:30	18:34			16:52			16:41
17	05:50		06:18 (T09)	06:23			06:59	07:34		08:33 (T21)	07:15			07:47
	20:58	87	20:34 (T10)	20:22			19:28	18:32	10	08:43 (T21)	16:51			16:41
18	05:51		06:19 (T09)	06:24			07:00	07:36		08:28 (T21)	07:16			07:48
	20:58	84	20:33 (T10)	20:20			19:26	18:30	18	08:46 (T21)	16:50			16:41
19	05:52		06:19 (T09)	06:26			07:01	07:37		08:26 (T21)	07:17			07:48
	20:57	84	20:32 (T10)	20:19			19:24	18:29	22	08:48 (T21)	16:49			16:42
20	05:53		06:19 (T09)	06:27			07:02	07:38		08:24 (T21)	07:19			07:49
	20:56	83	20:32 (T10)	20:17			19:22	18:27	26	08:50 (T21)	16:48			16:42
21	05:54		06:20 (T09)	06:28			07:03	07:39		08:22 (T21)	07:20			07:49
	20:55	80	20:31 (T10)	20:16			19:21	18:26	29	08:51 (T21)	16:47			16:43
22	05:55		06:21 (T09)	06:29			07:04	07:41		08:21 (T21)	07:21			07:50
	20:54	78	20:30 (T10)	20:14			19:19	18:24	31	08:52 (T21)	16:47			16:43
23	05:56		06:22 (T09)	06:30			07:06	07:42		08:20 (T21)	07:23			07:50
	20:53	76	20:30 (T10)	20:12			19:17	18:22	33	08:53 (T21)	16:46			16:44
24	05:57		06:23 (T09)	06:31			07:07	07:43		08:19 (T21)	07:24			07:51
	20:53	73	20:29 (T10)	20:11			19:15	18:21	34	08:53 (T21)	16:45			16:44
25	05:58		06:24 (T09)	06:33			07:08	07:45		08:18 (T21)	07:25			07:51
	20:52	71	20:28 (T10)	20:09			19:13	18:19	36	08:54 (T21)	16:45			16:45
26	05:59		06:25 (T09)	06:34			07:09	07:46		08:18 (T21)	07:26			07:52
	20:51	68	20:27 (T10)	20:07			19:11	18:18	37	08:55 (T21)	16:44			16:45
27	06:00		06:26 (T09)	06:35			07:10	07:47		08:17 (T21)	07:27			07:52
	20:50	65	20:26 (T10)	20:06			19:09	18:16	38	08:55 (T21)	16:43			16:46
28	06:01		06:27 (T09)	06:36			07:11	07:48		08:18 (T21)	07:29			07:52
	20:48	61	20:25 (T10)	20:04			19:08	18:15	37	08:55 (T21)	16:43			16:47
29	06:02		06:28 (T09)	06:37			07:13	07:50		08:17 (T21)	07:30			07:52
	20:47	58	20:24 (T10)	20:02			19:06	18:13	38	08:55 (T21)	16:42			16:47
30	06:03		06:29 (T09)	06:38			07:14	07:51		08:17 (T21)	07:31			07:53
	20:46	53	20:23 (T10)	20:00			19:04	18:12	38	08:55 (T21)	16:42			16:48
31	06:04		06:30 (T09)	06:39				07:52		08:17 (T21)				07:53
	20:45	50	20:22 (T10)	19:59				18:11	38	08:55 (T21)				16:49
Potential sun hours	469			434			377	342			290			278
Total, worst case		2456			175				465			325		
Sun reduction		0.74			0.69				0.51			0.37		
Oper. time red.		1.00			1.00				1.00			1.00		
Wind dir. red.		0.65			0.62				0.70			0.70		
Total reduction		0.48			0.43				0.36			0.26		
Total, real		1178			75				166			84		

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 71 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1412)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April			May			June		
1	07:53			07:37		08:01 (T39)	06:56		07:25 (T40)	07:01			06:11		06:35 (T36)	05:39		06:44 (T36)
	16:50			17:26	41	08:42 (T39)	18:04	69	08:40 (T39)	19:43			20:19	49	07:24 (T36)	20:53	31	07:15 (T36)
2	07:53			07:36		08:00 (T39)	06:55		07:25 (T40)	06:59			06:09		06:34 (T36)	05:38		06:46 (T36)
	16:50			17:28	43	08:43 (T39)	18:06	65	08:38 (T39)	19:44			20:21	50	07:24 (T36)	20:54	29	07:15 (T36)
3	07:53			07:35		07:59 (T39)	06:53		07:25 (T40)	06:57			06:08		06:34 (T36)	05:38		06:46 (T36)
	16:51			17:29	46	08:45 (T39)	18:07	60	08:35 (T39)	19:46			20:22	51	07:25 (T36)	20:54	27	07:13 (T36)
4	07:53			07:34		07:59 (T39)	06:51		07:25 (T40)	06:55			06:07		06:34 (T36)	05:37		06:47 (T36)
	16:52			17:30	47	08:46 (T39)	18:08	54	08:32 (T39)	19:47			20:23	51	07:25 (T36)	20:55	26	07:13 (T36)
5	07:53			07:33		07:58 (T39)	06:49		07:27 (T40)	06:54			06:05		06:33 (T36)	05:37		06:48 (T36)
	16:53			17:32	49	08:47 (T39)	18:10	44	08:29 (T39)	19:48			20:24	51	07:24 (T36)	20:56	24	07:12 (T36)
6	07:53			07:32		07:57 (T39)	06:48		07:28 (T40)	06:52			06:04		06:33 (T36)	05:37		06:49 (T36)
	16:54			17:33	50	08:47 (T39)	18:11	29	08:23 (T39)	19:49			20:25	52	07:25 (T36)	20:57	22	07:11 (T36)
7	07:53			07:31		07:57 (T39)	06:46		07:30 (T40)	06:50			06:03		06:33 (T36)	05:36		06:51 (T36)
	16:55			17:35	51	08:48 (T39)	18:12	17	07:47 (T40)	19:51			20:27	52	07:25 (T36)	20:57	20	07:11 (T36)
8	07:53			07:29		07:57 (T39)	07:44		08:33 (T40)	06:48			06:01		06:33 (T36)	05:36		06:52 (T36)
	16:56			17:36	52	08:49 (T39)	18:14	10	08:43 (T40)	19:52			20:28	52	07:25 (T36)	20:58	18	07:10 (T36)
9	07:53			07:28		07:56 (T39)	07:42			06:47			06:00		06:32 (T36)	05:36		06:52 (T36)
	16:57			17:37	53	08:49 (T39)	19:15			19:53			20:29	52	07:24 (T36)	20:59	17	07:09 (T36)
10	07:52			07:27		07:56 (T39)	07:41			06:45			05:59		06:33 (T36)	05:35		06:54 (T36)
	16:58			17:39	54	08:50 (T39)	19:16			19:54			20:30	51	07:24 (T36)	20:59	14	07:08 (T36)
11	07:52			07:25		07:56 (T39)	07:39			06:43			05:58		06:33 (T36)	05:35		06:55 (T36)
	16:59			17:40	55	08:51 (T39)	19:17			19:55			20:31	51	07:24 (T36)	21:00	12	07:07 (T36)
12	07:52			07:24		07:55 (T39)	07:37			06:41			05:56		06:33 (T36)	05:35		06:57 (T36)
	17:01			17:42	56	08:51 (T39)	19:19			19:57			20:32	51	07:24 (T36)	21:01	9	07:06 (T36)
13	07:51			07:23		07:55 (T39)	07:35			06:40			05:55		06:33 (T36)	05:35		06:59 (T36)
	17:02			17:43	56	08:51 (T39)	19:20			19:58			20:33	51	07:24 (T36)	21:01	5	07:04 (T36)
14	07:51			07:21		07:54 (T39)	07:34			06:38			05:54		06:34 (T36)	05:35		
	17:03			17:44	57	08:51 (T39)	19:21			19:59			20:35	50	07:24 (T36)	21:02		
15	07:51			07:20		07:54 (T39)	07:32			06:36			05:53		06:34 (T36)	05:35		
	17:04			17:46	57	08:51 (T39)	19:22			20:00			20:36	49	07:23 (T36)	21:02		
16	07:50			07:18		07:41 (T40)	07:30			06:35			05:52		06:34 (T36)	05:35		
	17:05			17:47	63	08:51 (T39)	19:24			20:01			20:37	49	07:23 (T36)	21:02		
17	07:50			07:17		07:40 (T40)	07:28			06:33			05:51		06:34 (T36)	05:35		
	17:07			17:48	67	08:51 (T39)	19:25			20:03			20:38	49	07:23 (T36)	21:03		
18	07:49			07:15		07:38 (T40)	07:26			06:31			05:50		06:35 (T36)	05:35		
	17:08			17:50	71	08:51 (T39)	19:26			20:04			20:39	47	07:22 (T36)	21:03		
19	07:48			07:14		07:37 (T40)	07:25			06:30		06:54 (T36)	05:49		06:35 (T36)	05:35		
	17:09			17:51	73	08:51 (T39)	19:27			20:05	16	07:10 (T36)	20:40	47	07:22 (T36)	21:04		
20	07:48			07:12		07:35 (T40)	07:23			06:28		06:50 (T36)	05:48		06:36 (T36)	05:35		
	17:10			17:52	75	08:50 (T39)	19:29			20:06	23	07:13 (T36)	20:41	45	07:21 (T36)	21:04		
21	07:47			07:11		07:34 (T40)	07:21			06:26		06:48 (T36)	05:47		06:36 (T36)	05:35		
	17:12			17:54	76	08:50 (T39)	19:30			20:07	27	07:15 (T36)	20:42	45	07:21 (T36)	21:04		
22	07:46			07:09		07:32 (T40)	07:19			06:25		06:47 (T36)	05:46		06:36 (T36)	05:35		
	17:13			17:55	77	08:49 (T39)	19:31			20:09	30	07:17 (T36)	20:43	44	07:20 (T36)	21:04		
23	07:46			07:08		07:30 (T40)	07:17			06:23		06:45 (T36)	05:45		06:38 (T36)	05:36		
	17:14			17:57	78	08:48 (T39)	19:32			20:10	33	07:18 (T36)	20:44	42	07:20 (T36)	21:05		
24	07:45		08:18 (T39)	07:06		07:29 (T40)	07:15			06:21		06:44 (T36)	05:44		06:38 (T36)	05:36		
	17:15	5	08:23 (T39)	17:58	79	08:48 (T39)	19:33			20:11	36	07:20 (T36)	20:45	41	07:19 (T36)	21:05		
25	07:44		08:13 (T39)	07:05		07:27 (T40)	07:14			06:20		06:42 (T36)	05:43		06:38 (T36)	05:36		
	17:17	16	08:29 (T39)	17:59	80	08:47 (T39)	19:35			20:12	38	07:20 (T36)	20:46	41	07:19 (T36)	21:05		
26	07:43		08:10 (T39)	07:03		07:26 (T40)	07:12			06:18		06:41 (T36)	05:43		06:40 (T36)	05:37		
	17:18	22	08:32 (T39)	18:01	80	08:46 (T39)	19:36			20:13	41	07:22 (T36)	20:47	39	07:19 (T36)	21:05		
27	07:42		08:08 (T39)	07:01		07:24 (T40)	07:10			06:17		06:39 (T36)	05:42		06:40 (T36)	05:37		
	17:20	26	08:34 (T39)	18:01	81	08:45 (T39)	19:37			20:15	43	07:22 (T36)	20:48	38	07:18 (T36)	21:05		
28	07:41		08:06 (T39)	07:00		07:24 (T40)	07:08			06:15		06:38 (T36)	05:41		06:41 (T36)	05:37		
	17:21	30	08:36 (T39)	18:02	77	08:43 (T39)	19:38			20:16	45	07:23 (T36)	20:49	36	07:17 (T36)	21:05		
29	07:40		08:05 (T39)	06:58		07:24 (T40)	07:06			06:14		06:36 (T36)	05:41		06:42 (T36)	05:38		07:03 (T36)
	17:22	33	08:38 (T39)	18:03	73	08:41 (T39)	19:40			20:17	47	07:23 (T36)	20:50	35	07:17 (T36)	21:05	4	07:07 (T36)
30	07:39		08:04 (T39)				07:05			06:12		06:36 (T36)	05:40		06:43 (T36)	05:38		07:02 (T36)
	17:24	36	08:40 (T39)				19:41			20:18	48	07:24 (T36)	20:51	33	07:16 (T36)	21:05	7	07:09 (T36)
31	07:38		08:03 (T39)				07:03						05:39		06:44 (T36)			
	17:25	39	08:42 (T39)				19:42						20:52	32	07:16 (T36)			
Potential sun hours	288			303			369			402			456			462		
Total, worst case		207			1817			348			427			1426			265	
Sun reduction		0.53			0.59			0.57			0.56			0.62			0.67	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.70			0.70			0.69			0.59			0.59			0.59	
Total reduction		0.37			0.41			0.40			0.33			0.37			0.40	
Total, real		77			753			138			143			528			106	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 71 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1412)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July		August		September	October		November		December
1	05:39	07:00 (T36)	06:06	06:43 (T36)	06:41	07:15		06:54	07:24 (T39)	07:32
	21:05	11 07:11 (T36)	20:44	52 07:35 (T36)	19:57	19:02		17:09	56 08:20 (T39)	16:42
2	05:39	06:59 (T36)	06:07	06:43 (T36)	06:42	07:16		06:55	07:25 (T39)	07:33
	21:05	14 07:13 (T36)	20:43	52 07:35 (T36)	19:55	19:00		17:08	55 08:20 (T39)	16:41
3	05:40	06:58 (T36)	06:08	06:43 (T36)	06:43	07:17		06:56	07:25 (T39)	07:34
	21:05	15 07:13 (T36)	20:42	52 07:35 (T36)	19:54	18:57		17:07	54 08:19 (T39)	16:41
4	05:41	06:57 (T36)	06:09	06:43 (T36)	06:44	07:19		06:58	07:27 (T39)	07:35
	21:04	18 07:15 (T36)	20:40	52 07:35 (T36)	19:52	18:55		17:05	52 08:19 (T39)	16:41
5	05:41	06:56 (T36)	06:10	06:43 (T36)	06:45	07:20	08:13 (T40)	06:59	07:27 (T39)	07:36
	21:04	20 07:16 (T36)	20:39	52 07:35 (T36)	19:50	18:53	4 08:17 (T40)	17:04	51 08:18 (T39)	16:41
6	05:42	06:56 (T36)	06:11	06:43 (T36)	06:46	07:21	08:08 (T40)	07:00	07:28 (T39)	07:37
	21:04	21 07:17 (T36)	20:38	51 07:34 (T36)	19:48	18:51	15 08:23 (T40)	17:03	50 08:18 (T39)	16:40
7	05:42	06:55 (T36)	06:12	06:43 (T36)	06:47	07:22	08:05 (T40)	07:02	07:28 (T39)	07:38
	21:04	23 07:18 (T36)	20:36	51 07:34 (T36)	19:46	18:50	20 08:25 (T40)	17:02	49 08:17 (T39)	16:40
8	05:43	06:54 (T36)	06:13	06:43 (T36)	06:49	07:23	08:03 (T40)	07:03	07:29 (T39)	07:39
	21:03	25 07:19 (T36)	20:35	51 07:34 (T36)	19:45	18:48	38 09:02 (T39)	17:00	47 08:16 (T39)	16:40
9	05:44	06:54 (T36)	06:14	06:43 (T36)	06:50	07:25	08:01 (T40)	07:04	07:30 (T39)	07:40
	21:03	26 07:20 (T36)	20:34	50 07:33 (T36)	19:43	18:46	48 09:05 (T39)	16:59	46 08:16 (T39)	16:40
10	05:45	06:53 (T36)	06:16	06:43 (T36)	06:51	07:26	08:00 (T40)	07:06	07:31 (T39)	07:41
	21:02	28 07:21 (T36)	20:32	50 07:33 (T36)	19:41	18:44	57 09:09 (T39)	16:58	43 08:14 (T39)	16:40
11	05:45	06:53 (T36)	06:17	06:43 (T36)	06:52	07:27	07:59 (T40)	07:07	07:33 (T39)	07:42
	21:02	30 07:23 (T36)	20:31	49 07:32 (T36)	19:39	18:42	63 09:11 (T39)	16:57	41 08:14 (T39)	16:40
12	05:46	06:51 (T36)	06:18	06:43 (T36)	06:53	07:28	07:58 (T40)	07:08	07:34 (T39)	07:43
	21:01	32 07:23 (T36)	20:29	49 07:32 (T36)	19:37	18:41	68 09:12 (T39)	16:56	38 08:12 (T39)	16:40
13	05:47	06:51 (T36)	06:19	06:44 (T36)	06:54	07:29	07:57 (T40)	07:10	07:36 (T39)	07:44
	21:01	33 07:24 (T36)	20:28	48 07:32 (T36)	19:35	18:39	72 09:13 (T39)	16:55	36 08:12 (T39)	16:40
14	05:48	06:51 (T36)	06:20	06:45 (T36)	06:55	07:31	07:57 (T40)	07:11	07:37 (T39)	07:45
	21:00	34 07:25 (T36)	20:27	46 07:31 (T36)	19:34	18:37	76 09:15 (T39)	16:54	33 08:10 (T39)	16:40
15	05:49	06:50 (T36)	06:21	06:46 (T36)	06:57	07:32	07:56 (T40)	07:12	07:38 (T39)	07:45
	21:00	36 07:26 (T36)	20:25	44 07:30 (T36)	19:32	18:36	78 09:16 (T39)	16:53	30 08:08 (T39)	16:41
16	05:50	06:50 (T36)	06:22	06:47 (T36)	06:58	07:33	07:56 (T40)	07:14	07:41 (T39)	07:46
	20:59	37 07:27 (T36)	20:24	42 07:29 (T36)	19:30	18:34	81 09:17 (T39)	16:52	26 08:07 (T39)	16:41
17	05:50	06:49 (T36)	06:24	06:48 (T36)	06:59	07:34	07:58 (T40)	07:15	07:43 (T39)	07:47
	20:58	38 07:27 (T36)	20:22	40 07:28 (T36)	19:28	18:32	80 09:18 (T39)	16:51	22 08:05 (T39)	16:41
18	05:51	06:48 (T36)	06:25	06:49 (T36)	07:00	07:36	07:59 (T40)	07:16	07:47 (T39)	07:48
	20:58	40 07:28 (T36)	20:20	38 07:27 (T36)	19:26	18:31	80 09:19 (T39)	16:50	16 08:03 (T39)	16:41
19	05:52	06:48 (T36)	06:26	06:50 (T36)	07:01	07:37	08:00 (T40)	07:17	07:52 (T39)	07:48
	20:57	41 07:29 (T36)	20:19	35 07:25 (T36)	19:24	18:29	79 09:19 (T39)	16:49	5 07:57 (T39)	16:42
20	05:53	06:47 (T36)	06:27	06:51 (T36)	07:02	07:38	08:02 (T40)	07:19		07:49
	20:56	42 07:29 (T36)	20:17	33 07:24 (T36)	19:22	18:27	78 09:20 (T39)	16:48		16:42
21	05:54	06:47 (T36)	06:28	06:52 (T36)	07:03	07:39	08:03 (T40)	07:20		07:49
	20:55	43 07:30 (T36)	20:16	30 07:22 (T36)	19:21	18:26	77 09:20 (T39)	16:47		16:43
22	05:55	06:47 (T36)	06:29	06:53 (T36)	07:05	07:41	08:04 (T40)	07:21		07:50
	20:54	44 07:31 (T36)	20:14	26 07:19 (T36)	19:19	18:24	76 09:20 (T39)	16:47		16:43
23	05:56	06:46 (T36)	06:30	06:54 (T36)	07:06	07:42	08:06 (T40)	07:23		07:50
	20:53	45 07:31 (T36)	20:12	22 07:16 (T36)	19:17	18:23	75 09:21 (T39)	16:46		16:44
24	05:57	06:46 (T36)	06:32	06:57 (T36)	07:07	07:43	08:07 (T40)	07:24		07:51
	20:53	46 07:32 (T36)	20:11	15 07:12 (T36)	19:15	18:21	73 09:21 (T39)	16:45		16:44
25	05:58	06:46 (T36)	06:33		07:08	07:45	08:09 (T40)	07:25		07:51
	20:52	46 07:32 (T36)	20:09		19:13	18:19	69 09:21 (T39)	16:45		16:45
26	05:59	06:45 (T36)	06:34		07:09	07:46	08:10 (T40)	07:26		07:52
	20:51	48 07:33 (T36)	20:07		19:11	18:18	66 09:21 (T39)	16:44		16:46
27	06:00	06:45 (T36)	06:35		07:10	07:47	08:11 (T40)	07:27		07:52
	20:50	48 07:33 (T36)	20:06		19:10	18:16	62 09:21 (T39)	16:44		16:46
28	06:01	06:45 (T36)	06:36		07:11	07:48	08:24 (T39)	07:29		07:52
	20:49	49 07:34 (T36)	20:04		19:08	18:15	57 09:21 (T39)	16:43		16:47
29	06:02	06:44 (T36)	06:37		07:13	07:50	08:24 (T39)	07:30		07:52
	20:47	50 07:34 (T36)	20:02		19:06	18:14	56 09:20 (T39)	16:43		16:48
30	06:03	06:44 (T36)	06:38		07:14	07:51	08:25 (T39)	07:31		07:53
	20:46	50 07:34 (T36)	20:01		19:04	18:12	56 09:21 (T39)	16:42		16:48
31	06:05	06:44 (T36)	06:39			07:52	08:24 (T39)			07:53
	20:45	51 07:35 (T36)	19:59			18:11	56 09:20 (T39)			16:49
Potential sun hours	469		434		377	342		290		278
Total, worst case		1084		1030			1660		750	
Sun reduction		0.74		0.69			0.51		0.37	
Oper. time red.		1.00		1.00			1.00		1.00	
Wind dir. red.		0.59		0.59			0.69		0.70	
Total reduction		0.44		0.41			0.36		0.26	
Total, real		479		425			593		196	

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

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

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 87 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1425)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March	April	May	June	July	August	September	October			November			December		
1	07:53		08:24 (T50)	07:37		08:54 (T45)	06:56	07:01	06:11	05:39	05:39	06:05	06:40	07:15			06:53		08:37 (T45)	07:32		08:17 (T50)
	16:49	84	09:48 (T45)	17:26	58	09:52 (T45)	18:04	19:43	20:19	20:52	21:05	20:44	19:57	19:02			17:09	31	09:08 (T45)	16:42	78	09:35 (T45)
2	07:53		08:24 (T50)	07:36		08:55 (T45)	06:54	06:59	06:09	05:38	05:39	06:07	06:42	07:16			06:55		08:36 (T45)	07:33		08:16 (T50)
	16:50	85	09:49 (T45)	17:28	57	09:52 (T45)	18:06	19:44	20:20	20:53	21:05	20:43	19:55	19:00			17:08	35	09:11 (T45)	16:41	80	09:36 (T45)
3	07:53		08:25 (T50)	07:35		08:56 (T45)	06:53	06:57	06:08	05:38	05:40	06:08	06:43	07:17			06:56		08:33 (T45)	07:34		08:16 (T50)
	16:51	84	09:49 (T45)	17:29	55	09:51 (T45)	18:07	19:45	20:22	20:54	21:04	20:41	19:53	18:57			17:06	40	09:13 (T45)	16:41	81	09:37 (T45)
4	07:53		08:26 (T50)	07:34		08:57 (T45)	06:51	06:55	06:06	05:37	05:40	06:09	06:44	07:18			06:57		08:31 (T45)	07:35		08:15 (T50)
	16:52	84	09:50 (T45)	17:30	53	09:50 (T45)	18:08	19:47	20:23	20:55	21:04	20:40	19:52	18:55			17:05	43	09:14 (T45)	16:41	82	09:37 (T45)
5	07:53		08:27 (T50)	07:33		08:58 (T45)	06:49	06:54	06:05	05:37	05:41	06:10	06:45	07:20			06:59		08:30 (T45)	07:36		08:15 (T50)
	16:53	83	09:50 (T45)	17:32	51	09:49 (T45)	18:09	19:48	20:24	20:56	21:04	20:39	19:50	18:53			17:04	46	09:16 (T45)	16:40	82	09:37 (T45)
6	07:53		08:28 (T50)	07:32		08:59 (T45)	06:48	06:52	06:04	05:36	05:42	06:11	06:46	07:21			07:00		08:29 (T45)	07:37		08:15 (T50)
	16:54	83	09:51 (T45)	17:33	49	09:48 (T45)	18:11	19:49	20:25	20:56	21:04	20:38	19:48	18:51			17:03	49	09:18 (T45)	16:40	83	09:38 (T45)
7	07:53		08:29 (T50)	07:30		09:01 (T45)	06:46	06:50	06:02	05:36	05:42	06:12	06:47	07:22			07:01		08:28 (T45)	07:38		08:15 (T50)
	16:55	83	09:52 (T45)	17:34	45	09:46 (T45)	18:12	19:50	20:26	20:57	21:03	20:36	19:46	18:49			17:01	52	09:20 (T45)	16:40	83	09:38 (T45)
8	07:52		08:30 (T50)	07:29		09:03 (T45)	07:44	06:48	06:01	05:36	05:43	06:13	06:48	07:23			07:03		08:27 (T45)	07:39		08:15 (T50)
	16:56	82	09:52 (T45)	17:36	42	09:45 (T45)	18:13	19:52	20:28	20:58	21:03	20:35	19:44	18:48			17:00	53	09:20 (T45)	16:40	83	09:38 (T45)
9	07:52		08:30 (T50)	07:28		09:04 (T45)	07:42	06:46	06:00	05:35	05:44	06:14	06:50	07:24			07:04		08:27 (T45)	07:40		08:15 (T50)
	16:57	82	09:52 (T45)	17:37	39	09:43 (T45)	19:15	19:53	20:29	20:58	21:03	20:34	19:43	18:46			16:59	55	09:22 (T45)	16:40	84	09:39 (T45)
10	07:52		08:32 (T50)	07:26		09:06 (T45)	07:41	06:45	05:59	05:35	05:45	06:15	06:51	07:26			07:05		08:26 (T45)	07:41		08:15 (T50)
	16:58	81	09:53 (T45)	17:39	35	09:41 (T45)	19:16	19:54	20:30	20:59	21:02	20:32	19:41	18:44			16:58	57	09:23 (T45)	16:40	84	09:39 (T45)
11	07:52		08:34 (T50)	07:25		09:08 (T45)	07:39	06:43	05:57	05:35	05:45	06:17	06:52	07:27			07:07		08:25 (T45)	07:42		08:15 (T50)
	16:59	80	09:54 (T45)	17:40	29	09:37 (T45)	19:17	19:55	20:31	21:00	21:02	20:31	19:39	18:42			16:57	58	09:23 (T45)	16:40	85	09:40 (T45)
12	07:51		08:35 (T50)	07:24		09:12 (T45)	07:37	06:41	05:56	05:35	05:46	06:18	06:53	07:28			07:08		08:25 (T45)	07:43		08:16 (T50)
	17:00	78	09:53 (T45)	17:41	23	09:35 (T45)	19:18	19:56	20:32	21:00	21:01	20:29	19:37	18:41			16:56	60	09:25 (T45)	16:40	84	09:40 (T45)
13	07:51		08:38 (T50)	07:22		09:17 (T45)	07:35	06:39	05:55	05:35	05:47	06:19	06:54	07:29			07:09		08:24 (T45)	07:44		08:15 (T50)
	17:02	75	09:54 (T45)	17:43	13	09:30 (T45)	19:20	19:58	20:33	21:01	21:01	20:28	19:35	18:39			16:55	61	09:25 (T45)	16:40	85	09:40 (T45)
14	07:51		08:44 (T45)	07:21			07:33	06:38	05:54	05:35	05:48	06:20	06:55	07:30			07:11		08:24 (T45)	07:44		08:16 (T50)
	17:03	70	09:54 (T45)	17:44			19:21	19:59	20:34	21:01	21:00	20:26	19:33	18:37			16:54	63	09:27 (T45)	16:40	84	09:40 (T45)
15	07:50		08:44 (T45)	07:20			07:32	06:36	05:53	05:35	05:49	06:21	06:56	07:32			07:12		08:23 (T45)	07:45		08:16 (T50)
	17:04	71	09:55 (T45)	17:45			19:22	20:00	20:35	21:02	20:59	20:25	19:32	18:35			16:53	64	09:27 (T45)	16:40	85	09:41 (T45)
16	07:50		08:44 (T45)	07:18			07:30	06:34	05:52	05:35	05:49	06:22	06:57	07:33			07:13		08:24 (T45)	07:46		08:17 (T50)
	17:05	71	09:55 (T45)	17:47			19:23	20:01	20:37	21:02	20:59	20:23	19:30	18:34			16:52	64	09:28 (T45)	16:41	85	09:42 (T45)
17	07:49		08:45 (T45)	07:17			07:28	06:33	05:51	05:35	05:50	06:23	06:59	07:34			07:15		08:23 (T45)	07:47		08:17 (T50)
	17:06	70	09:55 (T45)	17:48			19:25	20:02	20:38	21:03	20:58	20:22	19:28	18:32			16:51	66	09:29 (T45)	16:41	85	09:42 (T45)
18	07:49		08:45 (T45)	07:15			07:26	06:31	05:50	05:35	05:51	06:24	07:00	07:35			07:16		08:23 (T45)	07:47		08:17 (T50)
	17:08	70	09:55 (T45)	17:50			19:26	20:04	20:39	21:03	20:57	20:20	19:26	18:30			16:50	66	09:29 (T45)	16:41	85	09:42 (T45)
19	07:48		08:46 (T45)	07:14			07:24	06:29	05:49	05:35	05:52	06:26	07:01	07:37			07:17		08:23 (T45)	07:48		08:18 (T50)
	17:09	69	09:55 (T45)	17:51			19:27	20:05	20:40	21:03	20:57	20:19	19:24	18:29			16:49	67	09:30 (T45)	16:42	85	09:43 (T45)
20	07:48		08:47 (T45)	07:12			07:23	06:28	05:48	05:35	05:53	06:27	07:02	07:38			07:19		08:23 (T45)	07:49		08:18 (T50)
	17:10	69	09:56 (T45)	17:52			19:28	20:06	20:41	21:04	20:56	20:17	19:22	18:27			16:48	67	09:30 (T45)	16:42	85	09:43 (T45)
21	07:47		08:47 (T45)	07:11			07:21	06:26	05:47	05:35	05:54	06:28	07:03	07:39			07:20		08:23 (T45)	07:49		08:19 (T50)
	17:11	69	09:56 (T45)	17:54			19:30	20:07	20:42	21:04	20:55	20:15	19:20	18:26			16:47	69	09:32 (T45)	16:43	85	09:44 (T45)
22	07:46		08:47 (T45)	07:09			07:19	06:24	05:46	05:35	05:55	06:29	07:04	07:41			07:21		08:23 (T45)	07:50		08:19 (T50)
	17:13	69	09:56 (T45)	17:55			19:31	20:08	20:43	21:04	20:54	20:14	19:19	18:24			16:47	69	09:32 (T45)	16:43	85	09:44 (T45)
23	07:45		08:48 (T45)	07:08			07:17	06:23	05:45	05:36	05:56	06:30	07:05	07:42			07:22		08:23 (T45)	07:50		08:20 (T50)
	17:14	67	09:55 (T45)	17:56			19:32	20:10	20:44	21:04	20:53	20:12	19:17	18:22			16:46	69	09:32 (T45)	16:44	85	09:45 (T45)
24	07:45		08:48 (T45)	07:06			07:15	06:21	05:44	05:36	05:57	06:31	07:07	07:43			07:24		08:24 (T45)	07:51		08:20 (T50)
	17:15	67	09:55 (T45)	17:58			19:33	20:11	20:45	21:05	20:52	20:11	19:15	18:21			16:45	69	09:33 (T45)	16:44	85	09:45 (T45)
25	07:44		08:49 (T45)	07:04			07:13	06:20	05:43	05:36	05:58	06:32	07:08	07:44			07:25		08:24 (T45)	07:51		08:20 (T50)
	17:17	66	09:55 (T45)	17:59			19:35	20:12	20:46	21:05	20:51	20:09	19:13	18:19			16:45	69	09:33 (T45)	16:45	85	09:45 (T45)
26	07:43		08:50 (T45)	07:03			07:12	06:18	05:43	05:37	05:59	06:34	07:09	07:46			07:26		08:23 (T45)	07:51		08:21 (T50)
	17:18	66	09:56 (T45)	18:00			19:36	20:13	20:47	21:05	20:50	20:07	19:11	18:18			16:44	70	09:33 (T45)	16:45	85	09:46 (T45)
27	07:42		08:51 (T45)	07:01			07:10	06:17	05:42	05:37	06:00	06:35	07:10	07:47			07:27		08:23 (T45)	07:52		08:22 (T50)
	17:19	65	09:56 (T45)	18:00			19:37	20:14	20:48	21:05	20:49	20:06	19:09	18:16			16:43	71	09:34 (T45)	16:46	85	09:47 (T45)
28	07:41		08:51 (T45)	06:59			07:08	06:15	05:41	05:37	06:01	06:36	07:11	07:48			07:28		08:24 (T45)	07:52		08:22 (T50)
	17:21	64	09:55 (T45)	18:02			19:38	20:16	20:49	21:05	20:48	20:04	19:07	18:15			16:43	71	09:35 (T45)	16:47	85	09:47 (T45)
29	07:40		08:52 (T45)	06:58			07:06	06:14	05:40	05:38	06:02	06:37	07:12	07:50			07:30		08:25 (T45)	07:52		08:23 (T50)
	17:22	63	09:55 (T45)	18:03			19:39	20:17	20:50	21:05	20:47	20:02	19:06	18:13			16:42	70	09:35 (T45)	16:48	84	09:47 (T45)
30	07:39		08:52 (T45)				07:04	06:12	05:40	05:38	06:03	06:38	07:14	07:51		09:44 (T45)	07:31		08:19 (T50)	07:52		08:23 (T50)
	17:23	61	09:53 (T45)				19:41	20:18	20:51	21:05	20:46	20:00	19:04	18:12	16	10:00 (T45)	16:42	75	09:35 (T45)	16:48	85	09:48 (T45)
31	07:38		08:53 (T45)				07:03		05:39		06:04	06:39		07:52		09:41 (T45)				07:53		08:24 (T50)
	17:25	60	09:53 (T45)				19:42		20:52		20:45	19:59		18:11	24	10:05 (T45)				16:49	84	09:48 (T45)
Potential sun hours	288			303			369	402	456	462	469	434	377	342			290			278		
Total, worst case		2271			549										40			1799			2601	
Sun reduction		0.53			0.59										0.51			0.37			0.38	
Oper. time red.		1.00			1.00										1.00			1.00			1.00	
Wind dir. red.		0.72			0.72										0.72			0.72			0.72	
Total reduction		0.38			0.42										0.37			0.27			0.27	
Total, real		864			233										15			478			709	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 88 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1426)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:53 16:49	07:37 17:26	06:56 18:04	07:01 19:43 69	17:54 (T45) 19:03 (T45)	06:11 20:19	05:39 20:52	05:39 21:05	06:05 20:44	06:40 19:57 59	17:56 (T45) 18:55 (T45)	07:15 19:02 38	17:54 (T45) 18:32 (T45)	06:53 17:09	07:32 16:42
2	07:53 16:50	07:36 17:28	06:54 18:06	06:59 19:44 69	17:54 (T45) 19:03 (T45)	06:09 20:20	05:38 20:53	05:39 21:05	06:06 20:43	06:42 19:55 62	17:54 (T45) 18:56 (T45)	07:16 19:00 33	17:57 (T45) 18:30 (T45)	06:55 17:08	07:33 16:41
3	07:53 16:51	07:35 17:29	06:53 18:07	06:57 19:45 69	17:54 (T45) 19:03 (T45)	06:08 20:22	05:38 20:54	05:40 21:04	06:08 20:41	06:43 19:53 63	17:53 (T45) 18:56 (T45)	07:17 18:56 26	18:00 (T45) 18:26 (T45)	06:56 17:06	07:34 16:41
4	07:53 16:52	07:34 17:30	06:51 18:08	06:55 19:47 68	17:54 (T45) 19:02 (T45)	06:06 20:23	05:37 20:55	05:40 21:04	06:09 20:40	06:44 19:51 64	17:52 (T45) 18:56 (T45)	07:18 18:55 17	18:04 (T45) 18:21 (T45)	06:57 17:05	07:35 16:41
5	07:53 16:53	07:33 17:32	06:49 18:09	06:53 19:48 67	17:54 (T45) 19:01 (T45)	06:05 20:24	05:37 20:56	05:41 21:04	06:10 20:39	06:45 19:50 65	17:51 (T45) 18:56 (T45)	07:19 18:53		06:59 17:04	07:36 16:40
6	07:53 16:54	07:31 17:33	06:47 18:11	06:52 19:49 66	17:54 (T45) 19:00 (T45)	06:04 20:25	05:36 20:56	05:42 21:04	06:11 20:37	06:46 19:48 66	17:50 (T45) 18:56 (T45)	07:21 18:51		07:00 17:03	07:37 16:40
7	07:53 16:55	07:30 17:34	06:46 18:12	06:50 19:50 65	17:55 (T45) 19:00 (T45)	06:02 20:26	05:36 20:57	05:42 21:03	06:12 20:36	06:47 19:46 67	17:49 (T45) 18:56 (T45)	07:22 18:49		07:01 17:01	07:38 16:40
8	07:52 16:56	07:29 17:36	07:44 18:13	06:48 19:51 64	17:55 (T45) 18:59 (T45)	06:01 20:27	05:36 20:58	05:43 21:03	06:13 20:35	06:48 19:44 68	17:48 (T45) 18:56 (T45)	07:23 18:48		07:03 17:00	07:39 16:40
9	07:52 16:57	07:28 17:37	07:42 19:15 9	18:30 (T45) 06:46 18:39 (T45) 19:53 63	17:55 (T45) 18:58 (T45)	06:00 20:29	05:35 20:58	05:44 21:03	06:14 20:33	06:49 19:42 69	17:47 (T45) 18:56 (T45)	07:24 18:46		07:04 16:59	07:40 16:40
10	07:52 16:58	07:26 17:39	07:40 19:16 23	18:24 (T45) 06:45 18:47 (T45) 19:54 62	17:55 (T45) 18:57 (T45)	05:59 20:30	05:35 20:59	05:44 21:02	06:15 20:32	06:51 19:41 69	17:47 (T45) 18:56 (T45)	07:25 18:44		07:05 16:58	07:41 16:40
11	07:52 16:59	07:25 17:40	07:39 19:17 31	18:19 (T45) 06:43 18:50 (T45) 19:55 60	17:57 (T45) 18:57 (T45)	05:57 20:31	05:35 21:00	05:45 21:02	06:16 20:31	06:52 19:39 69	17:47 (T45) 18:56 (T45)	07:27 18:42		07:07 16:57	07:42 16:40
12	07:51 17:00	07:24 17:41	07:37 19:18 36	18:16 (T45) 06:41 18:52 (T45) 19:56 58	17:57 (T45) 18:55 (T45)	05:56 20:32	05:35 21:00	05:46 21:01	06:18 20:29	06:53 19:37 70	17:46 (T45) 18:56 (T45)	07:28 18:41		07:08 16:56	07:43 16:40
13	07:51 17:02	07:22 17:43	07:35 19:20 41	18:13 (T45) 06:39 18:54 (T45) 19:57 56	17:58 (T45) 18:54 (T45)	05:55 20:33	05:35 21:01	05:47 21:01	06:19 20:28	06:54 19:35 69	17:46 (T45) 18:55 (T45)	07:29 18:39		07:09 16:55	07:44 16:40
14	07:51 17:03	07:21 17:44	07:33 19:21 45	18:11 (T45) 06:38 18:56 (T45) 19:59 54	17:59 (T45) 18:53 (T45)	05:54 20:34	05:35 21:01	05:48 21:00	06:20 20:26	06:55 19:33 69	17:45 (T45) 18:54 (T45)	07:30 18:37		07:11 16:53	07:44 16:40
15	07:50 17:04	07:20 17:45	07:32 19:22 48	18:09 (T45) 06:36 18:57 (T45) 20:00 51	18:00 (T45) 18:51 (T45)	05:53 20:35	05:35 21:02	05:49 20:59	06:21 20:25	06:56 19:31 69	17:45 (T45) 18:54 (T45)	07:32 18:35		07:12 16:53	07:45 16:40
16	07:50 17:05	07:18 17:47	07:30 19:23 51	18:08 (T45) 06:34 18:59 (T45) 20:01 49	18:01 (T45) 18:50 (T45)	05:52 20:37	05:35 21:02	05:49 20:59	06:22 20:23	06:57 19:30 69	17:44 (T45) 18:53 (T45)	07:33 18:34		07:13 16:52	07:46 16:41
17	07:49 17:06	07:17 17:48	07:28 19:25 54	18:06 (T45) 06:33 19:00 (T45) 20:02 46	18:03 (T45) 18:49 (T45)	05:51 20:38	05:35 21:03	05:50 20:58	06:23 20:22	06:59 19:28 68	17:44 (T45) 18:52 (T45)	07:34 18:32		07:15 16:51	07:47 16:41
18	07:49 17:08	07:15 17:50	07:26 19:26 57	18:04 (T45) 06:31 19:01 (T45) 20:04 42	18:04 (T45) 18:46 (T45)	05:50 20:39	05:35 21:03	05:51 20:57	06:24 20:20	07:00 19:26 67	17:44 (T45) 18:51 (T45)	07:35 18:30		07:16 16:50	07:47 16:41
19	07:48 17:09	07:14 17:51	07:24 19:27 59	18:03 (T45) 06:29 19:02 (T45) 20:05 39	18:05 (T45) 18:44 (T45)	05:49 20:40	05:35 21:03	05:52 20:57	06:26 20:19	07:01 19:24 66	17:45 (T45) 18:51 (T45)	07:37 18:29		07:17 16:49	07:48 16:42
20	07:47 17:10	07:12 17:52	07:22 19:28 61	18:01 (T45) 06:28 19:02 (T45) 20:06 34	18:08 (T45) 18:42 (T45)	05:48 20:41	05:35 21:04	05:53 20:56	06:27 18:21 (T45) 20:17 18 18:39 (T45)	07:02 19:22 65	17:45 (T45) 18:50 (T45)	07:38 18:27		07:18 16:48	07:48 16:42
21	07:47 17:11	07:11 17:54	07:21 19:30 62	18:00 (T45) 06:26 19:02 (T45) 20:07 30	18:09 (T45) 18:39 (T45)	05:47 20:42	05:35 21:04	05:54 20:55	06:28 18:17 (T45) 20:15 25 18:42 (T45)	07:03 19:20 64	17:45 (T45) 18:49 (T45)	07:39 18:26		07:20 16:47	07:49 16:43
22	07:46 17:13	07:09 17:55	07:19 19:31 64	18:00 (T45) 06:24 19:04 (T45) 20:08 24	18:13 (T45) 18:37 (T45)	05:46 20:43	05:35 21:04	05:55 20:54	06:29 18:14 (T45) 20:14 31 18:45 (T45)	07:04 19:19 63	17:45 (T45) 18:48 (T45)	07:40 18:24		07:21 16:47	07:50 16:43
23	07:45 17:14	07:07 17:56	07:17 19:32 65	17:59 (T45) 06:23 19:04 (T45) 20:10 16	18:16 (T45) 18:32 (T45)	05:45 20:44	05:36 21:04	05:56 20:53	06:30 18:11 (T45) 20:12 36 18:47 (T45)	07:05 19:17 62	17:45 (T45) 18:47 (T45)	07:42 18:22		07:22 16:46	07:50 16:44
24	07:45 17:15	07:06 17:58	07:15 19:33 66	17:58 (T45) 06:21 19:04 (T45) 20:11		05:44 20:45	05:36 21:05	05:57 20:52	06:31 18:09 (T45) 20:10 39 18:48 (T45)	07:07 19:15 59	17:46 (T45) 18:45 (T45)	07:43 18:21		07:23 16:45	07:50 16:44
25	07:44 17:17	07:04 17:59	07:13 19:34 67	17:57 (T45) 06:20 19:04 (T45) 20:12		05:43 20:46	05:36 21:05	05:58 20:51	06:32 18:06 (T45) 20:09 43 18:49 (T45)	07:08 19:13 58	17:46 (T45) 18:44 (T45)	07:44 18:19		07:25 16:45	07:51 16:45
26	07:43 17:18	07:03 18:00	07:12 19:36 68	17:56 (T45) 06:18 19:04 (T45) 20:13		05:43 20:47	05:36 21:05	05:59 20:50	06:34 18:04 (T45) 20:07 47 18:51 (T45)	07:09 19:11 55	17:48 (T45) 18:43 (T45)	07:46 18:18		07:26 16:44	07:51 16:45
27	07:42 17:19	07:01 18:00	07:10 19:37 69	17:55 (T45) 06:17 19:04 (T45) 20:14		05:42 20:48	05:37 21:05	06:00 20:49	06:35 18:02 (T45) 20:05 50 18:52 (T45)	07:10 19:09 52	17:49 (T45) 18:41 (T45)	07:47 18:16		07:27 16:43	07:52 16:46
28	07:41 17:21	06:59 18:02	07:08 19:38 70	17:55 (T45) 06:15 19:05 (T45) 20:16		05:41 20:49	05:37 21:05	06:01 20:48	06:36 18:01 (T45) 20:04 51 18:52 (T45)	07:11 19:07 49	17:50 (T45) 18:39 (T45)	07:48 18:15		07:28 16:43	07:52 16:47
29	07:40 17:22	06:58 18:03	07:06 19:39 69	17:55 (T45) 06:14 19:04 (T45) 20:17		05:40 20:50	05:38 21:05	06:02 20:47	06:37 18:00 (T45) 20:02 54 18:54 (T45)	07:12 19:06 46	17:51 (T45) 18:37 (T45)	07:50 18:13		07:29 16:42	07:52 16:47
30	07:39 17:23		07:04 19:41 70	17:54 (T45) 06:12 19:04 (T45) 20:18		05:40 20:51	05:38 21:05	06:03 20:46	06:38 17:58 (T45) 20:00 57 18:55 (T45)	07:14 19:04 43	17:52 (T45) 18:35 (T45)	07:51 18:12		07:31 16:42	07:52 16:48
31	07:38 17:25		07:02 19:42 69	17:54 (T45) 19:03 (T45)		05:39 20:52		06:04 20:45	06:39 17:57 (T45) 19:59 58 18:55 (T45)			07:52 18:10			07:52 16:49
Potential sun hours	288	303	369	402	456	462	469	434	377	342	290	278
Total, worst case			1254	1221				509	1884	114		
Sun reduction			0.57	0.56				0.69	0.62	0.51		
Oper. time red.			1.00	1.00				1.00	1.00	1.00		
Wind dir. red.			0.62	0.62				0.62	0.62	0.62		
Total reduction			0.35	0.35				0.43	0.38	0.32		
Total, real			442	423				217	722	36		

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

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

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 90 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1428)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January			February			March			April			May			June		
1	07:53		11:16 (T53)	07:37		08:01 (T52)	06:56			07:01			06:11			05:39		06:12 (T50)
	16:49	31	11:47 (T53)	17:26	39	08:40 (T52)	18:04			19:43			20:19			20:52	24	06:36 (T50)
2	07:53		11:18 (T53)	07:36		08:00 (T52)	06:54			06:59			06:09			05:38		06:13 (T50)
	16:50	28	11:46 (T53)	17:28	41	08:41 (T52)	18:06			19:44			20:20			20:53	23	06:36 (T50)
3	07:53		11:20 (T53)	07:35		07:59 (T52)	06:53			06:57			06:08			05:38		06:13 (T50)
	16:51	25	11:45 (T53)	17:29	42	08:41 (T52)	18:07			19:45			20:22			20:54	23	06:36 (T50)
4	07:53		11:22 (T53)	07:34		07:59 (T52)	06:51		07:13 (T51)	06:55			06:07			05:37		06:14 (T50)
	16:52	22	11:44 (T53)	17:30	43	08:42 (T52)	18:08	5	07:18 (T51)	19:47			20:23			20:55	22	06:36 (T50)
5	07:53		11:25 (T53)	07:33		07:58 (T52)	06:49		07:12 (T51)	06:54			06:05			05:37		06:14 (T50)
	16:53	17	11:42 (T53)	17:32	44	08:42 (T52)	18:10	9	07:21 (T51)	19:48			20:24			20:56	21	06:35 (T50)
6	07:53		11:29 (T53)	07:31		07:58 (T52)	06:48		07:10 (T51)	06:52			06:04			05:36		06:15 (T50)
	16:54	10	11:39 (T53)	17:33	45	08:43 (T52)	18:11	13	07:23 (T51)	19:49			20:25			20:56	20	06:35 (T50)
7	07:53			07:30		07:58 (T52)	06:46		07:08 (T51)	06:50			06:02		06:26 (T50)	05:36		06:16 (T50)
	16:55			17:34	45	08:43 (T52)	18:12	15	07:23 (T51)	19:50			20:26	3	06:29 (T50)	20:57	19	06:35 (T50)
8	07:52			07:29		07:58 (T52)	07:44		08:06 (T51)	06:48			06:01		06:24 (T50)	05:36		06:16 (T50)
	16:56			17:36	46	08:44 (T52)	18:13	18	08:24 (T51)	19:51			20:27	6	06:30 (T50)	20:58	19	06:35 (T50)
9	07:52			07:28		07:58 (T52)	07:42		08:04 (T51)	06:46			06:00		06:23 (T50)	05:35		06:16 (T50)
	16:57			17:37	45	08:43 (T52)	19:15	21	08:25 (T51)	19:53			20:29	9	06:32 (T50)	20:58	18	06:34 (T50)
10	07:52			07:26		07:58 (T52)	07:41		08:03 (T51)	06:45			05:59		06:22 (T50)	05:35		06:17 (T50)
	16:58			17:39	45	08:43 (T52)	19:16	23	08:26 (T51)	19:54			20:30	11	06:33 (T50)	20:59	16	06:33 (T50)
11	07:52			07:25		07:58 (T52)	07:39		08:01 (T51)	06:43			05:57		06:21 (T50)	05:35		06:18 (T50)
	16:59			17:40	45	08:43 (T52)	19:17	25	08:26 (T51)	19:55			20:31	13	06:34 (T50)	21:00	15	06:33 (T50)
12	07:51			07:24		07:58 (T52)	07:37		07:59 (T51)	06:41			05:56		06:20 (T50)	05:35		06:19 (T50)
	17:00			17:41	45	08:43 (T52)	19:18	26	08:25 (T51)	19:56			20:32	15	06:35 (T50)	21:00	14	06:33 (T50)
13	07:51			07:22		07:59 (T52)	07:35		07:57 (T51)	06:39			05:55		06:19 (T50)	05:35		06:20 (T50)
	17:02			17:43	44	08:43 (T52)	19:20	28	08:25 (T51)	19:58			20:33	17	06:36 (T50)	21:01	13	06:33 (T50)
14	07:51			07:21		07:59 (T52)	07:33		07:55 (T51)	06:38			05:54		06:18 (T50)	05:35		06:20 (T50)
	17:03			17:44	43	08:42 (T52)	19:21	29	08:24 (T51)	19:59			20:34	18	06:36 (T50)	21:01	13	06:33 (T50)
15	07:50			07:20		08:00 (T52)	07:32		07:55 (T51)	06:36			05:53		06:17 (T50)	05:35		06:21 (T50)
	17:04			17:46	42	08:42 (T52)	19:22	30	08:25 (T51)	20:00			20:35	20	06:37 (T50)	21:02	11	06:32 (T50)
16	07:50			07:18		08:00 (T52)	07:30		07:55 (T51)	06:34			05:52		06:16 (T50)	05:35		06:22 (T50)
	17:05			17:47	41	08:41 (T52)	19:23	29	08:24 (T51)	20:01			20:37	21	06:37 (T50)	21:02	10	06:32 (T50)
17	07:49			07:17		08:01 (T52)	07:28		07:56 (T51)	06:33			05:51		06:15 (T50)	05:35		06:22 (T50)
	17:06			17:48	40	08:41 (T52)	19:25	27	08:23 (T51)	20:02			20:38	22	06:37 (T50)	21:03	10	06:32 (T50)
18	07:49			07:15		08:01 (T52)	07:26		07:56 (T51)	06:31			05:50		06:14 (T50)	05:35		06:23 (T50)
	17:08			17:50	38	08:39 (T52)	19:26	25	08:21 (T51)	20:04			20:39	24	06:38 (T50)	21:03	9	06:32 (T50)
19	07:48			07:14		08:03 (T52)	07:24		07:57 (T51)	06:29			05:49		06:13 (T50)	05:35		06:23 (T50)
	17:09			17:51	36	08:39 (T52)	19:27	23	08:20 (T51)	20:05			20:40	25	06:38 (T50)	21:03	8	06:31 (T50)
20	07:47		08:15 (T52)	07:12		08:03 (T52)	07:23		07:58 (T51)	06:28			05:48		06:12 (T50)	05:35		06:23 (T50)
	17:10	5	08:20 (T52)	17:52	34	08:37 (T52)	19:28	20	08:18 (T51)	20:06			20:41	26	06:38 (T50)	21:04	8	06:31 (T50)
21	07:47		08:12 (T52)	07:11		08:04 (T52)	07:21		08:00 (T51)	06:26			05:47		06:11 (T50)	05:35		06:23 (T50)
	17:11	12	08:24 (T52)	17:54	31	08:35 (T52)	19:30	16	08:16 (T51)	20:07			20:42	27	06:38 (T50)	21:04	8	06:31 (T50)
22	07:46		08:11 (T52)	07:09		08:06 (T52)	07:19		08:03 (T51)	06:25			05:46		06:10 (T50)	05:35		06:24 (T50)
	17:13	16	08:27 (T52)	17:55	28	08:34 (T52)	19:31	9	08:12 (T51)	20:08			20:43	27	06:37 (T50)	21:04	8	06:32 (T50)
23	07:45		08:10 (T52)	07:08		08:08 (T52)	07:17			06:23			05:45		06:10 (T50)	05:36		06:24 (T50)
	17:14	19	08:29 (T52)	17:56	23	08:31 (T52)	19:32			20:10			20:44	28	06:38 (T50)	21:04	8	06:32 (T50)
24	07:45		08:09 (T52)	07:06		08:12 (T52)	07:15			06:21			05:44		06:09 (T50)	05:36		06:24 (T50)
	17:15	21	08:30 (T52)	17:58	16	08:28 (T52)	19:33			20:11			20:45	29	06:38 (T50)	21:05	9	06:33 (T50)
25	07:44		08:08 (T52)	07:04		08:17 (T52)	07:13			06:20			05:43		06:08 (T50)	05:36		06:24 (T50)
	17:17	24	08:32 (T52)	17:59	5	08:22 (T52)	19:35			20:12			20:46	29	06:37 (T50)	21:05	10	06:34 (T50)
26	07:43		08:07 (T52)	07:03			07:12			06:18			05:43		06:08 (T50)	05:37		06:24 (T50)
	17:18	26	08:33 (T52)	18:00			19:36			20:13			20:47	29	06:37 (T50)	21:05	10	06:34 (T50)
27	07:42		08:07 (T52)	07:01			07:10			06:17			05:42		06:09 (T50)	05:37		06:23 (T50)
	17:19	29	08:36 (T52)	18:00			19:37			20:14			20:48	29	06:38 (T50)	21:05	11	06:34 (T50)
28	07:41		08:06 (T52)	06:59			07:08			06:15			05:41		06:09 (T50)	05:37		06:24 (T50)
	17:21	31	08:37 (T52)	18:02			19:38			20:16			20:49	28	06:37 (T50)	21:05	11	06:35 (T50)
29	07:40		08:04 (T52)	06:58			07:06			06:14			05:40		06:10 (T50)	05:38		06:23 (T50)
	17:22	33	08:37 (T52)	18:03			19:39			20:17			20:50	27	06:37 (T50)	21:05	13	06:36 (T50)
30	07:39		08:03 (T52)				07:04			06:12			05:40		06:11 (T50)	05:38		06:23 (T50)
	17:23	35	08:38 (T52)				19:41			20:18			20:51	26	06:37 (T50)	21:05	14	06:37 (T50)
31	07:38		08:02 (T52)				07:03						05:39		06:11 (T50)			
	17:25	37	08:39 (T52)				19:42						20:52	25	06:36 (T50)			
Potential sun hours	288			303			369			402			456			462		
Total, worst case		421			946			391						534			418	
Sun reduction		0.53			0.59			0.57						0.62			0.67	
Oper. time red.		1.00			1.00			1.00						1.00			1.00	
Wind dir. red.		0.69			0.70			0.66						0.58			0.58	
Total reduction		0.37			0.42			0.38						0.37			0.40	
Total, real		156			395			148						195			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	(WTG causing flicker first time)
	Sun set (hh:mm)	Minutes with flicker	Last time (hh:mm) with flicker	(WTG causing flicker last time)

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 90 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1428)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September			October			November			December		
1	05:39		06:22 (T50)	06:05		06:31 (T50)	06:40			07:15		07:37 (T51)	06:53		07:27 (T52)	07:32		
	21:05	15	06:37 (T50)	20:44	14	06:45 (T50)	19:57			19:02	27	08:04 (T51)	17:09	45	08:12 (T52)	16:42		
2	05:39		06:23 (T50)	06:07		06:32 (T50)	06:42			07:16		07:39 (T51)	06:55		07:28 (T52)	07:33		
	21:05	15	06:38 (T50)	20:43	13	06:45 (T50)	19:55			19:00	25	08:04 (T51)	17:08	45	08:13 (T52)	16:41		
3	05:40		06:22 (T50)	06:08		06:33 (T50)	06:43			07:17		07:40 (T51)	06:56		07:27 (T52)	07:34		
	21:04	16	06:38 (T50)	20:41	10	06:43 (T50)	19:53			18:57	24	08:04 (T51)	17:06	46	08:13 (T52)	16:41		
4	05:40		06:22 (T50)	06:09		06:34 (T50)	06:44			07:18		07:41 (T51)	06:57		07:27 (T52)	07:35		
	21:04	18	06:40 (T50)	20:40	8	06:42 (T50)	19:52			18:55	21	08:02 (T51)	17:05	45	08:12 (T52)	16:41		
5	05:41		06:21 (T50)	06:10		06:35 (T50)	06:45			07:20		07:42 (T51)	06:59		07:28 (T52)	07:36		
	21:04	19	06:40 (T50)	20:39	5	06:40 (T50)	19:50			18:53	19	08:01 (T51)	17:04	45	08:13 (T52)	16:40		
6	05:42		06:21 (T50)	06:11		06:36 (T50)	06:46			07:21		07:43 (T51)	07:00		07:28 (T52)	07:37		
	21:04	20	06:41 (T50)	20:38	2	06:38 (T50)	19:48			18:51	17	08:00 (T51)	17:03	44	08:12 (T52)	16:40		
7	05:42		06:21 (T50)	06:12			06:47			07:22		07:45 (T51)	07:01		07:29 (T52)	07:38		11:16 (T53)
	21:03	21	06:42 (T50)	20:36			19:46			18:49	14	07:59 (T51)	17:01	44	08:13 (T52)	16:40	9	11:25 (T53)
8	05:43		06:20 (T50)	06:13			06:48			07:23		07:46 (T51)	07:03		07:29 (T52)	07:39		11:13 (T53)
	21:03	22	06:42 (T50)	20:35			19:44			18:48	11	07:57 (T51)	17:00	43	08:12 (T52)	16:40	16	11:29 (T53)
9	05:44		06:20 (T50)	06:14			06:50			07:24		07:47 (T51)	07:04		07:30 (T52)	07:40		11:11 (T53)
	21:03	23	06:43 (T50)	20:33			19:43			18:46	7	07:54 (T51)	16:59	42	08:12 (T52)	16:40	21	11:32 (T53)
10	05:45		06:20 (T50)	06:15			06:51			07:26		07:48 (T51)	07:05		07:31 (T52)	07:41		11:10 (T53)
	21:02	24	06:44 (T50)	20:32			19:41			18:44	1	07:49 (T51)	16:58	41	08:12 (T52)	16:40	25	11:35 (T53)
11	05:45		06:19 (T50)	06:17			06:52			07:27			07:07		07:32 (T52)	07:42		11:09 (T53)
	21:02	24	06:43 (T50)	20:31			19:39			18:42			16:57	39	08:11 (T52)	16:40	28	11:37 (T53)
12	05:46		06:19 (T50)	06:18			06:53			07:28			07:08		07:34 (T52)	07:43		11:08 (T53)
	21:01	25	06:44 (T50)	20:29			19:37			18:41			16:56	37	08:11 (T52)	16:40	31	11:39 (T53)
13	05:47		06:19 (T50)	06:19			06:54			07:29			07:09		07:35 (T52)	07:44		11:07 (T53)
	21:01	26	06:45 (T50)	20:28			19:35			18:39			16:55	35	08:10 (T52)	16:40	32	11:39 (T53)
14	05:48		06:19 (T50)	06:20			06:55			07:30			07:11		07:37 (T52)	07:44		11:07 (T53)
	21:00	27	06:46 (T50)	20:26			19:33			18:37			16:54	33	08:10 (T52)	16:40	34	11:41 (T53)
15	05:49		06:19 (T50)	06:21			06:56			07:32			07:12		07:38 (T52)	07:45		11:07 (T53)
	20:59	27	06:46 (T50)	20:25			19:32			18:35			16:53	31	08:09 (T52)	16:41	35	11:42 (T53)
16	05:49		06:19 (T50)	06:22			06:57			07:33			07:13		07:40 (T52)	07:46		11:07 (T53)
	20:59	28	06:47 (T50)	20:23			19:30			18:34			16:52	28	08:08 (T52)	16:41	37	11:44 (T53)
17	05:50		06:18 (T50)	06:23			06:59			07:34			07:15		07:41 (T52)	07:47		11:07 (T53)
	20:58	28	06:46 (T50)	20:22			19:28			18:32			16:51	26	08:07 (T52)	16:41	37	11:44 (T53)
18	05:51		06:18 (T50)	06:25			07:00			07:35		08:45 (T52)	07:16		07:42 (T52)	07:47		11:07 (T53)
	20:57	29	06:47 (T50)	20:20			19:26			18:30	11	08:56 (T52)	16:50	24	08:06 (T52)	16:41	38	11:45 (T53)
19	05:52		06:18 (T50)	06:26			07:01			07:37		08:41 (T52)	07:17		07:44 (T52)	07:48		11:08 (T53)
	20:57	29	06:47 (T50)	20:19			19:24			18:29	19	09:00 (T52)	16:49	21	08:05 (T52)	16:42	38	11:46 (T53)
20	05:53		06:19 (T50)	06:27			07:02			07:38		08:38 (T52)	07:18		07:45 (T52)	07:48		11:07 (T53)
	20:56	28	06:47 (T50)	20:17			19:22			18:27	24	09:02 (T52)	16:48	19	08:04 (T52)	16:42	39	11:46 (T53)
21	05:54		06:20 (T50)	06:28			07:03		07:50 (T51)	07:39		08:36 (T52)	07:20		07:46 (T52)	07:49		11:08 (T53)
	20:55	28	06:48 (T50)	20:15			19:20	6	07:56 (T51)	18:26	29	09:05 (T52)	16:47	16	08:02 (T52)	16:43	39	11:47 (T53)
22	05:55		06:21 (T50)	06:29			07:04		07:45 (T51)	07:40		08:34 (T52)	07:21		07:48 (T52)	07:50		11:08 (T53)
	20:54	27	06:48 (T50)	20:14			19:19	15	08:00 (T51)	18:24	32	09:06 (T52)	16:47	12	08:00 (T52)	16:43	39	11:47 (T53)
23	05:56		06:22 (T50)	06:30			07:05		07:43 (T51)	07:42		08:34 (T52)	07:22		07:51 (T52)	07:50		11:09 (T53)
	20:53	26	06:48 (T50)	20:12			19:17	19	08:02 (T51)	18:22	34	09:08 (T52)	16:46	5	07:56 (T52)	16:44	39	11:48 (T53)
24	05:57		06:23 (T50)	06:31			07:07		07:40 (T51)	07:43		08:32 (T52)	07:23			07:50		11:10 (T53)
	20:52	25	06:48 (T50)	20:11			19:15	23	08:03 (T51)	18:21	36	09:08 (T52)	16:45			16:44	38	11:48 (T53)
25	05:58		06:24 (T50)	06:32			07:08		07:39 (T51)	07:44		08:31 (T52)	07:25			07:51		11:10 (T53)
	20:51	24	06:48 (T50)	20:09			19:13	24	08:03 (T51)	18:19	38	09:09 (T52)	16:45			16:45	38	11:48 (T53)
26	05:59		06:25 (T50)	06:34			07:09		07:38 (T51)	07:46		08:30 (T52)	07:26			07:51		11:11 (T53)
	20:50	23	06:48 (T50)	20:07			19:11	27	08:05 (T51)	18:18	40	09:10 (T52)	16:44			16:45	38	11:49 (T53)
27	06:00		06:26 (T50)	06:35			07:10		07:37 (T51)	07:47		08:29 (T52)	07:27			07:52		11:12 (T53)
	20:49	22	06:48 (T50)	20:05			19:09	28	08:05 (T51)	18:16	42	09:11 (T52)	16:43			16:46	37	11:49 (T53)
28	06:01		06:27 (T50)	06:36			07:11		07:36 (T51)	07:48		08:28 (T52)	07:28			07:52		11:13 (T53)
	20:48	21	06:48 (T50)	20:04			19:07	29	08:05 (T51)	18:15	43	09:11 (T52)	16:43			16:47	35	11:48 (T53)
29	06:02		06:28 (T50)	06:37			07:12		07:35 (T51)	07:50		08:28 (T52)	07:29			07:52		11:14 (T53)
	20:47	19	06:47 (T50)	20:02			19:06	30	08:05 (T51)	18:13	44	09:12 (T52)	16:42			16:48	34	11:48 (T53)
30	06:03		06:29 (T50)	06:38			07:14		07:36 (T51)	07:51		08:28 (T52)	07:31			07:52		11:15 (T53)
	20:46	18	06:47 (T50)	20:00			19:04	29	08:05 (T51)	18:12	44	09:12 (T52)	16:42			16:48	33	11:48 (T53)
31	06:04		06:30 (T50)	06:39						07:52		08:28 (T52)				07:52		11:16 (T53)
	20:45	16	06:46 (T50)	19:59						18:11	45	09:13 (T52)				16:49	31	11:47 (T53)
Potential sun hours	469			434			377			342			290			278		
Total, worst case		713			52			230			647			766			821	
Sun reduction		0.74			0.69			0.62			0.51			0.37			0.38	
Oper. time red.		1.00			1.00			1.00			1.00			1.00			1.00	
Wind dir. red.		0.58			0.58			0.66			0.69			0.70			0.67	
Total reduction		0.44			0.41			0.41			0.35			0.26			0.26	
Total, real		311			21			95			230			200			211	

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)

Licensed user:
EDR
217 Montgomery St., Suite 1000
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(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 92 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1430)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January		February		March		April		May		June	
1	07:52		07:37		06:56		07:29 (T44)		07:00		07:57 (T44)	
	16:49		17:26		18:04	21	07:50 (T44)		19:43	65	09:02 (T44)	
2	07:52		07:36		06:54		07:26 (T44)		06:59		07:20 (T43)	
	16:50		17:27		18:05	28	07:54 (T44)		19:44	68	09:01 (T44)	
3	07:53		07:35		06:52		07:22 (T44)		06:57		07:19 (T43)	
	16:51		17:29		18:07	35	07:57 (T44)		19:45	69	09:00 (T44)	
4	07:53		07:34		06:51		07:19 (T44)		06:55		07:17 (T43)	
	16:52		17:30		18:08	40	07:59 (T44)		19:46	72	08:59 (T44)	
5	07:53		07:32		06:49		07:16 (T44)		06:53		07:15 (T43)	
	16:53		17:31		18:09	45	08:01 (T44)		19:48	73	08:57 (T44)	
6	07:53		07:31		06:47		07:15 (T44)		06:52		07:13 (T43)	
	16:54		17:33		18:11	48	08:03 (T44)		19:49	73	08:55 (T44)	
7	07:52		07:30		06:46		07:13 (T44)		06:50		07:12 (T43)	
	16:55		17:34		18:12	51	08:04 (T44)		19:50	81	19:31 (T42)	
8	07:52		07:29		07:44		08:11 (T44)		06:48		07:10 (T43)	
	16:56		17:36		18:13	54	09:05 (T44)		19:51	85	19:32 (T42)	
9	07:52		07:28		07:42		08:09 (T44)		06:46		07:08 (T43)	
	16:57		17:37		19:14	57	09:06 (T44)		19:52	87	19:33 (T42)	
10	07:52		07:26		07:40		08:08 (T44)		06:44		07:06 (T43)	
	16:58		17:38		19:16	59	09:07 (T44)		19:54	89	19:34 (T42)	
11	07:52		07:25		07:39		08:07 (T44)		06:43		07:05 (T43)	
	16:59		17:40		19:17	62	09:09 (T44)		19:55	89	19:35 (T42)	
12	07:51		07:24		07:37		08:06 (T44)		06:41		07:03 (T43)	
	17:00		17:41		19:18	63	09:09 (T44)		19:56	89	19:36 (T42)	
13	07:51		07:22		07:35		08:05 (T44)		06:39		07:01 (T43)	
	17:01		17:43		19:19	64	09:09 (T44)		19:57	86	19:37 (T42)	
14	07:51		07:21		07:33		08:03 (T44)		06:38		07:00 (T43)	
	17:03		17:44		19:21	67	09:10 (T44)		19:59	82	19:38 (T42)	
15	07:50		07:19		07:31		08:02 (T44)		06:36		07:00 (T43)	
	17:04		17:45		19:22	68	09:10 (T44)		20:00	75	19:40 (T42)	
16	07:50		07:18		07:30		08:01 (T44)		06:34		07:00 (T43)	
	17:05		17:47		19:23	69	09:10 (T44)		20:01	61	19:41 (T42)	
17	07:49		07:16		07:28		08:01 (T44)		06:32		07:00 (T43)	
	17:06		17:48		19:24	70	09:11 (T44)		20:02	61	19:41 (T42)	
18	07:49		07:15		07:26		08:00 (T44)		06:31		07:02 (T43)	
	17:07		17:49		19:26	71	09:11 (T44)		20:03	60	19:43 (T42)	
19	07:48		07:13		07:24		08:00 (T44)		06:29		07:02 (T43)	
	17:09		17:51		19:27	70	09:10 (T44)		20:05	57	19:42 (T42)	
20	07:47		07:12		07:22		07:59 (T44)		06:28		07:04 (T43)	
	17:10		17:52		19:28	71	09:10 (T44)		20:06	54	19:42 (T42)	
21	07:47		07:10		07:20		07:58 (T44)		06:26		07:05 (T43)	
	17:11		17:53		19:29	72	09:10 (T44)		20:07	50	19:41 (T42)	
22	07:46		07:09		07:19		07:58 (T44)		06:24		07:08 (T43)	
	17:12		17:55		19:31	71	09:09 (T44)		20:08	44	19:41 (T42)	
23	07:45		07:07		07:17		07:58 (T44)		06:23		19:09 (T42)	
	17:14		17:56		19:32	72	09:10 (T44)		20:09	31	19:40 (T42)	
24	07:44		07:06		07:15		07:58 (T44)		06:21		19:09 (T42)	
	17:15		17:57		19:33	71	09:09 (T44)		20:11	30	19:39 (T42)	
25	07:44		07:04		07:13		07:57 (T44)		06:20		19:10 (T42)	
	17:16		17:59		19:34	71	09:08 (T44)		20:12	28	19:38 (T42)	
26	07:43		07:02		07:11		07:57 (T44)		06:18		19:10 (T42)	
	17:18		18:00		19:36	71	09:08 (T44)		20:13	27	19:37 (T42)	
27	07:42		07:01		07:10		07:57 (T44)		06:16		19:11 (T42)	
	17:19		18:00		19:37	70	09:07 (T44)		20:14	25	19:36 (T42)	
28	07:41		06:59		07:08		07:56 (T44)		06:15		19:13 (T42)	
	17:20		18:01		19:38	70	09:06 (T44)		20:15	22	19:35 (T42)	
29	07:40		06:58		07:06		07:57 (T44)		06:13		19:14 (T42)	
	17:22		18:03		19:39	69	09:06 (T44)		20:17	18	19:32 (T42)	
30	07:39				07:04		07:57 (T44)		06:12		19:17 (T42)	
	17:23				19:40	68	09:05 (T44)		20:18	13	19:30 (T42)	
31	07:38				07:02		07:57 (T44)					
	17:25				19:42	67	09:04 (T44)					
Potential sun hours	288		303		369			402		456		462
Total, worst case						1885			1764		3	
Sun reduction						0.57			0.56		0.62	
Oper. time red.						1.00			1.00		1.00	
Wind dir. red.						0.66			0.65		0.66	
Total reduction						0.38			0.36		0.41	
Total, real						710			640		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)

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Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 92 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1430)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July	August			September			October			November	December
1	05:39	06:05			06:40		07:04 (T43)	07:15		07:44 (T44)	06:53	07:32
	21:05	20:44			19:57	89	19:34 (T42)	19:02	64	08:48 (T44)	17:09	16:41
2	05:39	06:06			06:41		07:05 (T43)	07:16		07:44 (T44)	06:55	07:33
	21:04	20:42			19:55	88	19:32 (T42)	19:00	63	08:47 (T44)	17:08	16:41
3	05:40	06:07			06:42		07:06 (T43)	07:17		07:46 (T44)	06:56	07:34
	21:04	20:41			19:53	87	19:31 (T42)	18:56	60	08:46 (T44)	17:06	16:41
4	05:40	06:09			06:44		07:07 (T43)	07:18		07:46 (T44)	06:57	07:35
	21:04	20:40			19:51	85	19:29 (T42)	18:54	59	08:45 (T44)	17:05	16:40
5	05:41	06:10			06:45		07:08 (T43)	07:19		07:47 (T44)	06:59	07:36
	21:04	20:39			19:50	80	19:27 (T42)	18:53	56	08:43 (T44)	17:04	16:40
6	05:41	06:11			06:46		07:09 (T43)	07:20		07:48 (T44)	07:00	07:37
	21:03	20:37			19:48	74	08:52 (T44)	18:51	53	08:41 (T44)	17:02	16:40
7	05:42	06:12			06:47		07:10 (T43)	07:22		07:49 (T44)	07:01	07:38
	21:03	20:36			19:46	73	08:52 (T44)	18:49	50	08:39 (T44)	17:01	16:40
8	05:43	06:13			06:48		07:11 (T43)	07:23		07:51 (T44)	07:03	07:39
	21:03	20:35			19:44	72	08:53 (T44)	18:47	47	08:38 (T44)	17:00	16:40
9	05:44	06:14			06:49		07:12 (T43)	07:24		07:53 (T44)	07:04	07:40
	21:02	20:33			19:42	71	08:54 (T44)	18:46	42	08:35 (T44)	16:59	16:40
10	05:44	06:15			06:50		07:13 (T43)	07:25		07:54 (T44)	07:05	07:41
	21:02	20:32			19:40	67	08:54 (T44)	18:44	38	08:32 (T44)	16:58	16:40
11	05:45	06:16			06:52		07:50 (T44)	07:27		07:57 (T44)	07:07	07:42
	21:01	20:30			19:39	65	08:55 (T44)	18:42	32	08:29 (T44)	16:56	16:40
12	05:46	06:17		19:28 (T42)	06:53		07:49 (T44)	07:28		08:01 (T44)	07:08	07:43
	21:01	20:29	7	19:35 (T42)	19:37	67	08:56 (T44)	18:40	25	08:26 (T44)	16:55	16:40
13	05:47	06:19		19:24 (T42)	06:54		07:48 (T44)	07:29		08:05 (T44)	07:09	07:43
	21:00	20:28	15	19:39 (T42)	19:35	68	08:56 (T44)	18:39	16	08:21 (T44)	16:54	16:40
14	05:48	06:20		19:21 (T42)	06:55		07:48 (T44)	07:30			07:10	07:44
	21:00	20:26	19	19:40 (T42)	19:33	68	08:56 (T44)	18:37			16:53	16:40
15	05:48	06:21		19:19 (T42)	06:56		07:47 (T44)	07:31			07:12	07:45
	20:59	20:25	23	19:42 (T42)	19:31	69	08:56 (T44)	18:35			16:52	16:40
16	05:49	06:22		19:18 (T42)	06:57		07:46 (T44)	07:33			07:13	07:46
	20:59	20:23	25	19:43 (T42)	19:29	70	08:56 (T44)	18:34			16:51	16:41
17	05:50	06:23		19:16 (T42)	06:58		07:45 (T44)	07:34			07:14	07:46
	20:58	20:22	28	19:44 (T42)	19:28	71	08:56 (T44)	18:32			16:50	16:41
18	05:51	06:24		19:16 (T42)	07:00		07:45 (T44)	07:35			07:16	07:47
	20:57	20:20	29	19:45 (T42)	19:26	71	08:56 (T44)	18:30			16:50	16:41
19	05:52	06:25		19:15 (T42)	07:01		07:44 (T44)	07:36			07:17	07:48
	20:56	20:18	31	19:46 (T42)	19:24	71	08:55 (T44)	18:29			16:49	16:41
20	05:53	06:27		19:14 (T42)	07:02		07:44 (T44)	07:38			07:18	07:48
	20:56	20:17	32	19:46 (T42)	19:22	72	08:56 (T44)	18:27			16:48	16:42
21	05:54	06:28		07:12 (T43)	07:03		07:44 (T44)	07:39			07:20	07:49
	20:55	20:15	46	19:46 (T42)	19:20	72	08:56 (T44)	18:25			16:47	16:42
22	05:55	06:29		07:10 (T43)	07:04		07:44 (T44)	07:40			07:21	07:49
	20:54	20:14	50	19:46 (T42)	19:18	71	08:55 (T44)	18:24			16:46	16:43
23	05:56	06:30		07:08 (T43)	07:05		07:43 (T44)	07:42			07:22	07:50
	20:53	20:12	54	19:46 (T42)	19:16	72	08:55 (T44)	18:22			16:46	16:43
24	05:57	06:31		07:06 (T43)	07:06		07:43 (T44)	07:43			07:23	07:50
	20:52	20:10	57	19:46 (T42)	19:15	71	08:54 (T44)	18:21			16:45	16:44
25	05:58	06:32		07:04 (T43)	07:08		07:43 (T44)	07:44			07:25	07:51
	20:51	20:09	60	19:45 (T42)	19:13	70	08:53 (T44)	18:19			16:44	16:45
26	05:59	06:33		07:03 (T43)	07:09		07:43 (T44)	07:45			07:26	07:51
	20:50	20:07	61	19:44 (T42)	19:11	69	08:52 (T44)	18:18			16:44	16:45
27	06:00	06:35		07:02 (T43)	07:10		07:44 (T44)	07:47			07:27	07:51
	20:49	20:05	60	19:42 (T42)	19:09	68	08:52 (T44)	18:16			16:43	16:46
28	06:01	06:36		07:01 (T43)	07:11		07:44 (T44)	07:48			07:28	07:52
	20:48	20:04	76	19:41 (T42)	19:07	67	08:51 (T44)	18:15			16:43	16:47
29	06:02	06:37		07:00 (T43)	07:12		07:44 (T44)	07:49			07:29	07:52
	20:47	20:02	84	19:39 (T42)	19:05	66	08:50 (T44)	18:13			16:42	16:47
30	06:03	06:38		07:01 (T43)	07:13		07:44 (T44)	07:51			07:30	07:52
	20:46	20:00	86	19:37 (T42)	19:04	65	08:49 (T44)	18:12			16:42	16:48
31	06:04	06:39		07:03 (T43)				07:52				07:52
	20:45	19:58	89	19:36 (T42)				18:10				16:49
Potential sun hours	469	434			377			342			290	278
Total, worst case			932			2169			605			
Sun reduction			0.69			0.62			0.51			
Oper. time red.			1.00			1.00			1.00			
Wind dir. red.			0.64			0.66			0.66			
Total reduction			0.44			0.41			0.34			
Total, real			415			884			204			

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)

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Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 109 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1440)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January	February	March			April			May			June		
1	07:52	07:37	06:56			07:01		07:39 (T55)	06:11			05:39		20:04 (T53)
	16:49	17:26	18:04			19:43	110	19:02 (T54)	20:19			20:52	25	20:29 (T53)
2	07:53	07:36	06:54			06:59		07:40 (T55)	06:09			05:38		20:04 (T53)
	16:50	17:28	18:06			19:44	107	19:02 (T54)	20:20			20:53	25	20:29 (T53)
3	07:53	07:35	06:53			06:57		07:40 (T55)	06:08			05:38		20:04 (T53)
	16:51	17:29	18:07			19:45	105	19:01 (T54)	20:22			20:54	26	20:30 (T53)
4	07:53	07:34	06:51			06:55		07:40 (T55)	06:06			05:37		20:05 (T53)
	16:52	17:30	18:08			19:47	102	18:59 (T54)	20:23			20:55	26	20:31 (T53)
5	07:53	07:33	06:49			06:53		07:40 (T55)	06:05			05:37		20:04 (T53)
	16:53	17:32	18:09			19:48	99	18:58 (T54)	20:24			20:56	27	20:31 (T53)
6	07:53	07:31	06:47			06:52		07:40 (T55)	06:04			05:36		20:05 (T53)
	16:54	17:33	18:11			19:49	95	18:56 (T54)	20:25			20:56	27	20:32 (T53)
7	07:52	07:30	06:46			06:50		07:42 (T55)	06:02			05:36		20:05 (T53)
	16:55	17:34	18:12			19:50	91	18:56 (T54)	20:26			20:57	28	20:33 (T53)
8	07:52	07:29	07:44			06:48		07:42 (T55)	06:01			05:36		20:05 (T53)
	16:56	17:36	18:13			19:51	86	18:54 (T54)	20:27			20:58	28	20:33 (T53)
9	07:52	07:28	07:42		18:33 (T54)	06:46		07:43 (T55)	06:00			05:35		20:05 (T53)
	16:57	17:37	19:15	18	18:51 (T54)	19:53	80	18:52 (T54)	20:29			20:58	29	20:34 (T53)
10	07:52	07:26	07:40		08:13 (T55)	06:45		07:43 (T55)	05:59			05:35		20:06 (T53)
	16:58	17:39	19:16	30	18:55 (T54)	19:54	73	18:49 (T54)	20:30			20:59	29	20:35 (T53)
11	07:52	07:25	07:39		08:05 (T55)	06:43		07:45 (T55)	05:57			05:35		20:06 (T53)
	16:59	17:40	19:17	51	18:58 (T54)	19:55	66	18:47 (T54)	20:31			21:00	30	20:36 (T53)
12	07:51	07:24	07:37		08:01 (T55)	06:41		07:46 (T55)	05:56			05:35		20:06 (T53)
	17:00	17:41	19:18	62	18:59 (T54)	19:56	57	18:44 (T54)	20:32			21:00	30	20:36 (T53)
13	07:51	07:22	07:35		07:58 (T55)	06:39		07:47 (T55)	05:55			05:35		20:07 (T53)
	17:02	17:43	19:20	70	19:00 (T54)	19:57	45	18:39 (T54)	20:33			21:01	29	20:36 (T53)
14	07:51	07:21	07:33		07:56 (T55)	06:38		07:50 (T55)	05:54			05:35		20:07 (T53)
	17:03	17:44	19:21	77	19:01 (T54)	19:59	28	08:18 (T55)	20:34			21:01	29	20:36 (T53)
15	07:50	07:19	07:32		07:53 (T55)	06:36		07:52 (T55)	05:53			05:35		20:07 (T53)
	17:04	17:45	19:22	84	19:02 (T54)	20:00	22	08:14 (T55)	20:35			21:02	29	20:36 (T53)
16	07:50	07:18	07:30		07:52 (T55)	06:34		07:56 (T55)	05:52		20:13 (T53)	05:35		20:07 (T53)
	17:05	17:47	19:23	90	19:04 (T54)	20:01	13	08:09 (T55)	20:36	2	20:15 (T53)	21:02	30	20:37 (T53)
17	07:49	07:17	07:28		07:51 (T55)	06:33			05:51		20:11 (T53)	05:35		20:08 (T53)
	17:06	17:48	19:25	94	19:05 (T54)	20:02			20:38	5	20:16 (T53)	21:03	29	20:37 (T53)
18	07:49	07:15	07:26		07:49 (T55)	06:31			05:50		20:09 (T53)	05:35		20:08 (T53)
	17:08	17:50	19:26	98	19:05 (T54)	20:03			20:39	7	20:16 (T53)	21:03	29	20:37 (T53)
19	07:48	07:14	07:24		07:47 (T55)	06:29			05:49		20:08 (T53)	05:35		20:08 (T53)
	17:09	17:51	19:27	103	19:06 (T54)	20:05			20:40	9	20:17 (T53)	21:03	29	20:37 (T53)
20	07:47	07:12	07:22		07:46 (T55)	06:28			05:48		20:07 (T53)	05:35		20:08 (T53)
	17:10	17:52	19:28	106	19:06 (T54)	20:06			20:41	11	20:18 (T53)	21:04	29	20:37 (T53)
21	07:47	07:11	07:21		07:45 (T55)	06:26			05:47		20:06 (T53)	05:35		20:08 (T53)
	17:11	17:54	19:30	107	19:06 (T54)	20:07			20:42	13	20:19 (T53)	21:04	29	20:37 (T53)
22	07:46	07:09	07:19		07:45 (T55)	06:24			05:46		20:05 (T53)	05:35		20:09 (T53)
	17:13	17:55	19:31	109	19:07 (T54)	20:08			20:43	15	20:20 (T53)	21:04	29	20:38 (T53)
23	07:45	07:07	07:17		07:44 (T55)	06:23			05:45		20:06 (T53)	05:36		20:09 (T53)
	17:14	17:56	19:32	111	19:07 (T54)	20:10			20:44	16	20:22 (T53)	21:04	29	20:38 (T53)
24	07:45	07:06	07:15		07:43 (T55)	06:21			05:44		20:05 (T53)	05:36		20:09 (T53)
	17:15	17:58	19:33	112	19:06 (T54)	20:11			20:45	17	20:22 (T53)	21:04	29	20:38 (T53)
25	07:44	07:04	07:13		07:42 (T55)	06:20			05:43		20:04 (T53)	05:36		20:10 (T53)
	17:17	17:59	19:34	113	19:06 (T54)	20:12			20:46	19	20:23 (T53)	21:05	29	20:39 (T53)
26	07:43	07:03	07:12		07:41 (T55)	06:18			05:43		20:04 (T53)	05:37		20:10 (T53)
	17:18	18:00	19:36	115	19:06 (T54)	20:13			20:47	19	20:23 (T53)	21:05	29	20:39 (T53)
27	07:42	07:01	07:10		07:41 (T55)	06:17			05:42		20:04 (T53)	05:37		20:09 (T53)
	17:19	18:00	19:37	113	19:05 (T54)	20:14			20:48	21	20:25 (T53)	21:05	30	20:39 (T53)
28	07:41	06:59	07:08		07:41 (T55)	06:15			05:41		20:04 (T53)	05:37		20:10 (T53)
	17:21	18:02	19:38	113	19:05 (T54)	20:16			20:49	22	20:26 (T53)	21:05	29	20:39 (T53)
29	07:40	06:58	07:06		07:40 (T55)	06:14			05:40		20:03 (T53)	05:38		20:10 (T53)
	17:22	18:03	19:39	114	19:05 (T54)	20:17			20:50	23	20:26 (T53)	21:05	29	20:39 (T53)
30	07:39		07:04		07:40 (T55)	06:12			05:40		20:04 (T53)	05:38		20:10 (T53)
	17:23		19:41	113	19:04 (T54)	20:18			20:51	23	20:27 (T53)	21:05	30	20:40 (T53)
31	07:38		07:02		07:40 (T55)				05:39		20:03 (T53)			
	17:25		19:42	111	19:03 (T54)				20:51	25	20:28 (T53)			
Potential sun hours	288	303	369			402			456			462		
Total, worst case				2114			1179			247			855	
Sun reduction				0.57			0.56			0.62			0.67	
Oper. time red.				1.00			1.00			1.00			1.00	
Wind dir. red.				0.63			0.64			0.70			0.70	
Total reduction				0.36			0.36			0.43			0.47	
Total, real				762			420			107			399	

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

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

Licensed user:
EDR
217 Montgomery St., Suite 1000
US-SYRACUSE, NY 13202
(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 109 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1440)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	July			August			September			October			November	December
1	05:39		20:10 (T53)	06:05			06:40		07:44 (T55)	07:15		07:39 (T55)	06:53	07:32
	21:05	30	20:40 (T53)	20:44			19:57	66	18:46 (T54)	19:02	65	18:38 (T54)	17:09	16:42
2	05:39		20:11 (T53)	06:07			06:42		07:42 (T55)	07:16		07:42 (T55)	06:55	07:33
	21:04	29	20:40 (T53)	20:42			19:55	73	18:48 (T54)	19:00	56	18:37 (T54)	17:08	16:41
3	05:40		20:10 (T53)	06:08			06:43		07:41 (T55)	07:17		07:46 (T55)	06:56	07:34
	21:04	29	20:39 (T53)	20:41			19:53	80	18:50 (T54)	18:56	42	18:34 (T54)	17:06	16:41
4	05:40		20:11 (T53)	06:09			06:44		07:39 (T55)	07:18		18:09 (T54)	06:57	07:35
	21:04	29	20:40 (T53)	20:40			19:51	86	18:51 (T54)	18:55	22	18:31 (T54)	17:05	16:41
5	05:41		20:10 (T53)	06:10			06:45		07:38 (T55)	07:19		18:13 (T54)	06:59	07:36
	21:04	29	20:39 (T53)	20:39			19:50	91	18:52 (T54)	18:53	12	18:25 (T54)	17:04	16:40
6	05:42		20:11 (T53)	06:11			06:46		07:37 (T55)	07:21			07:00	07:37
	21:04	28	20:39 (T53)	20:37			19:48	94	18:52 (T54)	18:51			17:03	16:40
7	05:42		20:11 (T53)	06:12			06:47		07:35 (T55)	07:22			07:01	07:38
	21:03	28	20:39 (T53)	20:36			19:46	99	18:53 (T54)	18:49			17:01	16:40
8	05:43		20:11 (T53)	06:13			06:48		07:34 (T55)	07:23			07:03	07:39
	21:03	27	20:38 (T53)	20:35			19:44	102	18:53 (T54)	18:48			17:00	16:40
9	05:44		20:11 (T53)	06:14			06:49		07:33 (T55)	07:24			07:04	07:40
	21:02	27	20:38 (T53)	20:33			19:42	105	18:54 (T54)	18:46			16:59	16:40
10	05:45		20:12 (T53)	06:15			06:51		07:33 (T55)	07:25			07:05	07:41
	21:02	26	20:38 (T53)	20:32			19:41	107	18:55 (T54)	18:44			16:58	16:40
11	05:45		20:11 (T53)	06:17			06:52		07:33 (T55)	07:27			07:07	07:42
	21:02	25	20:36 (T53)	20:31			19:39	108	18:55 (T54)	18:42			16:57	16:40
12	05:46		20:12 (T53)	06:18			06:53		07:32 (T55)	07:28			07:08	07:43
	21:01	24	20:36 (T53)	20:29			19:37	110	18:55 (T54)	18:41			16:56	16:40
13	05:47		20:12 (T53)	06:19			06:54		07:31 (T55)	07:29			07:09	07:43
	21:00	24	20:36 (T53)	20:28			19:35	112	18:55 (T54)	18:39			16:55	16:40
14	05:48		20:13 (T53)	06:20			06:55		07:31 (T55)	07:30			07:11	07:44
	21:00	23	20:36 (T53)	20:26			19:33	112	18:55 (T54)	18:37			16:54	16:40
15	05:49		20:13 (T53)	06:21			06:56		07:30 (T55)	07:32			07:12	07:45
	20:59	22	20:35 (T53)	20:25			19:31	114	18:55 (T54)	18:35			16:53	16:40
16	05:49		20:13 (T53)	06:22			06:57		07:30 (T55)	07:33			07:13	07:46
	20:59	21	20:34 (T53)	20:23			19:30	114	18:54 (T54)	18:34			16:52	16:41
17	05:50		20:13 (T53)	06:23			06:59		07:29 (T55)	07:34			07:15	07:46
	20:58	20	20:33 (T53)	20:22			19:28	114	18:54 (T54)	18:32			16:51	16:41
18	05:51		20:14 (T53)	06:24			07:00		07:29 (T55)	07:35			07:16	07:47
	20:57	19	20:33 (T53)	20:20			19:26	113	18:53 (T54)	18:30			16:50	16:41
19	05:52		20:14 (T53)	06:26			07:01		07:30 (T55)	07:37			07:17	07:48
	20:56	18	20:32 (T53)	20:19			19:24	113	18:54 (T54)	18:29			16:49	16:42
20	05:53		20:15 (T53)	06:27			07:02		07:30 (T55)	07:38			07:18	07:48
	20:56	16	20:31 (T53)	20:17			19:22	112	18:53 (T54)	18:27			16:48	16:42
21	05:54		20:15 (T53)	06:28			07:03		07:30 (T55)	07:39			07:20	07:49
	20:55	16	20:31 (T53)	20:15			19:20	110	18:52 (T54)	18:26			16:47	16:43
22	05:55		20:16 (T53)	06:29			07:04		07:30 (T55)	07:40			07:21	07:49
	20:54	14	20:30 (T53)	20:14			19:18	108	18:51 (T54)	18:24			16:47	16:43
23	05:56		20:17 (T53)	06:30			07:05		07:30 (T55)	07:42			07:22	07:50
	20:53	12	20:29 (T53)	20:12			19:17	106	18:50 (T54)	18:22			16:46	16:44
24	05:57		20:18 (T53)	06:31			07:07		07:31 (T55)	07:43			07:23	07:50
	20:52	10	20:28 (T53)	20:10			19:15	102	18:49 (T54)	18:21			16:45	16:44
25	05:58		20:19 (T53)	06:32			07:08		07:31 (T55)	07:44			07:25	07:51
	20:51	8	20:27 (T53)	20:09			19:13	100	18:48 (T54)	18:19			16:45	16:45
26	05:59		20:21 (T53)	06:34			07:09		07:32 (T55)	07:46			07:26	07:51
	20:50	6	20:27 (T53)	20:07			19:11	96	18:47 (T54)	18:18			16:44	16:45
27	06:00		20:23 (T53)	06:35		07:57 (T55)	07:10		07:33 (T55)	07:47			07:27	07:51
	20:49	3	20:26 (T53)	20:05	15	08:12 (T55)	19:09	91	18:46 (T54)	18:16			16:43	16:46
28	06:01			06:36		07:53 (T55)	07:11		07:34 (T55)	07:48			07:28	07:52
	20:48			20:04	22	08:15 (T55)	19:07	87	18:45 (T54)	18:15			16:43	16:47
29	06:02			06:37		07:51 (T55)	07:12		07:35 (T55)	07:49			07:29	07:52
	20:47			20:02	28	08:19 (T55)	19:06	81	18:43 (T54)	18:13			16:42	16:48
30	06:03			06:38		07:48 (T55)	07:14		07:37 (T55)	07:51			07:31	07:52
	20:46			20:00	45	18:40 (T54)	19:04	74	18:41 (T54)	18:12			16:42	16:48
31	06:04			06:39		07:46 (T55)				07:52				07:52
	20:45			19:59	57	18:44 (T54)				18:11				16:49
Potential sun hours	469			434			377			342			290	278
Total, worst case		563			167			2980			197			
Sun reduction		0.74			0.69			0.62			0.51			
Oper. time red.		1.00			1.00			1.00			1.00			
Wind dir. red.		0.70			0.64			0.64			0.63			
Total reduction		0.51			0.44			0.39			0.32			
Total, real		290			74			1170			63			

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

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

Licensed user:
EDR
217 Montgomery St., Suite 1000
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(315) 471 0688
Jacob Runner / jrunner@edrdpc.com
Calculated:
9/24/2020 9:27 AM/3.4.405

SHADOW - Calendar

Calculation: N163Shadow receptor: 110 - Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1441)

Assumptions for shadow calculations

Reference year for calendar 2020

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

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Sum
443	319	239	233	293	348	457	639	825	587	609	452	526	847	1,159	782	8,758

	January	February	March	April	May	June	July	August	September	October	November	December
1	07:53 16:50	07:37 17:27	06:56 18:05 74	07:40 (T56) 08:54 (T56)	07:01 19:43	06:11 20:20	05:39 20:53	05:39 21:05	06:06 20:44	06:41 19:57	07:15 19:02 68	08:19 (T56) 09:27 (T56)	06:54 17:10 40	07:28 (T56) 08:08 (T56)	07:32 16:42
2	07:53 16:51	07:36 17:28	06:55 18:06 74	07:40 (T56) 08:54 (T56)	06:59 19:45	06:10 20:21	05:39 20:54	05:40 21:05	06:07 20:43	06:42 19:55	07:16 19:00 69	08:18 (T56) 09:27 (T56)	06:55 17:08 35	07:31 (T56) 08:06 (T56)	07:33 16:42
3	07:53 16:52	07:35 17:29	06:53 18:07 75	07:39 (T56) 08:54 (T56)	06:57 19:46	06:08 20:22	05:38 20:54	05:40 21:05	06:08 20:42	06:43 19:54	07:17 18:57 70	08:17 (T56) 09:27 (T56)	06:56 17:07 30	07:33 (T56) 08:03 (T56)	07:34 16:41
4	07:53 16:53	07:34 17:31	06:51 18:09 74	07:40 (T56) 08:54 (T56)	06:56 19:47	06:07 20:23	05:38 20:55	05:41 21:04	06:09 20:40	06:44 19:52	07:19 18:55 72	08:16 (T56) 09:28 (T56)	06:58 17:06 23	07:37 (T56) 08:00 (T56)	07:35 16:41
5	07:53 16:53	07:33 17:32	06:50 18:10 74	07:39 (T56) 08:53 (T56)	06:54 19:48	06:06 20:24	05:37 20:56	05:41 21:04	06:10 20:39	06:45 19:50	07:20 18:53 72	08:16 (T56) 09:28 (T56)	06:59 17:04 13	07:42 (T56) 07:55 (T56)	07:36 16:41
6	07:53 16:54	07:32 17:33	06:48 18:11 74	07:39 (T56) 08:53 (T56)	06:52 19:49	06:04 20:25	05:37 20:57	05:42 21:04	06:11 20:38	06:46 19:48	07:21 18:51 72	08:16 (T56) 09:28 (T56)	07:00 17:03		07:37 16:41
7	07:53 16:55	07:31 17:35 15	06:46 08:11 (T56) 08:26 (T56) 18:12 73	07:39 (T56) 08:52 (T56)	06:50 19:51	06:03 20:27	05:36 20:57	05:43 21:04	06:12 20:36	06:48 19:46	07:22 18:50 73	08:15 (T56) 09:28 (T56)	07:02 17:02		07:38 16:41
8	07:53 16:56	07:29 17:36 24	08:07 (T56) 07:44 08:31 (T56) 18:14 72	08:40 (T56) 09:52 (T56)	06:49 19:52	06:02 20:28	05:36 20:58	05:43 21:03	06:14 20:35	06:49 19:45	07:23 18:48 74	08:14 (T56) 09:28 (T56)	07:03 17:01		07:39 16:40
9	07:53 16:58	07:28 17:38 31	08:03 (T56) 07:43 08:34 (T56) 19:15 72	08:39 (T56) 09:51 (T56)	06:47 19:53	06:00 20:29	05:36 20:59	05:44 21:03	06:15 20:34	06:50 19:43	07:25 18:46 74	08:14 (T56) 09:28 (T56)	07:04 16:59		07:40 16:40
10	07:52 16:59	07:27 17:39 36	08:01 (T56) 07:41 08:37 (T56) 19:16 71	08:39 (T56) 09:50 (T56)	06:45 19:54	05:59 20:30	05:36 20:59	05:45 21:02	06:16 20:32	06:51 19:41	07:26 18:44 74	08:14 (T56) 09:28 (T56)	07:06 16:58		07:41 16:40
11	07:52 17:00	07:25 17:40 41	07:59 (T56) 07:39 08:40 (T56) 19:18 70	08:39 (T56) 09:49 (T56)	06:43 19:55	05:58 20:31	05:35 21:00	05:46 21:02	06:17 20:31	06:52 19:39	07:27 18:43 74	08:14 (T56) 09:28 (T56)	07:07 16:57		07:42 16:40
12	07:52 17:01	07:24 17:42 45	07:56 (T56) 07:37 08:41 (T56) 19:19 69	08:39 (T56) 09:48 (T56)	06:42 19:57	05:57 20:32	05:35 21:01	05:47 21:01	06:18 20:30	06:53 19:37	07:28 18:41 74	08:13 (T56) 09:27 (T56)	07:08 16:56		07:43 16:40
13	07:51 17:02	07:23 17:43 48	07:55 (T56) 07:35 08:43 (T56) 19:20 66	08:41 (T56) 09:47 (T56)	06:40 19:58	05:55 20:33	05:35 21:01	05:47 21:01	06:19 20:28	06:54 19:36	07:30 18:39 74	08:14 (T56) 09:28 (T56)	07:10 16:55		07:44 16:41
14	07:51 17:03	07:21 17:45 51	07:53 (T56) 07:34 08:44 (T56) 19:21 65	08:41 (T56) 09:46 (T56)	06:38 19:59	05:54 20:35	05:35 21:02	05:48 21:00	06:20 20:27	06:56 19:34	07:31 18:38 73	08:14 (T56) 09:27 (T56)	07:11 16:54		07:45 16:41
15	07:51 17:04	07:20 17:46 54	07:52 (T56) 07:32 08:46 (T56) 19:23 64	08:41 (T56) 09:45 (T56)	06:36 20:00	05:53 20:36	05:35 21:02	05:49 21:00	06:21 20:25	06:57 19:32	07:32 18:36 73	08:13 (T56) 09:26 (T56)	07:12 16:53		07:45 16:41
16	07:50 17:06	07:18 17:47 57	07:50 (T56) 07:30 08:47 (T56) 19:24 61	08:42 (T56) 09:43 (T56)	06:35 20:01	05:52 20:37	05:35 21:02	05:50 20:59	06:23 20:24	06:58 19:30	07:33 18:34 73	08:13 (T56) 09:26 (T56)	07:14 16:52		07:46 16:41
17	07:50 17:07	07:17 17:49 58	07:50 (T56) 07:28 08:48 (T56) 19:25 59	08:42 (T56) 09:41 (T56)	06:33 20:03	05:51 20:38	05:35 21:03	05:51 20:58	06:24 20:22	06:59 19:28 18	08:47 (T56) 09:05 (T56)	07:34 18:32 72	08:14 (T56) 09:26 (T56)	07:15 16:51	07:47 16:41
18	07:49 17:08	07:15 17:50 61	07:48 (T56) 07:26 08:49 (T56) 19:26 57	08:43 (T56) 09:40 (T56)	06:31 20:04	05:50 20:39	05:35 21:03	05:52 20:58	06:25 20:20	07:00 19:26 27	08:43 (T56) 09:10 (T56)	07:36 18:31 71	08:14 (T56) 09:25 (T56)	07:16 16:50	07:48 16:42
19	07:48 17:09	07:14 17:51 62	07:48 (T56) 07:25 08:50 (T56) 19:27 55	08:44 (T56) 09:39 (T56)	06:30 20:05	05:49 20:40	05:35 21:04	05:53 20:57	06:26 20:19	07:01 19:24 33	08:39 (T56) 09:12 (T56)	07:37 18:29 70	08:14 (T56) 09:24 (T56)	07:17 16:49	07:48 16:42
20	07:48 17:11	07:12 17:53 65	07:46 (T56) 07:23 08:51 (T56) 19:29 51	08:45 (T56) 09:36 (T56)	06:28 20:06	05:48 20:41	05:35 21:04	05:54 20:56	06:27 20:17	07:02 19:23 39	08:36 (T56) 09:15 (T56)	07:38 18:28 69	08:15 (T56) 09:24 (T56)	07:19 16:49	07:49 16:43
21	07:47 17:12	07:11 17:54 66	07:46 (T56) 07:21 08:52 (T56) 19:30 48	08:46 (T56) 09:34 (T56)	06:26 20:07	05:47 20:42	05:36 21:04	05:55 20:55	06:28 20:16	07:04 19:21 42	08:34 (T56) 09:16 (T56)	07:40 18:26 68	08:15 (T56) 09:23 (T56)	07:20 16:48	07:49 16:43
22	07:46 17:13	07:09 17:55 67	07:45 (T56) 07:19 08:52 (T56) 19:31 44	08:48 (T56) 09:32 (T56)	06:25 20:09	05:46 20:43	05:36 21:04	05:56 20:54	06:29 20:14	07:05 19:19 47	08:31 (T56) 09:18 (T56)	07:41 18:24 65	08:16 (T56) 09:21 (T56)	07:21 16:47	07:50 16:44
23	07:46 17:14	07:08 17:57 69	07:44 (T56) 07:17 08:53 (T56) 19:32 40	08:49 (T56) 09:29 (T56)	06:23 20:10	05:45 20:44	05:36 21:05	05:56 20:53	06:31 20:12	07:06 19:17 50	08:29 (T56) 09:19 (T56)	07:42 18:23 64	08:17 (T56) 09:21 (T56)	07:23 16:46	07:50 16:44
24	07:45 17:16	07:06 17:58 71	07:43 (T56) 07:16 08:54 (T56) 19:34 35	08:51 (T56) 09:26 (T56)	06:22 20:11	05:45 20:45	05:36 21:05	05:57 20:53	06:32 20:11	07:07 19:15 54	08:28 (T56) 09:22 (T56)	07:43 18:21 63	08:17 (T56) 09:20 (T56)	07:24 16:46	07:51 16:45
25	07:44 17:17	07:05 17:59 72	07:42 (T56) 07:14 08:54 (T56) 19:35 28	08:55 (T56) 09:23 (T56)	06:20 20:12	05:44 20:46	05:37 21:05	05:59 20:52	06:33 20:09	07:08 19:13 56	08:27 (T56) 09:23 (T56)	07:45 18:20 60	08:19 (T56) 09:19 (T56)	07:25 16:45	07:51 16:45
26	07:43 17:18	07:03 18:01 72	07:42 (T56) 07:12 08:54 (T56) 19:36 20	08:58 (T56) 09:18 (T56)	06:19 20:14	05:43 20:47	05:37 21:05	06:00 20:51	06:34 20:07	07:09 19:12 58	08:25 (T56) 09:23 (T56)	07:46 18:18 58	08:20 (T56) 09:18 (T56)	07:26 16:44	07:52 16:46
27	07:42 17:20	07:01 18:01 72	07:42 (T56) 07:10 08:54 (T56) 19:37		06:17 20:15	05:42 20:48	05:37 21:05	06:01 20:50	06:35 20:06	07:10 19:10 61	08:23 (T56) 09:24 (T56)	07:47 18:17 56	08:20 (T56) 09:16 (T56)	07:27 16:44	07:52 16:47
28	07:41 17:21	07:00 18:02 73	07:41 (T56) 07:08 08:54 (T56) 19:39		06:16 20:16	05:42 20:49	05:38 21:05	06:02 20:49	06:36 20:04	07:12 19:08 63	08:22 (T56) 09:25 (T56)	07:49 18:15 53	08:22 (T56) 09:15 (T56)	07:29 16:43	07:52 16:47
29	07:40 17:22	06:58 18:03 74	07:41 (T56) 07:07 08:55 (T56) 19:40		06:14 20:17	05:41 20:50	05:38 21:05	06:03 20:47	06:37 20:02	07:13 19:06 64	08:21 (T56) 09:25 (T56)	07:50 18:14 51	08:23 (T56) 09:14 (T56)	07:30 16:43	07:52 16:48
30	07:40 17:24		07:05 19:41		06:13 20:18	05:40 20:51	05:39 21:05	06:04 20:46	06:39 20:01	07:14 19:04 67	08:20 (T56) 09:27 (T56)	07:51 18:12 48	08:25 (T56) 09:13 (T56)	07:31 16:42	07:53 16:49
31	07:38 17:25		07:03 19:42			05:40 20:52		06:05 20:45	06:40 19:59			07:52 18:11 43	08:27 (T56) 09:10 (T56)		07:53 16:50
Potential sun hours	288	303	369	402	456	462	469	434	377			342		291	278
Total, worst case		1284	1565						679		2070		141		
Sun reduction		0.59	0.57						0.62		0.51		0.37		
Oper. time red.		1.00	1.00						1.00		1.00		1.00		
Wind dir. red.		0.69	0.69						0.69		0.69		0.69		
Total reduction		0.41	0.40						0.43		0.35		0.26		
Total, real		526	619						292		733		36		

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

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

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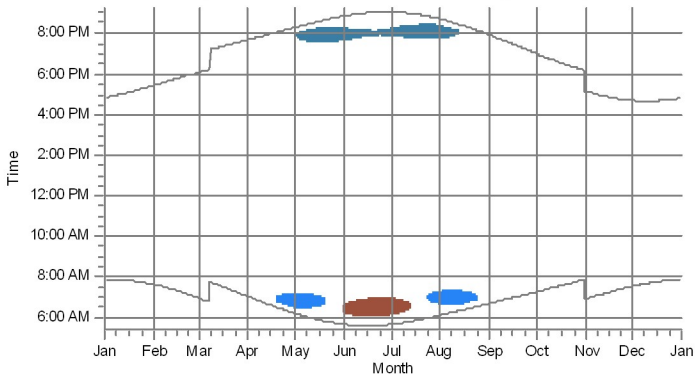
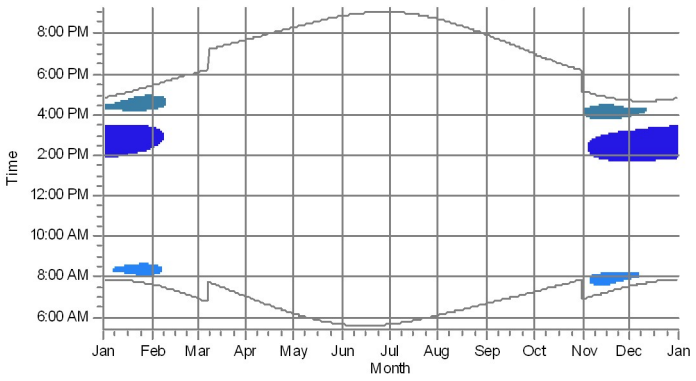
SHADOW - Calendar, graphical

Calculation: N163

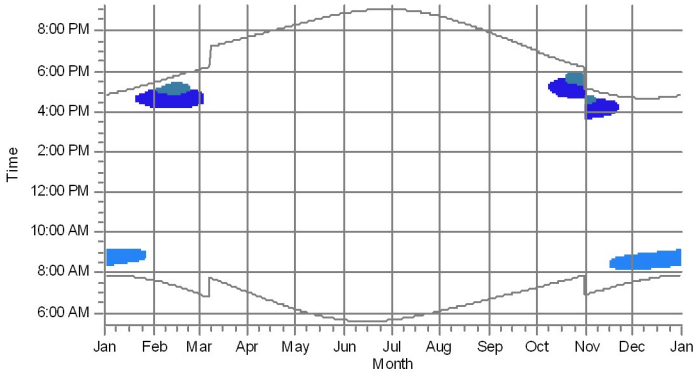
0: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1356)



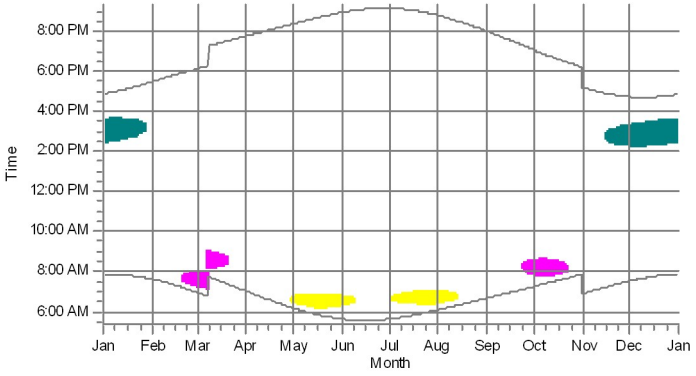
1: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1357)



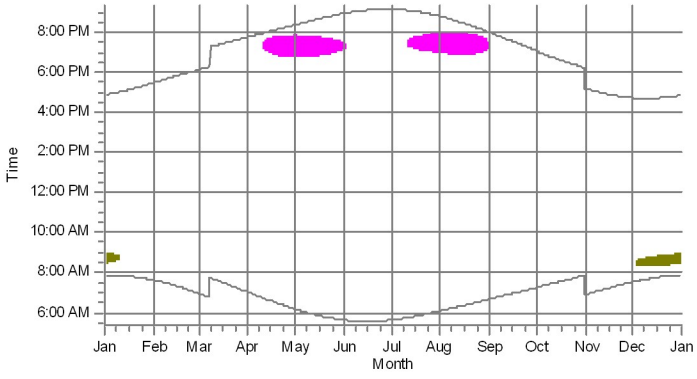
5: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1361)



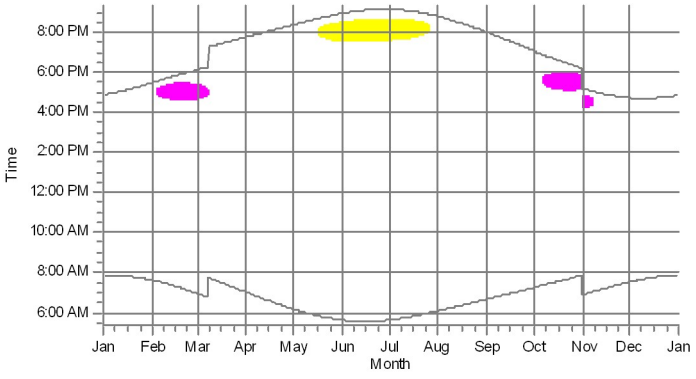
21: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1369)



22: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1370)



23: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1371)



WTGs

T01: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (2)
T04: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (5)
T06: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (6)
T11: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (10)
T43: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (37)
T44: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (38)
T46: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (40)
T47: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (41)

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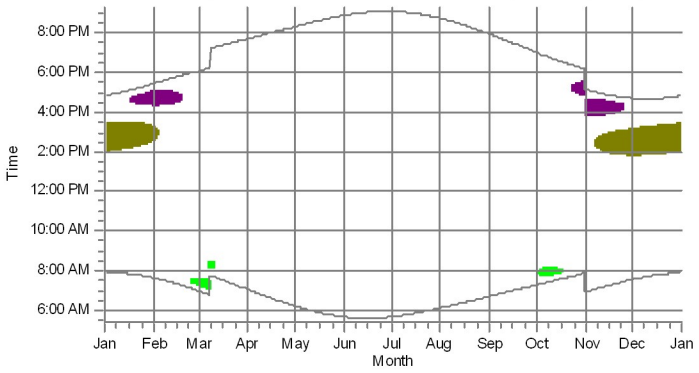
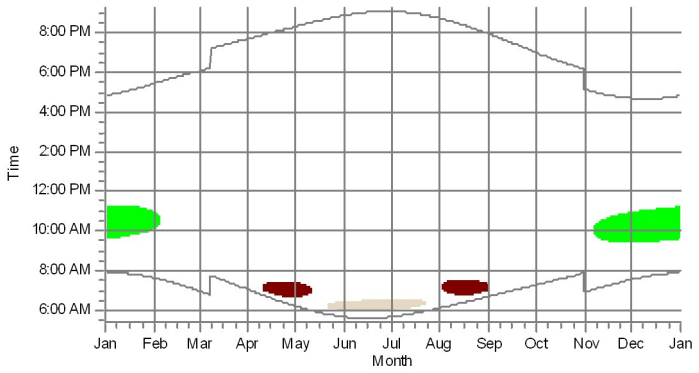
SHADOW - Calendar, graphical

Calculation: N163

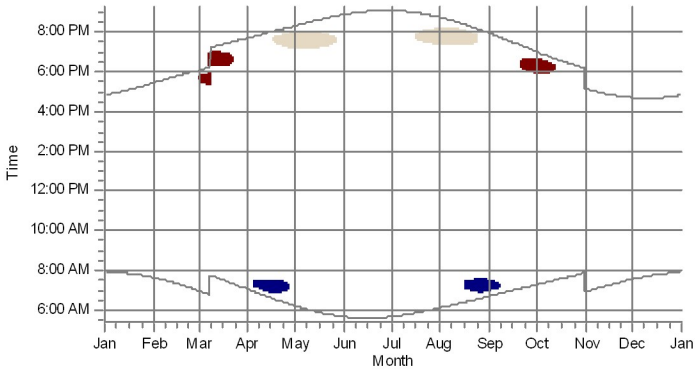
24: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1372)



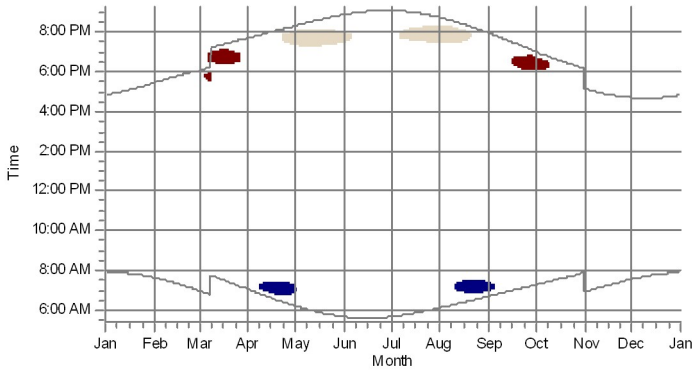
26: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1374)



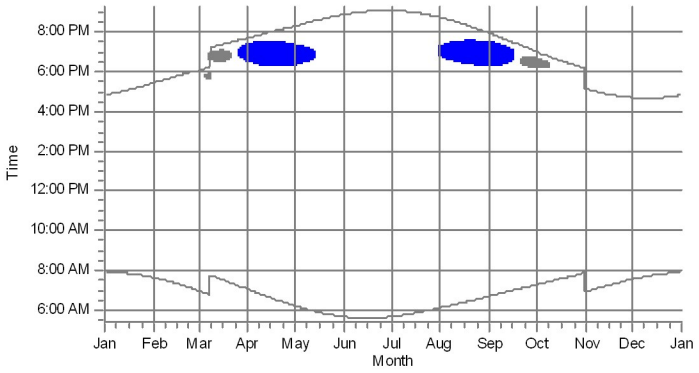
29: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1377)



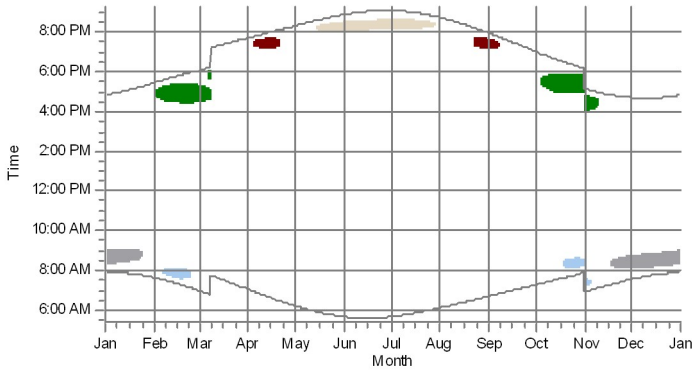
30: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1378)



33: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1381)



34: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1382)



WTGs

T09: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (1)
T02: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (3)
T03: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (4)
T07: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (7)
T08: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (8)
T10: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (9)
T11: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (10)
T12: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (11)
T16: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (15)
T17: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (16)
T05: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (149)

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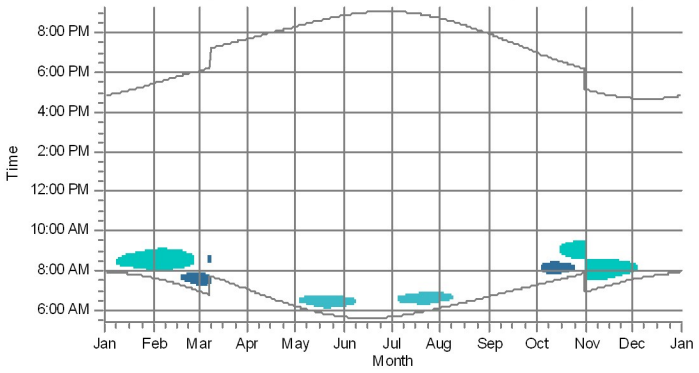
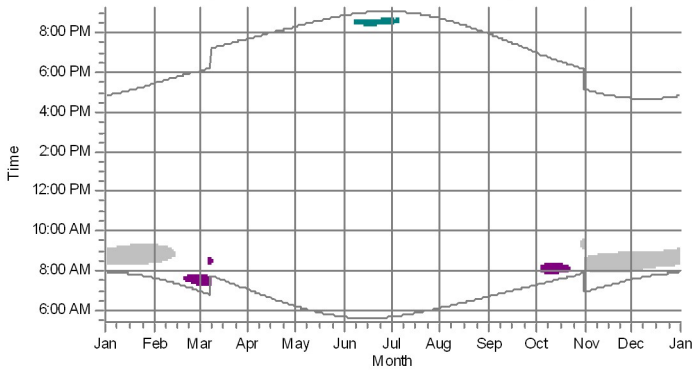
SHADOW - Calendar, graphical

Calculation: N163

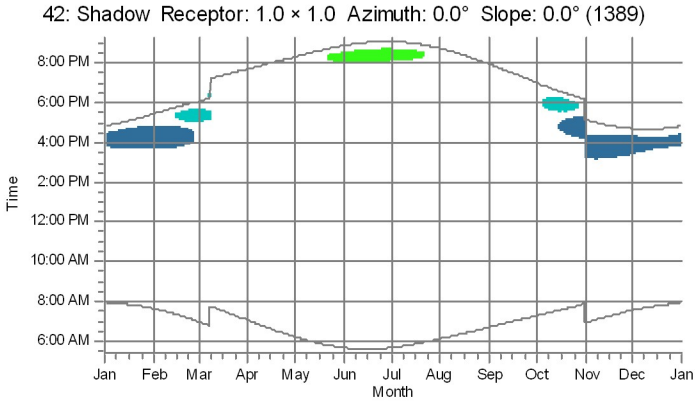
40: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1387)



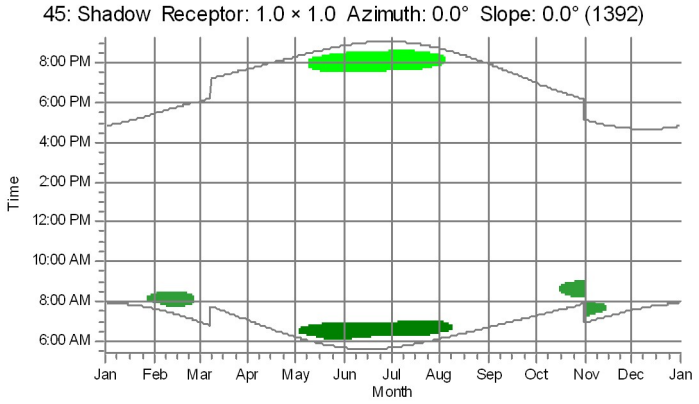
41: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1388)



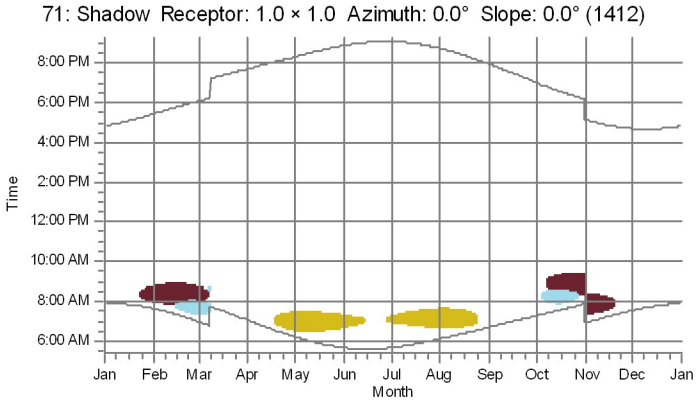
42: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1389)



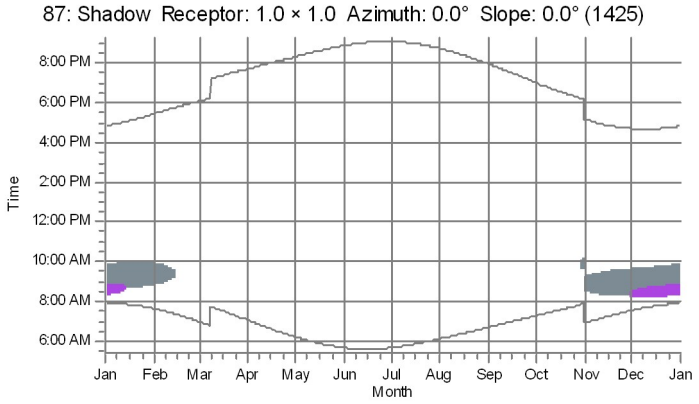
45: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1392)



71: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1412)



87: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1425)



WTGs

T09: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (1)
T06: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (6)
T10: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (9)
T12: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (11)
T13: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (12)
T19: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (18)
T20: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (19)
T21: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (20)
T24: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (21)
T25: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (22)
T36: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (30)
T39: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (33)
T40: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (34)
T45: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (39)
T50: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (44)

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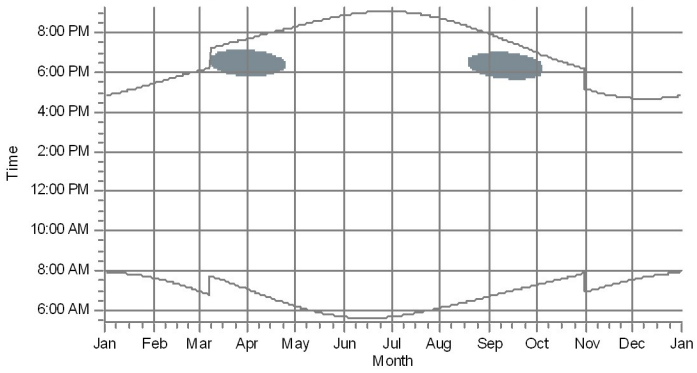
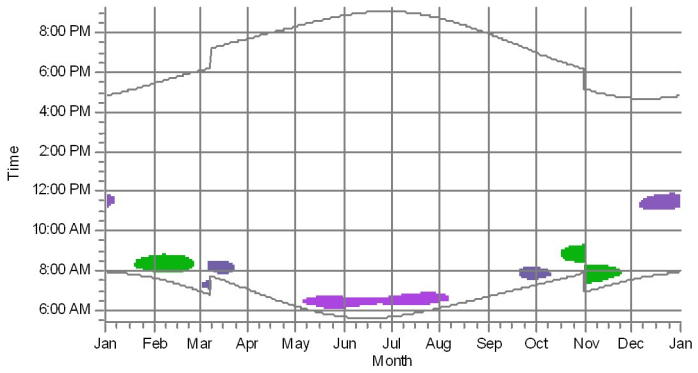
SHADOW - Calendar, graphical

Calculation: N163

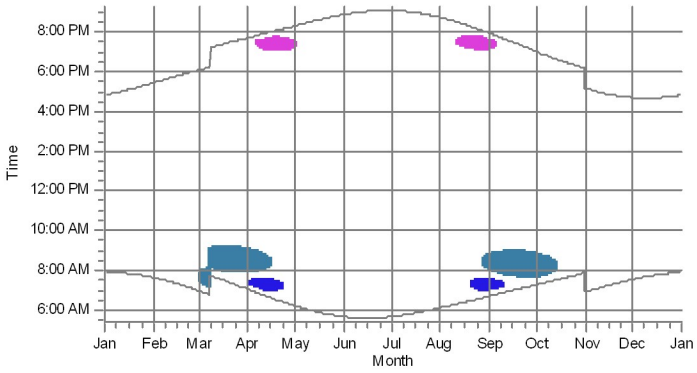
88: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1426)



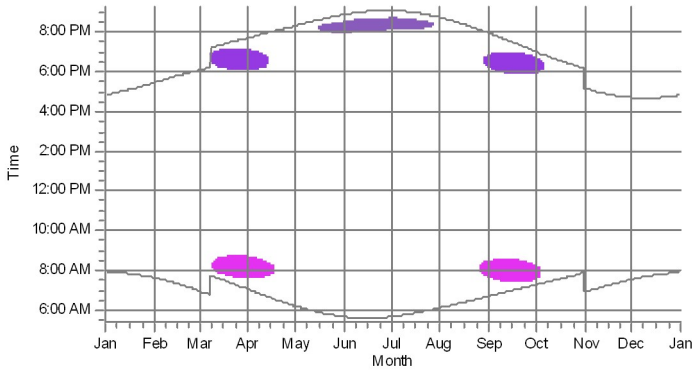
90: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1428)



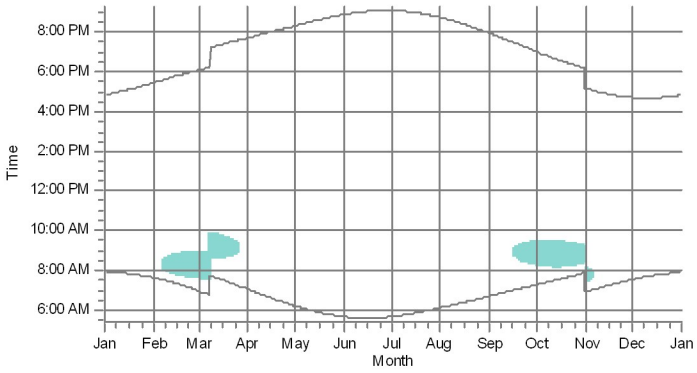
92: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1430)



109: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1440)



110: Shadow Receptor: 1.0 × 1.0 Azimuth: 0.0° Slope: 0.0° (1441)



WTGs

T42: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (36)
T43: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (37)
T44: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (38)
T45: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (39)
T50: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (44)
T51: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (45)
T53: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (46)
T54: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (47)
T55: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (48)
T56: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (49)
T52: NORDEX N163/5.X 5700 163.0 !O! hub: 118.0 m (TOT: 199.5 m) (154)

Attachment C

Tabular Shadow Flicker Results

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
4	Non-Participating	0:00	0	0:00
46	Non-Participating	5:42	44	0:26
116	Non-Participating	0:00	0	0:00
117	Non-Participating	0:00	0	0:00
118	Non-Participating	0:00	0	0:00
119	Non-Participating	0:00	0	0:00
120	Non-Participating	0:00	0	0:00
121	Non-Participating	0:00	0	0:00
122	Non-Participating	0:00	0	0:00
123	Non-Participating	0:00	0	0:00
124	Non-Participating	0:00	0	0:00
125	Non-Participating	0:00	0	0:00
126	Non-Participating	0:00	0	0:00
127	Non-Participating	0:00	0	0:00
128	Non-Participating	0:00	0	0:00
129	Non-Participating	0:00	0	0:00
130	Non-Participating	0:00	0	0:00
131	Non-Participating	0:00	0	0:00
132	Non-Participating	0:00	0	0:00
133	Non-Participating	0:00	0	0:00
134	Non-Participating	0:00	0	0:00
135	Non-Participating	0:00	0	0:00
136	Non-Participating	0:00	0	0:00
137	Non-Participating	0:00	0	0:00
138	Non-Participating	0:00	0	0:00
139	Non-Participating	0:22	19	0:04
140	Non-Participating	1:01	29	0:08
141	Non-Participating	2:35	42	0:14
142	Non-Participating	2:29	41	0:13
143	Non-Participating	3:09	46	0:15
144	Non-Participating	0:15	17	0:03
145	Non-Participating	0:00	0	0:00
146	Non-Participating	0:00	0	0:00
147	Non-Participating	0:00	0	0:00
148	Non-Participating	2:16	39	0:13
149	Non-Participating	4:43	52	0:19
150	Non-Participating	6:37	59	0:23
151	Non-Participating	8:06	65	0:26
152	Non-Participating	5:57	57	0:22
153	Non-Participating	6:41	61	0:23

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
154	Non-Participating	9:25	73	0:25
155	Non-Participating	9:13	76	0:24
156	Non-Participating	0:00	0	0:00
157	Non-Participating	4:11	52	0:17
158	Non-Participating	17:40	67	0:51
159	Non-Participating	0:00	0	0:00
160	Non-Participating	15:55	120	0:26
161	Non-Participating	0:00	0	0:00
162	Non-Participating	0:00	0	0:00
163	Non-Participating	0:00	0	0:00
164	Non-Participating	0:00	0	0:00
165	Non-Participating	0:00	0	0:00
166	Non-Participating	0:00	0	0:00
167	Non-Participating	0:00	0	0:00
168	Non-Participating	0:00	0	0:00
169	Non-Participating	0:00	0	0:00
170	Non-Participating	0:00	0	0:00
171	Non-Participating	0:00	0	0:00
172	Non-Participating	0:00	0	0:00
173	Non-Participating	0:00	0	0:00
174	Non-Participating	0:00	0	0:00
175	Non-Participating	0:00	0	0:00
176	Non-Participating	0:00	0	0:00
177	Non-Participating	0:00	0	0:00
178	Non-Participating	0:00	0	0:00
179	Non-Participating	0:00	0	0:00
180	Non-Participating	0:00	0	0:00
181	Non-Participating	0:00	0	0:00
182	Non-Participating	0:00	0	0:00
183	Non-Participating	0:00	0	0:00
184	Non-Participating	0:00	0	0:00
185	Non-Participating	0:00	0	0:00
186	Non-Participating	0:00	0	0:00
187	Non-Participating	0:00	0	0:00
188	Non-Participating	0:00	0	0:00
189	Non-Participating	0:00	0	0:00
190	Non-Participating	0:00	0	0:00
191	Non-Participating	0:00	0	0:00
192	Non-Participating	0:00	0	0:00
193	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
194	Non-Participating	0:00	0	0:00
195	Non-Participating	0:00	0	0:00
196	Non-Participating	0:00	0	0:00
197	Non-Participating	0:00	0	0:00
198	Non-Participating	0:00	0	0:00
199	Non-Participating	0:00	0	0:00
200	Non-Participating	0:00	0	0:00
201	Non-Participating	0:00	0	0:00
202	Non-Participating	0:00	0	0:00
203	Non-Participating	0:00	0	0:00
204	Non-Participating	0:00	0	0:00
205	Non-Participating	0:00	0	0:00
206	Non-Participating	0:00	0	0:00
207	Non-Participating	0:00	0	0:00
208	Non-Participating	0:00	0	0:00
209	Non-Participating	0:00	0	0:00
210	Non-Participating	0:00	0	0:00
211	Non-Participating	0:00	0	0:00
212	Non-Participating	0:00	0	0:00
213	Non-Participating	0:00	0	0:00
214	Non-Participating	0:00	0	0:00
215	Non-Participating	0:00	0	0:00
216	Non-Participating	0:00	0	0:00
217	Non-Participating	0:00	0	0:00
218	Non-Participating	0:00	0	0:00
219	Non-Participating	0:00	0	0:00
220	Non-Participating	0:00	0	0:00
221	Non-Participating	0:00	0	0:00
222	Non-Participating	0:00	0	0:00
223	Non-Participating	0:00	0	0:00
224	Non-Participating	0:00	0	0:00
225	Non-Participating	0:00	0	0:00
226	Non-Participating	0:00	0	0:00
227	Non-Participating	0:00	0	0:00
228	Non-Participating	0:00	0	0:00
229	Non-Participating	0:00	0	0:00
230	Non-Participating	0:00	0	0:00
231	Non-Participating	0:00	0	0:00
232	Non-Participating	0:00	0	0:00
233	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
234	Non-Participating	0:00	0	0:00
235	Non-Participating	0:00	0	0:00
236	Non-Participating	0:00	0	0:00
237	Non-Participating	0:00	0	0:00
238	Non-Participating	0:00	0	0:00
239	Non-Participating	0:00	0	0:00
240	Non-Participating	0:00	0	0:00
241	Non-Participating	0:00	0	0:00
242	Non-Participating	0:00	0	0:00
243	Non-Participating	0:00	0	0:00
244	Non-Participating	0:00	0	0:00
245	Non-Participating	0:00	0	0:00
246	Non-Participating	0:00	0	0:00
247	Non-Participating	0:00	0	0:00
248	Non-Participating	0:00	0	0:00
249	Non-Participating	0:00	0	0:00
250	Non-Participating	0:00	0	0:00
251	Non-Participating	0:00	0	0:00
252	Non-Participating	0:00	0	0:00
253	Non-Participating	0:00	0	0:00
254	Non-Participating	0:00	0	0:00
255	Non-Participating	0:00	0	0:00
256	Non-Participating	0:00	0	0:00
257	Non-Participating	0:00	0	0:00
258	Non-Participating	0:00	0	0:00
259	Non-Participating	0:00	0	0:00
260	Non-Participating	0:00	0	0:00
261	Non-Participating	0:00	0	0:00
262	Non-Participating	0:00	0	0:00
263	Non-Participating	0:00	0	0:00
264	Non-Participating	0:00	0	0:00
265	Non-Participating	0:00	0	0:00
266	Non-Participating	0:00	0	0:00
267	Non-Participating	0:00	0	0:00
268	Non-Participating	0:00	0	0:00
269	Non-Participating	0:00	0	0:00
270	Non-Participating	0:00	0	0:00
271	Non-Participating	0:00	0	0:00
272	Non-Participating	0:00	0	0:00
273	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
274	Non-Participating	0:00	0	0:00
275	Non-Participating	0:00	0	0:00
276	Non-Participating	0:00	0	0:00
277	Non-Participating	0:00	0	0:00
278	Non-Participating	0:00	0	0:00
279	Non-Participating	0:00	0	0:00
280	Non-Participating	0:00	0	0:00
281	Non-Participating	0:00	0	0:00
282	Non-Participating	0:00	0	0:00
283	Non-Participating	0:00	0	0:00
284	Non-Participating	0:00	0	0:00
285	Non-Participating	0:00	0	0:00
286	Non-Participating	0:00	0	0:00
287	Non-Participating	0:00	0	0:00
288	Non-Participating	0:00	0	0:00
289	Non-Participating	0:00	0	0:00
290	Non-Participating	0:00	0	0:00
291	Non-Participating	0:00	0	0:00
292	Non-Participating	0:00	0	0:00
293	Non-Participating	0:00	0	0:00
294	Non-Participating	0:00	0	0:00
295	Non-Participating	0:00	0	0:00
296	Non-Participating	0:00	0	0:00
297	Non-Participating	0:00	0	0:00
298	Non-Participating	0:00	0	0:00
299	Non-Participating	0:00	0	0:00
300	Non-Participating	0:00	0	0:00
301	Non-Participating	0:00	0	0:00
302	Non-Participating	0:00	0	0:00
303	Non-Participating	0:00	0	0:00
304	Non-Participating	0:00	0	0:00
305	Non-Participating	0:00	0	0:00
306	Non-Participating	0:00	0	0:00
307	Non-Participating	0:00	0	0:00
308	Non-Participating	0:00	0	0:00
309	Non-Participating	0:00	0	0:00
310	Non-Participating	0:00	0	0:00
311	Non-Participating	0:00	0	0:00
312	Non-Participating	0:00	0	0:00
313	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
314	Non-Participating	0:00	0	0:00
315	Non-Participating	0:00	0	0:00
316	Non-Participating	0:00	0	0:00
317	Non-Participating	0:00	0	0:00
318	Non-Participating	0:00	0	0:00
319	Non-Participating	0:00	0	0:00
320	Non-Participating	0:00	0	0:00
321	Non-Participating	0:00	0	0:00
322	Non-Participating	0:00	0	0:00
323	Non-Participating	0:00	0	0:00
324	Non-Participating	0:00	0	0:00
325	Non-Participating	0:00	0	0:00
326	Non-Participating	0:00	0	0:00
327	Non-Participating	0:00	0	0:00
328	Non-Participating	0:00	0	0:00
329	Non-Participating	0:00	0	0:00
330	Non-Participating	0:00	0	0:00
331	Non-Participating	0:00	0	0:00
332	Non-Participating	0:00	0	0:00
333	Non-Participating	0:00	0	0:00
334	Non-Participating	0:00	0	0:00
335	Non-Participating	0:00	0	0:00
336	Non-Participating	0:00	0	0:00
337	Non-Participating	0:00	0	0:00
338	Non-Participating	0:00	0	0:00
339	Non-Participating	0:00	0	0:00
340	Non-Participating	0:00	0	0:00
341	Non-Participating	0:00	0	0:00
342	Non-Participating	0:00	0	0:00
343	Non-Participating	0:00	0	0:00
344	Non-Participating	0:00	0	0:00
345	Non-Participating	0:00	0	0:00
346	Non-Participating	0:00	0	0:00
347	Non-Participating	0:00	0	0:00
348	Non-Participating	0:00	0	0:00
349	Non-Participating	0:00	0	0:00
350	Non-Participating	0:00	0	0:00
351	Non-Participating	0:00	0	0:00
352	Non-Participating	0:00	0	0:00
353	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
354	Non-Participating	0:00	0	0:00
355	Non-Participating	0:00	0	0:00
356	Non-Participating	0:00	0	0:00
357	Non-Participating	0:00	0	0:00
358	Non-Participating	0:00	0	0:00
359	Non-Participating	0:00	0	0:00
360	Non-Participating	0:00	0	0:00
361	Non-Participating	0:00	0	0:00
362	Non-Participating	0:00	0	0:00
363	Non-Participating	0:00	0	0:00
364	Non-Participating	0:00	0	0:00
365	Non-Participating	0:00	0	0:00
366	Non-Participating	0:00	0	0:00
367	Non-Participating	0:00	0	0:00
368	Non-Participating	0:00	0	0:00
369	Non-Participating	0:00	0	0:00
370	Non-Participating	0:00	0	0:00
371	Non-Participating	0:00	0	0:00
372	Non-Participating	0:00	0	0:00
373	Non-Participating	0:00	0	0:00
374	Non-Participating	0:00	0	0:00
375	Non-Participating	0:00	0	0:00
376	Non-Participating	0:00	0	0:00
377	Non-Participating	0:00	0	0:00
378	Non-Participating	0:00	0	0:00
379	Non-Participating	0:00	0	0:00
380	Non-Participating	0:00	0	0:00
381	Non-Participating	0:00	0	0:00
382	Non-Participating	0:00	0	0:00
383	Non-Participating	0:00	0	0:00
384	Non-Participating	0:00	0	0:00
385	Non-Participating	0:00	0	0:00
386	Non-Participating	0:00	0	0:00
387	Non-Participating	0:00	0	0:00
388	Non-Participating	0:00	0	0:00
389	Non-Participating	0:00	0	0:00
390	Non-Participating	0:00	0	0:00
391	Non-Participating	0:00	0	0:00
392	Non-Participating	0:00	0	0:00
393	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
394	Non-Participating	0:00	0	0:00
395	Non-Participating	0:00	0	0:00
396	Non-Participating	0:00	0	0:00
397	Non-Participating	0:00	0	0:00
398	Non-Participating	0:00	0	0:00
399	Non-Participating	0:00	0	0:00
400	Non-Participating	0:00	0	0:00
401	Non-Participating	0:00	0	0:00
402	Non-Participating	0:00	0	0:00
403	Non-Participating	0:00	0	0:00
404	Non-Participating	0:00	0	0:00
405	Non-Participating	0:00	0	0:00
406	Non-Participating	0:00	0	0:00
407	Non-Participating	0:00	0	0:00
408	Non-Participating	0:00	0	0:00
409	Non-Participating	0:00	0	0:00
410	Non-Participating	0:00	0	0:00
411	Non-Participating	0:00	0	0:00
412	Non-Participating	0:00	0	0:00
413	Non-Participating	0:00	0	0:00
414	Non-Participating	0:00	0	0:00
415	Non-Participating	0:00	0	0:00
416	Non-Participating	0:00	0	0:00
417	Non-Participating	0:00	0	0:00
418	Non-Participating	0:00	0	0:00
419	Non-Participating	0:00	0	0:00
420	Non-Participating	0:00	0	0:00
421	Non-Participating	0:00	0	0:00
422	Non-Participating	0:00	0	0:00
423	Non-Participating	0:00	0	0:00
424	Non-Participating	0:00	0	0:00
425	Non-Participating	0:00	0	0:00
426	Non-Participating	0:00	0	0:00
427	Non-Participating	0:00	0	0:00
428	Non-Participating	0:00	0	0:00
429	Non-Participating	0:00	0	0:00
430	Non-Participating	0:00	0	0:00
431	Non-Participating	0:00	0	0:00
432	Non-Participating	0:00	0	0:00
433	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
434	Non-Participating	0:00	0	0:00
435	Non-Participating	0:00	0	0:00
436	Non-Participating	0:00	0	0:00
437	Non-Participating	0:00	0	0:00
438	Non-Participating	0:00	0	0:00
439	Non-Participating	0:00	0	0:00
440	Non-Participating	0:00	0	0:00
441	Non-Participating	0:00	0	0:00
442	Non-Participating	0:00	0	0:00
443	Non-Participating	0:00	0	0:00
444	Non-Participating	0:00	0	0:00
445	Non-Participating	0:00	0	0:00
446	Non-Participating	0:00	0	0:00
447	Non-Participating	0:00	0	0:00
448	Non-Participating	0:00	0	0:00
449	Non-Participating	0:00	0	0:00
450	Non-Participating	0:00	0	0:00
451	Non-Participating	0:00	0	0:00
452	Non-Participating	0:00	0	0:00
453	Non-Participating	0:00	0	0:00
454	Non-Participating	0:00	0	0:00
455	Non-Participating	0:00	0	0:00
456	Non-Participating	0:00	0	0:00
457	Non-Participating	0:00	0	0:00
458	Non-Participating	0:00	0	0:00
459	Non-Participating	0:00	0	0:00
460	Non-Participating	0:00	0	0:00
461	Non-Participating	0:00	0	0:00
462	Non-Participating	0:00	0	0:00
463	Non-Participating	0:00	0	0:00
464	Non-Participating	0:00	0	0:00
465	Non-Participating	0:00	0	0:00
466	Non-Participating	0:00	0	0:00
467	Non-Participating	0:00	0	0:00
468	Non-Participating	0:00	0	0:00
469	Non-Participating	0:00	0	0:00
470	Non-Participating	0:00	0	0:00
471	Non-Participating	0:00	0	0:00
472	Non-Participating	0:00	0	0:00
473	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
474	Non-Participating	0:00	0	0:00
475	Non-Participating	0:00	0	0:00
476	Non-Participating	0:00	0	0:00
477	Non-Participating	0:00	0	0:00
478	Non-Participating	0:00	0	0:00
479	Non-Participating	0:00	0	0:00
480	Non-Participating	0:00	0	0:00
481	Non-Participating	0:00	0	0:00
482	Non-Participating	0:00	0	0:00
483	Non-Participating	0:00	0	0:00
484	Non-Participating	0:00	0	0:00
485	Non-Participating	0:00	0	0:00
486	Non-Participating	0:00	0	0:00
487	Non-Participating	0:00	0	0:00
488	Non-Participating	0:00	0	0:00
489	Non-Participating	0:00	0	0:00
490	Non-Participating	0:00	0	0:00
491	Non-Participating	0:00	0	0:00
492	Non-Participating	0:00	0	0:00
493	Non-Participating	0:00	0	0:00
494	Non-Participating	0:00	0	0:00
495	Non-Participating	0:00	0	0:00
496	Non-Participating	0:00	0	0:00
497	Non-Participating	0:00	0	0:00
498	Non-Participating	0:00	0	0:00
499	Non-Participating	0:00	0	0:00
500	Non-Participating	0:00	0	0:00
501	Non-Participating	0:00	0	0:00
502	Non-Participating	0:00	0	0:00
503	Non-Participating	0:00	0	0:00
504	Non-Participating	0:00	0	0:00
505	Non-Participating	0:00	0	0:00
506	Non-Participating	0:00	0	0:00
507	Non-Participating	0:00	0	0:00
508	Non-Participating	0:00	0	0:00
509	Non-Participating	0:00	0	0:00
510	Non-Participating	0:00	0	0:00
511	Non-Participating	0:00	0	0:00
512	Non-Participating	0:00	0	0:00
513	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
514	Non-Participating	0:00	0	0:00
515	Non-Participating	0:00	0	0:00
516	Non-Participating	0:00	0	0:00
517	Non-Participating	0:00	0	0:00
518	Non-Participating	0:00	0	0:00
519	Non-Participating	0:00	0	0:00
520	Non-Participating	0:00	0	0:00
521	Non-Participating	0:00	0	0:00
522	Non-Participating	0:00	0	0:00
523	Non-Participating	0:00	0	0:00
524	Non-Participating	0:00	0	0:00
525	Non-Participating	0:00	0	0:00
526	Non-Participating	0:00	0	0:00
527	Non-Participating	0:00	0	0:00
528	Non-Participating	0:00	0	0:00
529	Non-Participating	0:00	0	0:00
530	Non-Participating	0:00	0	0:00
531	Non-Participating	0:00	0	0:00
532	Non-Participating	0:00	0	0:00
533	Non-Participating	0:00	0	0:00
534	Non-Participating	0:00	0	0:00
535	Non-Participating	0:00	0	0:00
536	Non-Participating	0:00	0	0:00
537	Non-Participating	0:00	0	0:00
538	Non-Participating	0:00	0	0:00
539	Non-Participating	0:00	0	0:00
540	Non-Participating	0:00	0	0:00
541	Non-Participating	0:00	0	0:00
542	Non-Participating	0:00	0	0:00
543	Non-Participating	0:00	0	0:00
544	Non-Participating	0:00	0	0:00
545	Non-Participating	0:00	0	0:00
546	Non-Participating	0:00	0	0:00
547	Non-Participating	0:00	0	0:00
548	Non-Participating	0:00	0	0:00
549	Non-Participating	0:00	0	0:00
550	Non-Participating	0:00	0	0:00
551	Non-Participating	0:00	0	0:00
552	Non-Participating	0:00	0	0:00
553	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
554	Non-Participating	0:00	0	0:00
555	Non-Participating	0:00	0	0:00
556	Non-Participating	0:00	0	0:00
557	Non-Participating	0:00	0	0:00
558	Non-Participating	0:00	0	0:00
559	Non-Participating	0:00	0	0:00
560	Non-Participating	0:00	0	0:00
561	Non-Participating	0:00	0	0:00
562	Non-Participating	0:00	0	0:00
563	Non-Participating	0:00	0	0:00
564	Non-Participating	0:00	0	0:00
565	Non-Participating	0:00	0	0:00
566	Non-Participating	0:00	0	0:00
567	Non-Participating	0:00	0	0:00
568	Non-Participating	0:00	0	0:00
569	Non-Participating	0:00	0	0:00
570	Non-Participating	0:00	0	0:00
571	Non-Participating	0:00	0	0:00
572	Non-Participating	0:00	0	0:00
573	Non-Participating	0:00	0	0:00
574	Non-Participating	0:00	0	0:00
575	Non-Participating	0:00	0	0:00
576	Non-Participating	0:00	0	0:00
577	Non-Participating	0:00	0	0:00
578	Non-Participating	0:00	0	0:00
579	Non-Participating	0:00	0	0:00
580	Non-Participating	0:00	0	0:00
581	Non-Participating	0:00	0	0:00
582	Non-Participating	0:00	0	0:00
583	Non-Participating	0:00	0	0:00
584	Non-Participating	0:00	0	0:00
585	Non-Participating	0:00	0	0:00
586	Non-Participating	0:00	0	0:00
587	Non-Participating	0:00	0	0:00
588	Non-Participating	0:00	0	0:00
589	Non-Participating	0:00	0	0:00
590	Non-Participating	0:00	0	0:00
591	Non-Participating	0:00	0	0:00
592	Non-Participating	0:00	0	0:00
593	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
594	Non-Participating	0:00	0	0:00
595	Non-Participating	0:00	0	0:00
596	Non-Participating	1:12	25	0:17
597	Non-Participating	0:00	0	0:00
598	Non-Participating	3:04	33	0:25
599	Non-Participating	0:00	0	0:00
600	Non-Participating	4:09	35	0:28
601	Non-Participating	0:00	0	0:00
602	Non-Participating	0:00	0	0:00
603	Non-Participating	0:00	0	0:00
604	Non-Participating	0:00	0	0:00
605	Non-Participating	0:00	0	0:00
606	Non-Participating	0:00	0	0:00
607	Non-Participating	0:00	0	0:00
608	Non-Participating	0:00	0	0:00
609	Non-Participating	0:00	0	0:00
610	Non-Participating	0:00	0	0:00
611	Non-Participating	0:00	0	0:00
612	Non-Participating	0:00	0	0:00
613	Non-Participating	0:00	0	0:00
614	Non-Participating	0:00	0	0:00
615	Non-Participating	0:00	0	0:00
616	Non-Participating	0:00	0	0:00
617	Non-Participating	0:00	0	0:00
618	Non-Participating	0:00	0	0:00
619	Non-Participating	0:00	0	0:00
620	Non-Participating	0:00	0	0:00
621	Non-Participating	6:50	51	0:25
622	Non-Participating	0:00	0	0:00
623	Non-Participating	3:27	36	0:26
624	Non-Participating	6:56	51	0:36
625	Non-Participating	0:00	0	0:00
626	Non-Participating	0:00	0	0:00
627	Non-Participating	0:00	0	0:00
628	Non-Participating	0:00	0	0:00
629	Non-Participating	0:00	0	0:00
630	Non-Participating	0:00	0	0:00
631	Non-Participating	0:00	0	0:00
632	Non-Participating	0:00	0	0:00
633	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
634	Non-Participating	0:00	0	0:00
635	Non-Participating	0:00	0	0:00
636	Non-Participating	0:00	0	0:00
637	Non-Participating	0:00	0	0:00
638	Non-Participating	0:00	0	0:00
639	Non-Participating	0:00	0	0:00
640	Non-Participating	0:00	0	0:00
641	Non-Participating	0:00	0	0:00
642	Non-Participating	0:00	0	0:00
643	Non-Participating	0:00	0	0:00
644	Non-Participating	0:00	0	0:00
645	Non-Participating	0:00	0	0:00
646	Non-Participating	0:00	0	0:00
647	Non-Participating	0:00	0	0:00
648	Non-Participating	0:00	0	0:00
649	Non-Participating	0:00	0	0:00
650	Non-Participating	0:00	0	0:00
651	Non-Participating	0:00	0	0:00
652	Non-Participating	0:00	0	0:00
653	Non-Participating	0:00	0	0:00
654	Non-Participating	0:00	0	0:00
655	Non-Participating	0:00	0	0:00
656	Non-Participating	0:00	0	0:00
657	Non-Participating	0:00	0	0:00
658	Non-Participating	0:00	0	0:00
659	Non-Participating	0:00	0	0:00
660	Non-Participating	0:00	0	0:00
661	Non-Participating	0:00	0	0:00
662	Non-Participating	0:00	0	0:00
663	Non-Participating	0:00	0	0:00
664	Non-Participating	0:00	0	0:00
665	Non-Participating	0:00	0	0:00
666	Non-Participating	0:00	0	0:00
667	Non-Participating	0:00	0	0:00
668	Non-Participating	0:00	0	0:00
669	Non-Participating	0:00	0	0:00
670	Non-Participating	0:00	0	0:00
671	Non-Participating	0:00	0	0:00
672	Non-Participating	0:00	0	0:00
673	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
674	Non-Participating	0:00	0	0:00
675	Non-Participating	0:00	0	0:00
676	Non-Participating	0:00	0	0:00
677	Non-Participating	0:00	0	0:00
678	Non-Participating	0:00	0	0:00
679	Non-Participating	0:00	0	0:00
680	Non-Participating	0:00	0	0:00
681	Non-Participating	0:00	0	0:00
682	Non-Participating	0:00	0	0:00
683	Non-Participating	0:00	0	0:00
684	Non-Participating	0:00	0	0:00
685	Non-Participating	0:00	0	0:00
686	Non-Participating	0:00	0	0:00
687	Non-Participating	0:00	0	0:00
688	Non-Participating	0:00	0	0:00
689	Non-Participating	0:00	0	0:00
690	Non-Participating	0:00	0	0:00
691	Non-Participating	0:00	0	0:00
692	Non-Participating	0:00	0	0:00
693	Non-Participating	0:00	0	0:00
694	Non-Participating	0:00	0	0:00
695	Non-Participating	0:00	0	0:00
696	Non-Participating	0:00	0	0:00
697	Non-Participating	0:00	0	0:00
698	Non-Participating	0:00	0	0:00
699	Non-Participating	0:00	0	0:00
700	Non-Participating	0:00	0	0:00
701	Non-Participating	0:00	0	0:00
702	Non-Participating	0:00	0	0:00
703	Non-Participating	0:00	0	0:00
704	Non-Participating	0:00	0	0:00
705	Non-Participating	0:00	0	0:00
706	Non-Participating	0:00	0	0:00
707	Non-Participating	0:00	0	0:00
708	Non-Participating	0:00	0	0:00
709	Non-Participating	0:00	0	0:00
710	Non-Participating	0:00	0	0:00
711	Non-Participating	0:00	0	0:00
712	Non-Participating	0:00	0	0:00
713	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
714	Non-Participating	0:00	0	0:00
715	Non-Participating	0:00	0	0:00
716	Non-Participating	0:00	0	0:00
717	Non-Participating	0:00	0	0:00
718	Non-Participating	0:00	0	0:00
719	Non-Participating	0:00	0	0:00
720	Non-Participating	0:00	0	0:00
721	Non-Participating	0:00	0	0:00
722	Non-Participating	0:00	0	0:00
723	Non-Participating	0:00	0	0:00
724	Non-Participating	0:00	0	0:00
725	Non-Participating	0:00	0	0:00
726	Non-Participating	0:00	0	0:00
727	Non-Participating	0:00	0	0:00
728	Non-Participating	0:00	0	0:00
729	Non-Participating	0:00	0	0:00
730	Non-Participating	0:00	0	0:00
731	Non-Participating	0:00	0	0:00
732	Non-Participating	0:00	0	0:00
733	Non-Participating	0:00	0	0:00
734	Non-Participating	0:00	0	0:00
735	Non-Participating	0:00	0	0:00
736	Non-Participating	0:00	0	0:00
737	Non-Participating	0:00	0	0:00
738	Non-Participating	0:00	0	0:00
739	Non-Participating	0:00	0	0:00
740	Non-Participating	0:00	0	0:00
741	Non-Participating	0:00	0	0:00
742	Non-Participating	0:00	0	0:00
743	Non-Participating	0:00	0	0:00
744	Non-Participating	0:00	0	0:00
745	Non-Participating	0:00	0	0:00
746	Non-Participating	0:00	0	0:00
747	Non-Participating	0:00	0	0:00
748	Non-Participating	0:00	0	0:00
749	Non-Participating	0:00	0	0:00
750	Non-Participating	0:00	0	0:00
751	Non-Participating	0:00	0	0:00
752	Non-Participating	0:00	0	0:00
753	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
754	Non-Participating	0:00	0	0:00
755	Non-Participating	0:00	0	0:00
756	Non-Participating	0:00	0	0:00
757	Non-Participating	0:00	0	0:00
758	Non-Participating	0:00	0	0:00
759	Non-Participating	0:00	0	0:00
760	Non-Participating	0:00	0	0:00
761	Non-Participating	0:00	0	0:00
762	Non-Participating	0:00	0	0:00
763	Non-Participating	0:00	0	0:00
764	Non-Participating	0:00	0	0:00
765	Non-Participating	0:00	0	0:00
766	Non-Participating	0:00	0	0:00
767	Non-Participating	0:00	0	0:00
768	Non-Participating	0:00	0	0:00
769	Non-Participating	0:00	0	0:00
770	Non-Participating	0:00	0	0:00
771	Non-Participating	0:00	0	0:00
772	Non-Participating	0:00	0	0:00
773	Non-Participating	0:00	0	0:00
774	Non-Participating	0:00	0	0:00
775	Non-Participating	0:00	0	0:00
776	Non-Participating	0:00	0	0:00
777	Non-Participating	0:00	0	0:00
778	Non-Participating	0:00	0	0:00
779	Non-Participating	0:00	0	0:00
780	Non-Participating	0:00	0	0:00
781	Non-Participating	0:00	0	0:00
782	Non-Participating	0:00	0	0:00
783	Non-Participating	0:00	0	0:00
784	Non-Participating	0:00	0	0:00
785	Non-Participating	0:00	0	0:00
786	Non-Participating	0:00	0	0:00
787	Non-Participating	0:00	0	0:00
788	Non-Participating	0:00	0	0:00
789	Non-Participating	0:00	0	0:00
790	Non-Participating	0:00	0	0:00
791	Non-Participating	0:00	0	0:00
792	Non-Participating	0:00	0	0:00
793	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
794	Non-Participating	0:00	0	0:00
795	Non-Participating	0:00	0	0:00
796	Non-Participating	0:00	0	0:00
797	Non-Participating	0:00	0	0:00
798	Non-Participating	0:00	0	0:00
799	Non-Participating	0:00	0	0:00
800	Non-Participating	0:00	0	0:00
801	Non-Participating	0:00	0	0:00
802	Non-Participating	0:00	0	0:00
803	Non-Participating	0:00	0	0:00
804	Non-Participating	0:00	0	0:00
805	Non-Participating	0:00	0	0:00
806	Non-Participating	0:00	0	0:00
807	Non-Participating	0:00	0	0:00
808	Non-Participating	0:00	0	0:00
809	Non-Participating	0:00	0	0:00
810	Non-Participating	0:00	0	0:00
811	Non-Participating	0:00	0	0:00
812	Non-Participating	4:08	43	0:28
813	Non-Participating	0:00	0	0:00
814	Non-Participating	0:00	0	0:00
815	Non-Participating	0:00	0	0:00
816	Non-Participating	0:00	0	0:00
817	Non-Participating	0:00	0	0:00
818	Non-Participating	2:15	29	0:22
819	Non-Participating	0:00	0	0:00
820	Non-Participating	0:00	0	0:00
821	Non-Participating	3:45	45	0:28
822	Non-Participating	0:00	0	0:00
823	Non-Participating	0:00	0	0:00
824	Non-Participating	0:00	0	0:00
825	Non-Participating	0:00	0	0:00
826	Non-Participating	0:00	0	0:00
827	Non-Participating	0:00	0	0:00
828	Non-Participating	0:00	0	0:00
829	Non-Participating	0:00	0	0:00
830	Non-Participating	5:57	58	0:29
831	Non-Participating	18:10	139	0:38
832	Non-Participating	0:00	0	0:00
833	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
834	Non-Participating	0:00	0	0:00
835	Non-Participating	0:00	0	0:00
836	Non-Participating	0:00	0	0:00
837	Non-Participating	0:00	0	0:00
838	Non-Participating	20:31	86	0:43
839	Non-Participating	4:49	44	0:25
840	Non-Participating	1:59	27	0:25
841	Non-Participating	0:00	0	0:00
842	Non-Participating	0:00	0	0:00
843	Non-Participating	0:00	0	0:00
844	Non-Participating	0:00	0	0:00
845	Non-Participating	0:26	15	0:11
846	Non-Participating	0:00	0	0:00
847	Non-Participating	0:00	0	0:00
848	Non-Participating	0:00	0	0:00
849	Non-Participating	6:49	47	0:30
850	Non-Participating	3:18	35	0:24
851	Non-Participating	0:00	0	0:00
852	Non-Participating	3:23	35	0:26
853	Non-Participating	4:31	42	0:26
854	Non-Participating	18:51	115	0:42
855	Non-Participating	12:21	81	0:48
856	Non-Participating	0:00	0	0:00
857	Non-Participating	0:00	0	0:00
858	Non-Participating	0:00	0	0:00
859	Non-Participating	0:00	0	0:00
860	Non-Participating	0:00	0	0:00
861	Non-Participating	0:00	0	0:00
862	Non-Participating	0:00	0	0:00
863	Non-Participating	0:00	0	0:00
864	Non-Participating	0:00	0	0:00
865	Non-Participating	0:00	0	0:00
866	Non-Participating	3:03	33	0:25
867	Non-Participating	0:00	0	0:00
868	Non-Participating	0:00	0	0:00
869	Non-Participating	0:00	0	0:00
870	Non-Participating	0:00	0	0:00
871	Non-Participating	0:00	0	0:00
872	Non-Participating	0:00	0	0:00
873	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
874	Non-Participating	0:00	0	0:00
875	Non-Participating	0:00	0	0:00
876	Non-Participating	0:00	0	0:00
877	Non-Participating	0:00	0	0:00
878	Non-Participating	0:00	0	0:00
879	Non-Participating	0:00	0	0:00
880	Non-Participating	0:00	0	0:00
881	Non-Participating	0:00	0	0:00
882	Non-Participating	0:00	0	0:00
883	Non-Participating	0:00	0	0:00
884	Non-Participating	0:00	0	0:00
885	Non-Participating	0:00	0	0:00
886	Non-Participating	0:00	0	0:00
887	Non-Participating	0:00	0	0:00
888	Non-Participating	0:00	0	0:00
889	Non-Participating	0:00	0	0:00
890	Non-Participating	0:00	0	0:00
891	Non-Participating	0:00	0	0:00
892	Non-Participating	0:00	0	0:00
893	Non-Participating	0:00	0	0:00
894	Non-Participating	0:00	0	0:00
895	Non-Participating	0:00	0	0:00
896	Non-Participating	0:00	0	0:00
897	Non-Participating	0:00	0	0:00
898	Non-Participating	0:00	0	0:00
899	Non-Participating	0:00	0	0:00
900	Non-Participating	0:00	0	0:00
901	Non-Participating	0:00	0	0:00
902	Non-Participating	0:00	0	0:00
903	Non-Participating	0:00	0	0:00
904	Non-Participating	0:00	0	0:00
905	Non-Participating	0:00	0	0:00
906	Non-Participating	0:00	0	0:00
907	Non-Participating	0:00	0	0:00
908	Non-Participating	0:00	0	0:00
909	Non-Participating	0:00	0	0:00
910	Non-Participating	0:00	0	0:00
911	Non-Participating	0:00	0	0:00
912	Non-Participating	0:00	0	0:00
913	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
914	Non-Participating	0:00	0	0:00
915	Non-Participating	0:00	0	0:00
916	Non-Participating	0:00	0	0:00
917	Non-Participating	0:00	0	0:00
918	Non-Participating	0:00	0	0:00
919	Non-Participating	0:00	0	0:00
920	Non-Participating	0:00	0	0:00
921	Non-Participating	0:00	0	0:00
922	Non-Participating	0:00	0	0:00
923	Non-Participating	0:00	0	0:00
924	Non-Participating	0:00	0	0:00
925	Non-Participating	0:17	16	0:04
926	Non-Participating	1:42	33	0:11
927	Non-Participating	2:51	41	0:15
928	Non-Participating	3:21	44	0:16
929	Non-Participating	0:00	0	0:00
930	Non-Participating	0:00	0	0:00
931	Non-Participating	0:00	0	0:00
932	Non-Participating	0:00	0	0:00
933	Non-Participating	0:00	0	0:00
934	Non-Participating	0:00	0	0:00
935	Non-Participating	0:00	0	0:00
936	Non-Participating	0:00	0	0:00
937	Non-Participating	2:59	32	0:22
938	Non-Participating	2:34	28	0:21
939	Non-Participating	0:00	0	0:00
940	Non-Participating	4:00	37	0:26
941	Non-Participating	12:23	59	0:44
942	Non-Participating	12:41	64	0:40
943	Non-Participating	16:36	67	0:51
944	Non-Participating	0:00	0	0:00
945	Non-Participating	16:36	67	0:51
946	Non-Participating	0:00	0	0:00
947	Non-Participating	0:00	0	0:00
948	Non-Participating	6:21	51	0:21
949	Non-Participating	8:03	51	0:39
950	Non-Participating	0:00	0	0:00
951	Non-Participating	0:00	0	0:00
952	Non-Participating	0:00	0	0:00
953	Non-Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
954	Non-Participating	0:00	0	0:00
955	Non-Participating	0:00	0	0:00
956	Non-Participating	0:00	0	0:00
957	Non-Participating	0:00	0	0:00
958	Non-Participating	0:00	0	0:00
959	Non-Participating	0:00	0	0:00
960	Non-Participating	0:00	0	0:00
961	Non-Participating	0:00	0	0:00
962	Non-Participating	0:00	0	0:00
963	Non-Participating	0:00	0	0:00
964	Non-Participating	0:00	0	0:00
965	Non-Participating	0:00	0	0:00
966	Non-Participating	0:00	0	0:00
967	Non-Participating	0:00	0	0:00
968	Non-Participating	0:00	0	0:00
0	Participating	37:57	126	0:59
1	Participating	40:50	99	2:10
2	Participating	15:34	54	0:56
3	Participating	4:07	44	0:26
5	Participating	32:18	146	1:10
6	Participating	0:00	0	0:00
7	Participating	26:42	84	1:09
8	Participating	16:21	113	0:52
9	Participating	14:51	127	0:27
10	Participating	0:00	0	0:00
11	Participating	0:00	0	0:00
12	Participating	0:00	0	0:00
13	Participating	0:00	0	0:00
14	Participating	0:00	0	0:00
15	Participating	0:00	0	0:00
16	Participating	0:00	0	0:00
17	Participating	0:00	0	0:00
18	Participating	8:07	66	0:34
19	Participating	6:20	69	0:25
20	Participating	4:05	37	0:27
21	Participating	40:47	213	1:06
22	Participating	35:03	139	0:57
23	Participating	37:57	134	0:59
24	Participating	33:33	147	1:23
25	Participating	27:24	153	0:49

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
26	Participating	52:15	209	1:29
27	Participating	21:34	104	1:14
28	Participating	29:24	146	0:58
29	Participating	30:42	149	0:49
30	Participating	33:13	161	0:46
31	Participating	14:54	97	0:42
32	Participating	13:57	93	0:38
33	Participating	35:52	130	1:05
34	Participating	43:18	245	1:14
35	Participating	21:07	138	0:48
36	Participating	0:00	0	0:00
37	Participating	0:00	0	0:00
38	Participating	0:00	0	0:00
39	Participating	23:44	134	0:59
40	Participating	35:34	187	0:54
41	Participating	30:07	171	0:51
42	Participating	43:10	216	1:04
43	Participating	29:24	133	1:17
44	Participating	20:06	84	1:00
45	Participating	59:36	154	1:28
47	Participating	8:53	59	0:37
48	Participating	21:42	99	0:56
49	Participating	19:42	103	0:52
50	Participating	0:00	0	0:00
51	Participating	0:00	0	0:00
52	Participating	0:00	0	0:00
53	Participating	0:00	0	0:00
54	Participating	3:55	42	0:26
55	Participating	4:04	37	0:23
56	Participating	27:35	74	0:57
57	Participating	3:38	33	0:26
58	Participating	17:57	115	0:39
59	Participating	18:40	129	0:36
60	Participating	7:32	80	0:23
61	Participating	23:27	84	0:58
62	Participating	16:07	72	0:53
63	Participating	0:00	0	0:00
64	Participating	0:00	0	0:00
65	Participating	0:00	0	0:00
66	Participating	0:00	0	0:00

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
67	Participating	0:00	0	0:00
68	Participating	0:00	0	0:00
69	Participating	0:00	0	0:00
70	Participating	0:00	0	0:00
71	Participating	57:19	204	1:21
72	Participating	27:38	176	0:47
73	Participating	0:00	0	0:00
74	Participating	22:00	99	0:49
75	Participating	19:01	142	0:34
76	Participating	13:41	87	0:37
77	Participating	0:00	0	0:00
78	Participating	20:16	80	0:50
79	Participating	20:16	80	0:50
80	Participating	0:00	0	0:00
81	Participating	0:00	0	0:00
82	Participating	0:00	0	0:00
83	Participating	10:18	57	0:43
84	Participating	0:00	0	0:00
85	Participating	0:00	0	0:00
86	Participating	24:05	128	0:40
87	Participating	38:17	107	1:25
88	Participating	30:40	92	1:10
89	Participating	26:06	141	0:43
90	Participating	35:25	236	0:46
91	Participating	9:53	78	0:25
92	Participating	47:33	125	1:29
93	Participating	0:00	0	0:00
94	Participating	0:00	0	0:00
95	Participating	0:00	0	0:00
96	Participating	0:00	0	0:00
97	Participating	0:00	0	0:00
98	Participating	0:00	0	0:00
99	Participating	0:00	0	0:00
100	Participating	0:00	0	0:00
101	Participating	0:00	0	0:00
102	Participating	0:00	0	0:00
103	Participating	0:00	0	0:00
104	Participating	0:00	0	0:00
105	Participating	0:00	0	0:00
106	Participating	5:41	49	0:26

Receptor ID	Participation Status	Annual Expected Shadow Flicker (hh:mm/year)	Annual Days with Shadow Flicker (days/year)	Max Daily Shadow Flicker (hh:mm/day)
107	Participating	0:00	0	0:00
108	Participating	3:29	24	0:29
109	Participating	54:44	152	1:55
110	Participating	36:46	99	1:15
111	Participating	0:00	0	0:00
112	Participating	5:33	35	0:25
113	Participating	0:00	0	0:00
114	Participating	0:00	0	0:00
115	Participating	0:00	0	0:00

Shadow Flicker Report

Vestas V162

Big Bend Wind

Cottonwood County and Watonwan Counties,
Minnesota

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September 2020

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1.0 PROJECT OVERVIEW

Big Bend Wind, LLC (Big Bend or Applicant), an affiliate of Apex Clean Energy, LLC (Apex), is proposing to construct a wind energy generation facility, including up to 55 turbines and associated necessary project infrastructure, in Cottonwood County and Watonwan Counties, Minnesota (hereafter referred to as the Project) (see Figure 1). This report provides an assessment of the potential shadow flicker that could be experienced at residences located around the proposed turbines.

Several wind turbine generators are being considered for this Project. For this analysis, the turbine model evaluated is the Vestas V162 turbine. Each wind turbine consists of three major mechanical components: the tower, nacelle, and rotor. For the Vestas V162, the anticipated tower height or "hub height" (height from foundation to the center of the rotor), for each turbine is approximately 119 meters (390 feet) and the rotor diameter is 162 meters (531 feet), resulting in a total maximum height of 200 meters (656 feet). The current Project turbine layout is depicted in Figure 2.

The Project is located within Cottonwood and Watonwan Counties, Minnesota, approximately 7 miles northeast of the City of Windom and 30 miles north of the Minnesota-Iowa border. Elevations in the area range from approximately 1,100 feet above mean sea level (amsl) to 1,460 feet amsl. Land cover within the Project area is dominated by active agriculture, with farms and single-family residences generally occurring along the road frontage.

2.0 INTRODUCTION

Shadow flicker refers to the moving shadows that an operating wind turbine casts at times of the day when the turbine rotor is between the sun and a receptor's position. 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). During intervals of sunshine, wind turbine generators will cast a shadow on surrounding areas as the rotor blades pass in front of the sun, and if these moving shadows pass over a window they can cause a flickering effect. Shadow flicker does not occur when fog or clouds obscure the sun, or when turbines are not operating.

The distance between a wind turbine and a potential shadow-flicker receptor affects the intensity of the shadows cast by the blades, and therefore the intensity of flickering. Shadows cast close to a turbine will be more intense, distinct, and focused. This is because a greater proportion of the sun's disc is intermittently blocked by the turbine (BERR, 2009). Obstacles such as terrain, vegetation, and/or buildings occurring between receptors and wind turbines may significantly reduce or eliminate shadow-flicker effects. At distances beyond roughly 10 rotor diameters (approximately

1,620 meters based on the Vestas V162 turbine model) shadow-flicker effects are generally considered negligible (BERR, 2009; DECC, 2011; DOER, 2011).

The location and duration of shadow flicker can be predicted using computer modeling programs and input data regarding turbine characteristics and weather conditions. A "worst-case" shadow-flicker scenario could be predicted based on the assumptions that there are no clouds or fog, wind conditions allow continuous turbine operation, the turbine rotor is continuously perpendicular to the sun, and the turbine rotor is positioned between the receptor and the sun. However, this "worst–case" scenario is not realistic because turbines do not operate continuously, are not always aligned perpendicular to the sun, and are not always positioned between the receptor and the sun. In addition, sunlight intensity and duration vary daily and seasonally, and obstacles that block shadows (terrain, vegetation, and buildings) exist in the landscape.

3.0 METHODS

3.1 Shadow Flicker Analysis

This shadow flicker analysis evaluated the potential impact of 55 Vestas V162 turbines, each with a rotor diameter of 162 meters and a hub height of 119 meters. A maximum distance of potential effect of 1,620 meters (10 rotor diameters) was used for this analysis to ensure that all potentially impacted receptors were assessed.

The shadow flicker analysis for the proposed Project used *WindPRO 3.4* software and associated Shadow module. *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 55 proposed wind turbine sites (provided by the Applicant).
- The latitude and longitude coordinates of 969 potential residences located in the vicinity of the proposed turbines (provided by the Applicant).
- U.S. Geological Survey (USGS) 1:24,000 topographic mapping and USGS 10-meter resolution digital elevation model (DEM) data.
- The rotor diameter (162 meters) and hub height (119 meters) for the Vestas turbine model.
- Annual wind rose data (provided by Apex), which is depicted in Table A1 of Attachment A (to determine the approximate directional frequency of rotor orientation throughout the year).
- 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 Minneapolis – St. Paul,

Minnesota was used. Data were obtained from NOAA's "Comparative Climatic Data for the United States through 2015" (see Table A2 of Attachment A) (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).

Shadow-flicker effects on receptors are expressed in terms of predicted frequency (hours per year). Shadow isolines (i.e., contours indicating total number of hours of shadowing per average year) were calculated based on the data and assumptions outlined above. These isolines define the theoretical number of hours per year that shadow flicker would occur at any given location within a 1,620-meter radius of all proposed turbine locations (see Figure 3).

The model calculations include the cumulative sum of shadow flicker hours for all Project turbines. This omni-directional approach reports total shadow flicker results at a receptor regardless of the presence or orientation of windows at that particular 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 this "greenhouse" model is defined as a one square meter area located one meter above ground; actual house dimensions are not taken into consideration.

Because the shadow flicker analysis conducted for the proposed Project was based on the conservative assumptions that 1) all 55 turbine locations modeled will be built, 2) the turbines are in continuous operation during daylight hours, and 3) that shadow flicker can be perceived at a receptor structure regardless of the presence or orientation of windows or the screening effects of all surrounding trees and buildings, the analysis presented herein is a conservative projection of the shadow-flicker effects at ground level.

3.2 Shadow Flicker Threshold

No consistent national, state, county, or local standards exist for allowable frequency or duration of shadow flicker from wind turbines. The Minnesota Public Utilities Commission has not promulgated any standards on shadow flicker. A threshold of 30 shadow flicker hours per year was applied to the analysis of the proposed Project to identify any potentially significant impacts on non-participating receptors.

4.0 RESULTS

Output from the model includes the following information:

- Calculated shadow-flicker time (days per year, maximum hours per day, and total hours per year when shadow flicker is expected) at each of the 969 receptors.
- Tabulated and plotted time of day that structures are predicted to receive shadow flicker.
- 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 (see Figure 3).

These data are presented in the tables and calendars included in Attachment B.

A summary of the projected shadow flicker at each of the receptors is presented in Table 1 below.

Table 1. Summary of Projected Shadow Flicker

Hours/Year	Number of Receptors		
	Non-participants	Participants	Total
0	804	48	852
0 – 1	5	0	5
1 – 10	36	13	49
10 – 20	9	13	22
20 – 30	1	18	19
Over 30	0	22	22
Max Hours/Year	**20:19**	**59:11**	--

As these results indicate, 947 (98%) of the receptors are predicted to receive less than 30 hours of shadow flicker per year, with 906 (93%) of the receptors predicted to receive less than 10 hours of shadow flicker per year. At most receptor locations shadow flicker will occur primarily in the early morning or late afternoon. The maximum daily duration of shadow flicker predicted at any receptor is 2 hours and 10 minutes (at receptor 1, see Attachment B).

Attachment B provides the results of the predicted shadow flicker at each structure. 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 a table indicating the amount of shadow flicker expected at each receptor. For receptors over 30 hours, detailed calendars that illustrate the specific times of year and day that shadow flicker may occur are included within Attachment B. A table of results for all receptors is included as Attachment C.

5.0 DISCUSSION

As outlined above, results of the shadow flicker analysis for the Facility indicate that up to 22 receptors could experience more than 30 hours of shadow flicker per year. However, all of these receptors are located on properties owned by Project participants. The details regarding anticipated shadow flicker at all receptors predicted to receive in excess of 30 hours are summarized below in Table 2.

Table 2. Receptors Predicted to Exceed 30 Hours of Shadow Flicker Annually

Receptor ID	Project Status	Predicted Annual Shadow Flicker (hh:mm)[1]	Predicted Max Daily Shadow Flicker (hh:mm)[2]	Predicted Shadow Flicker (days/year)[1]
88	Participating	30:19	1:09	91
29	Participating	30:33	0:49	149
5	Participating	32:02	1:10	146
30	Participating	33:04	0:47	161
24	Participating	33:31	1:24	147
22	Participating	34:52	0:57	140
40	Participating	35:18	0:54	185
33	Participating	35:23	1:05	130
90	Participating	35:30	0:45	233
110	Participating	36:13	1:14	99
23	Participating	36:58	0:58	133
0	Participating	37:00	0:58	126
87	Participating	38:17	1:25	107
1	Participating	40:45	2:10	100
21	Participating	40:49	1:06	213
42	Participating	42:39	1:04	216
34	Participating	43:03	1:13	245
92	Participating	47:06	1:29	125
26	Participating	52:09	1:29	210
109	Participating	54:12	1:54	152
71	Participating	56:53	1:21	202
45	Participating	59:11	1:27	154

[1] Results do not account for the screening effect of trees, orientation of windows, hours of no turbine operation, or hours when turbines will be oriented to cast shadows away from the residences.

Although shadow flicker results presented in Table 1 theoretically exceed the 30-hour per year threshold, these calculations do not take into account the actual location and orientation of windows, or the screening effects associated with existing, site-specific conditions and obstacles such as trees (i.e., does not take into account the results of a viewshed analysis) and/or buildings. Further, this analysis assumes turbine rotors are continuously in motion and that each receptor location is occupied year-round.

Given these assumptions, the predicted shadow-flicker frequency represents a conservative scenario, and almost certainly 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. As the sun sinks below the horizon, more of its light is scattered by the atmosphere, which has the effect of dampening its brightness and therefore reducing its ability to cast dark shadows (EMD, 2013).

6.0 CONCLUSIONS

WindPRO predicted that 22 receptors will receive more than 30 hours/year of shadow flicker from the Project wind turbines. However, all of the receptors are located on properties owned by Project participants. More generally, the assumptions underlying the shadow flicker analysis are conservative. 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.

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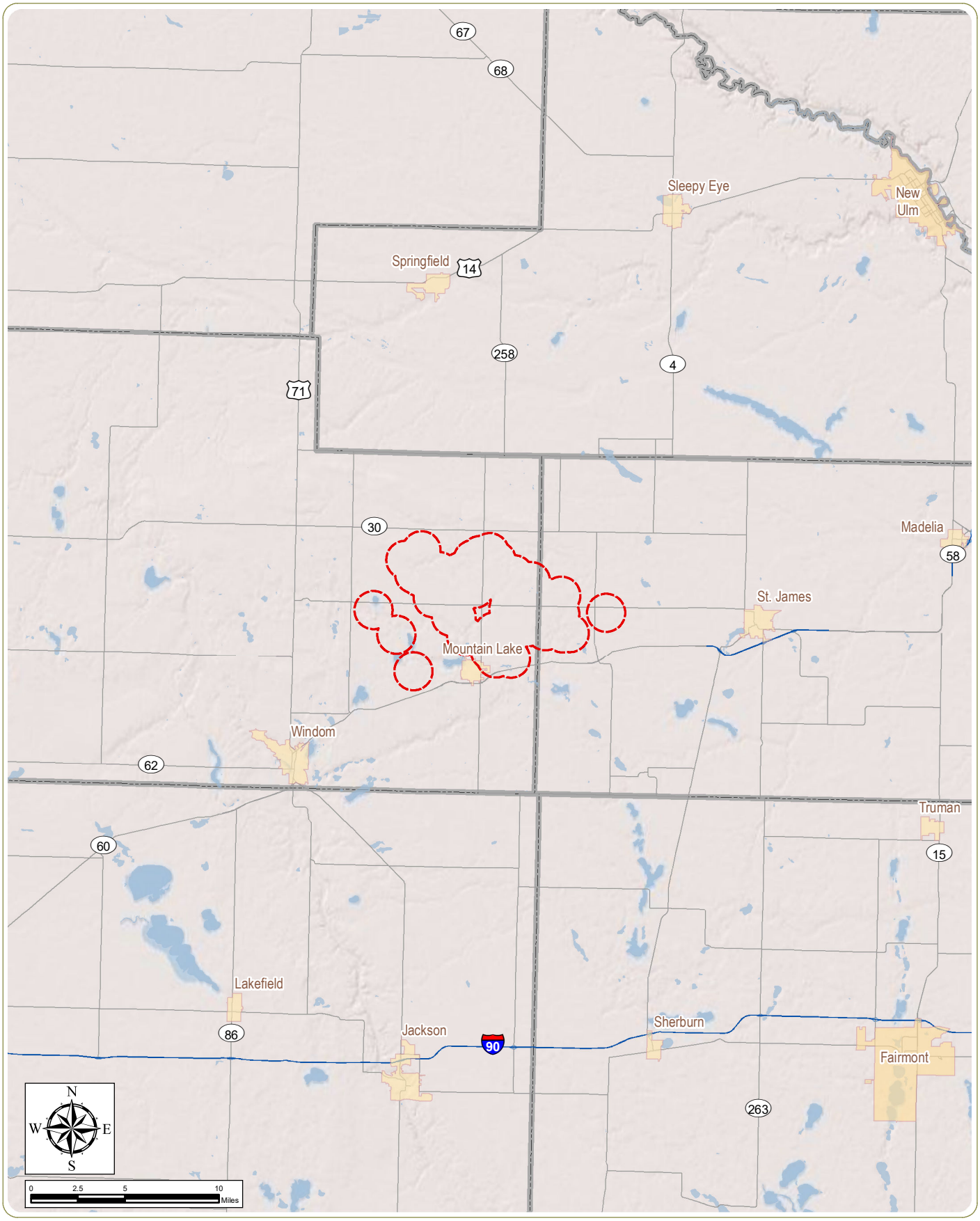
Figures

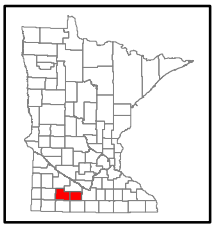


Big Bend Wind Farm

Cottonwood and Watonwan Counties, Minnesota

Figure 1. Regional Project Location

Project Area



Notes: 1. Basemap: ESRI ArcGIS Online "World Shaded Relief" Map Service and ESRI StreetMap North America, 2008. **2.** This map was generated in ArcMap on September 17, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Big Bend Wind Farm

Cottonwood County and Watonwan County, Minnesota

Figure 2: Proposed Turbine Layout

- Receptor
- Wind Turbine
- County Boundary

Notes: 1. Basemap: ESRI StreetMap North America, 2008. **2.** This map was generated in ArcMap on September 23, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

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Big Bend Wind Farm

Cottonwood County and Watonwan County, Minnesota

Figure 3: Projected Shadow Flicker

- Wind Turbine
- Participating Receptor > 30 hours/year
- Receptor < 30 hours/year
- County Boundary

Shadow Flicker Isoline
- 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

Notes: 1. Basemap: ESRI StreetMap North America, 2008. **2.** This map was generated in ArcMap on September 28, 2020. **3.** This is a color graphic. Reproduction in grayscale may misrepresent the data.

Shadow-flicker areas and isolines were created using WindPRO 3.4.388 software and associated Shadow module. The model is based on a "worst case" scenario where the model assumes that there are no clouds, the wind conditions allow for continuous turbine operation outside curtailment windows, the turbine is always directly between the receptor and the sun, and the turbine is always perpendicular to the sun. These calculations do not take into account the actual location and orientation of windows, or the screening effects associated with existing, site-specific conditions and obstacles such as trees and/or buildings.

0 0.5 1 2 Miles

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Attachment A

Wind Rose and Sunshine Data

Table A1. Wind Rose Data

SECTOR	N	NNE	NE	ENE	E	ESE	SE	SSE
Hours of Operation	443	319	239	233	293	348	457	639

SECTOR	S	SSW	SW	WSW	W	WNW	NW	NNW
Hours of Operation	825	587	609	452	526	847	1,159	782

Source: Wind rose data provided by Apex Clean Energy, LLC

Table A2. Sunshine Probability Data[1]

Month	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Sunshine Probability[2]	0.53	0.59	0.57	0.56	0.62	0.67	0.74	0.69	0.62	0.51	0.37	0.38

[1]Source: NOAA Comparative Climatic Data for the United States through 2015 – Minneapolis – St. Paul, Minnesota 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.

Attachment B

WindPRO Overview Reports and Calendars