

Attachment D

Shadow Flicker Analysis

Big Bend Wind, LLC
Docket No. IP-7013/WS-19-619
October 2025

Shadow Flicker Report

Big Bend Wind

Cottonwood and Watonwan Counties, Minnesota

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1.0 PROJECT OVERVIEW

Big Bend Wind, LLC (Big Bend or Applicant), an indirect subsidiary of Apex Clean Energy Holdings, LLC (Apex), is proposing to construct a wind energy generation facility, including up to 51 turbines and associated necessary project infrastructure, in Cottonwood County and Watonwan County, 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.

Two wind turbine models are being considered for the Project (see Table 1). Therefore, this analysis evaluated the potential shadow flicker for each turbine model. Each wind turbine consists of three major mechanical components: the tower, nacelle, and rotor. The dimensions for both wind turbine models under consideration for the Project are provided in Table 1. The Project's turbine layout is depicted in Figure 2.

Table 1. Big Bend Wind Turbine Model Characteristics

Turbine Model	Hub Height	Rotor Diameter	Total Height
Vestas V162	119 meters (390 feet)	162 meters (531 feet)	200 meters (656 feet)
GE 158	117 meters (384 feet)	158 meters (518 feet)	196 meters (643 feet)

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 PROJECT UPDATES

EDR completed Shadow Flicker Reports in September 2021 (2021 Reports) that was included in the Big Bend Site Permit Amendment filing with the Minnesota Public Utilities Commission (MPUC). The MPUC approved the Project in September 2022. The 2021 Reports evaluated 53 turbine locations and three turbine models. EDR is providing this updated and simplified shadow flicker report (2025 Report) that reflects 51 turbine locations and two turbine models. Since the 2021 Reports, the Project has dropped two (2) turbine locations from consideration and there have been changes in receptors.

3.0 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 structure'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 structure 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 structures and wind turbines may significantly reduce or eliminate shadow-flicker effects. At distances beyond roughly 10 rotor diameters 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. An "expected case" shadow flicker scenario is presented in this report based on a combination of real case data and conservative assumptions. The expected case aspects include sunshine frequency weather data (inclusion of percentage of monthly sunshine) and turbine rotor position (on-site wind direction data), while conservatively assumes that wind conditions allow continuous turbine operation. In addition, sunlight intensity and duration vary daily and seasonally, and obstacles that block shadows (terrain, vegetation, and buildings) exist in the landscape; these factors are not considered in the modeling, adding additional conservative measures.

4.0 METHODS

4.1 Shadow Flicker Analysis

This shadow flicker analysis evaluated the potential impact of 51 wind turbines for the two different turbine models listed in Table 1. A maximum distance of potential effect of 10 rotor diameters based on the wind turbine model (1,620 meters for the Vestas V162 and 1,580 meters for the GE 158) was used for these analyses to ensure that all potentially impacted residences were assessed.

The shadow flicker analysis for the proposed Project used *WindPRO 4.1* 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 51 proposed wind turbine sites (provided by the Applicant).
- The latitude and longitude coordinates of 973 potential residences located in the vicinity of the proposed turbines (provided by the Applicant).
- USGS DEM Elevation Data.
- The rotor diameter and hub height for both turbine models under consideration.
- 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).

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) the turbines are in continuous operation during daylight hours, and 2) 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.

4.2 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.

5.0 RESULTS

Output from the model includes the following information:

- Calculated shadow-flicker time (total hours per year when shadow flicker is expected) at each of the 973 residences.
- 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 Figures 3 and 4).

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

A summary of the projected shadow flicker at each of the receptors is presented in Table 2 below

Table 2. Summary of Expected Shadow Flicker

Hours/Year	Number of Receptors		
	Non-Participating Residence	Participating Residence	Total
<i>V162 with 119-meter hub height</i>			
0	800	58	858
0 – 1	5	0	5
1 – 10	37	11	48
10 – 20	9	13	22
20 – 30	3	18	21
Over 30	0	19	19
Max Hours/Year	25:36	59:00	--
<i>GE158 with 117-meter hub height</i>			
0	807	59	866
0 – 1	6	0	6
1 – 10	29	11	40
10 – 20	10	16	26
20 – 30	2	17	19
Over 30	0	16	16
Max Hours/Year	24:04	57:02	--

As these results indicate, all non-participating residences are modeled to receive less than 30 hours of shadow flicker per year for both turbine models (V162 and GE158). At most receptor locations, shadow flicker will occur primarily in the early morning or late afternoon.

Attachment B provides the results of the predicted shadow flicker at each receptor. 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.

6.0 DISCUSSION

As outlined above, results of the shadow flicker analysis for the Project indicate that no non-participating residences are modeled to receive over 30 hours of shadow flicker per year.

In addition, the shadow flicker calculations presented herein 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 too low on the horizon and the distance to the sun becomes too long, the shadow dissipates before it reaches the ground (or the receptor) (EMD, 2021).

7.0 CONCLUSIONS

WindPRO predicted that 19 receptors will receive more than 30 hours/year of shadow flicker under the Vestas V162 scenario and 16 receptors will receive more than 30 hours/year of shadow flicker under the GE158 scenario from the Project. However, all of the receptors modeled to receive more than 30 hours/year 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.

8.0 REFERENCES

Business Enterprise & Regulatory Reform (BERR). 2009. *Onshore Wind: Shadow Flicker* [website]. Available at: <http://webarchive.nationalarchives.gov.uk/20081013085503/http://www.berr.gov.uk/whatwedo/energy/sources/renewables/planning/onshore-wind/shadow-flicker/page18736.html> (Accessed September 2019). United Kingdom Department for Business Enterprise and Regulatory Reform.

Department of Energy and Climate Change (DECC). 2011. *Update of UK Shadow Flicker Evidence Base: Final Report*. Parsons Brinckerhoff, London, UK, p. 5.

Massachusetts Department of Energy Resources (DOER). 2011. Model Amendment to a Zoning Ordinance or By-law: Allowing Conditional Use of Wind Energy Facilities. Available at: <http://www.mass.gov/eea/docs/doer/gca/wind-not-by-right-bylaw-june13-2011.pdf> (Accessed September 2019).

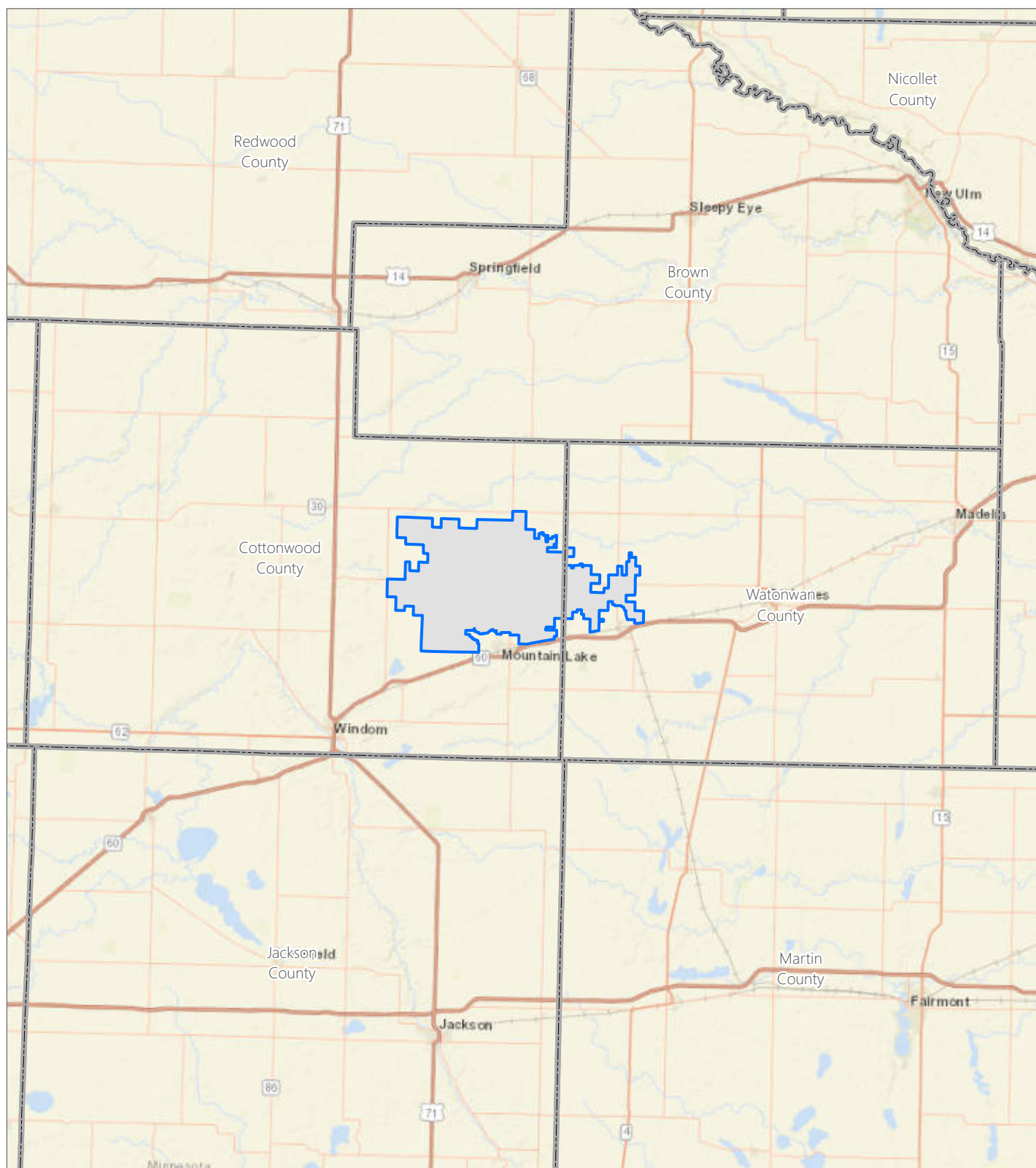
EMD. 2013. *WindPRO 2.8 User Manual*. Available at: <http://help.emd.dk/knowledgebase/> (Accessed September 2019).

States Committee for Pollution Control – Nordrhein-Westfalen, 2002. Notes on the Identification and Evaluation of the Optical Emissions of Wind Turbines. Available at: http://www.umwelt.sachsen.de/umwelt/download/laerm_licht_mobilfunk/WEA-Schattenwurf-Hinweise_LAI.pdf (Accessed September 2019).

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

FIGURES

Figure 1. Regional Project Location

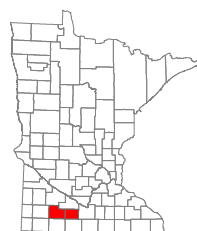


Big Bend Wind Project

Cottonwood and Watonwan Counties, Minnesota

Shadow Flicker Analysis

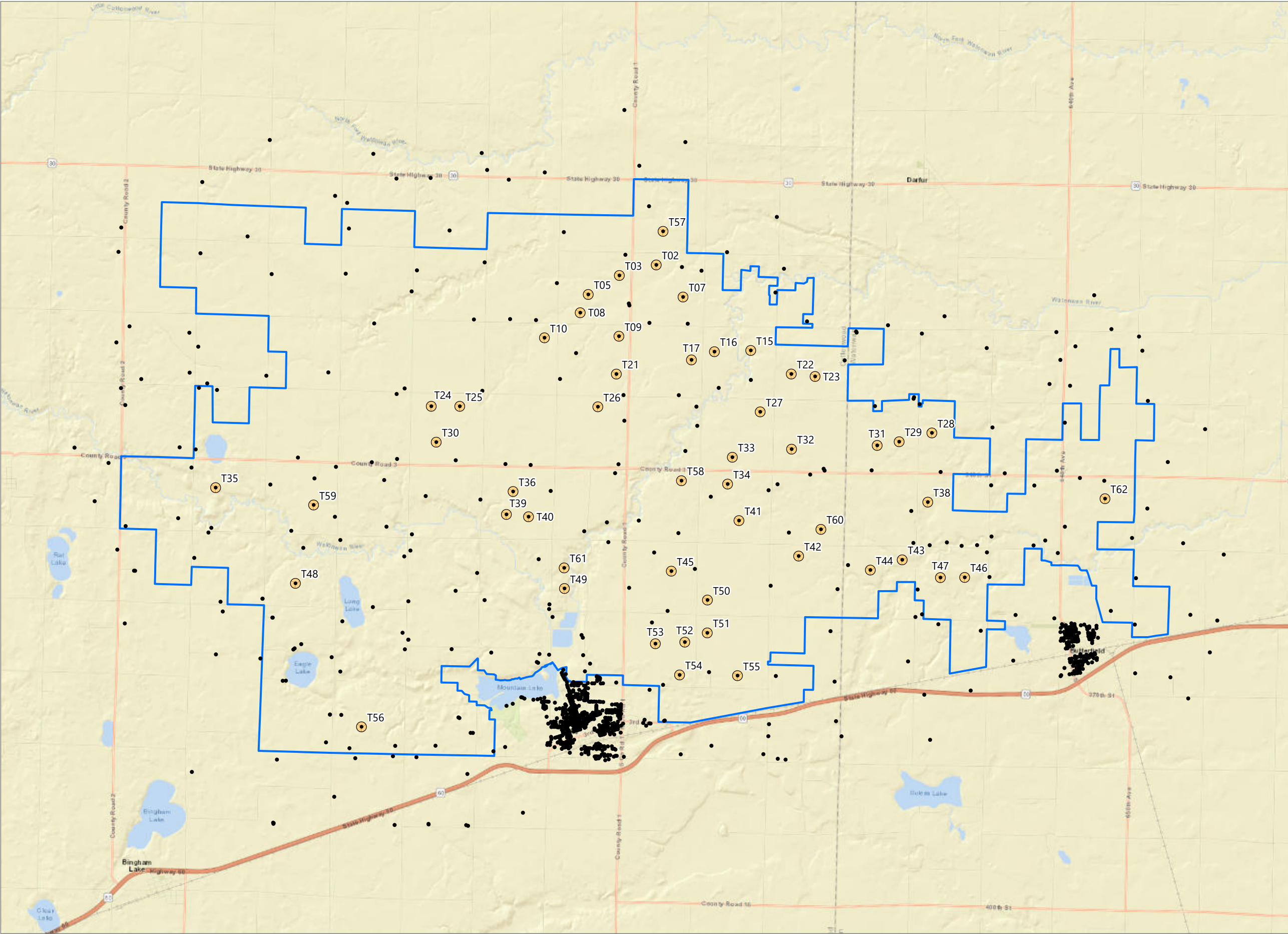
 Project Boundary



0 2.5 5 10
Miles

Prepared September 24, 2025
Basemap: Esri "World Street Map" map service

Figure 2. Proposed Project Layout

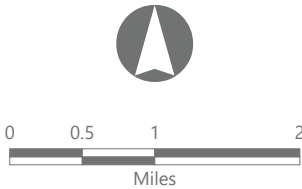


Big Bend Wind Project

Cottonwood and Watonwan
Counties, Minnesota

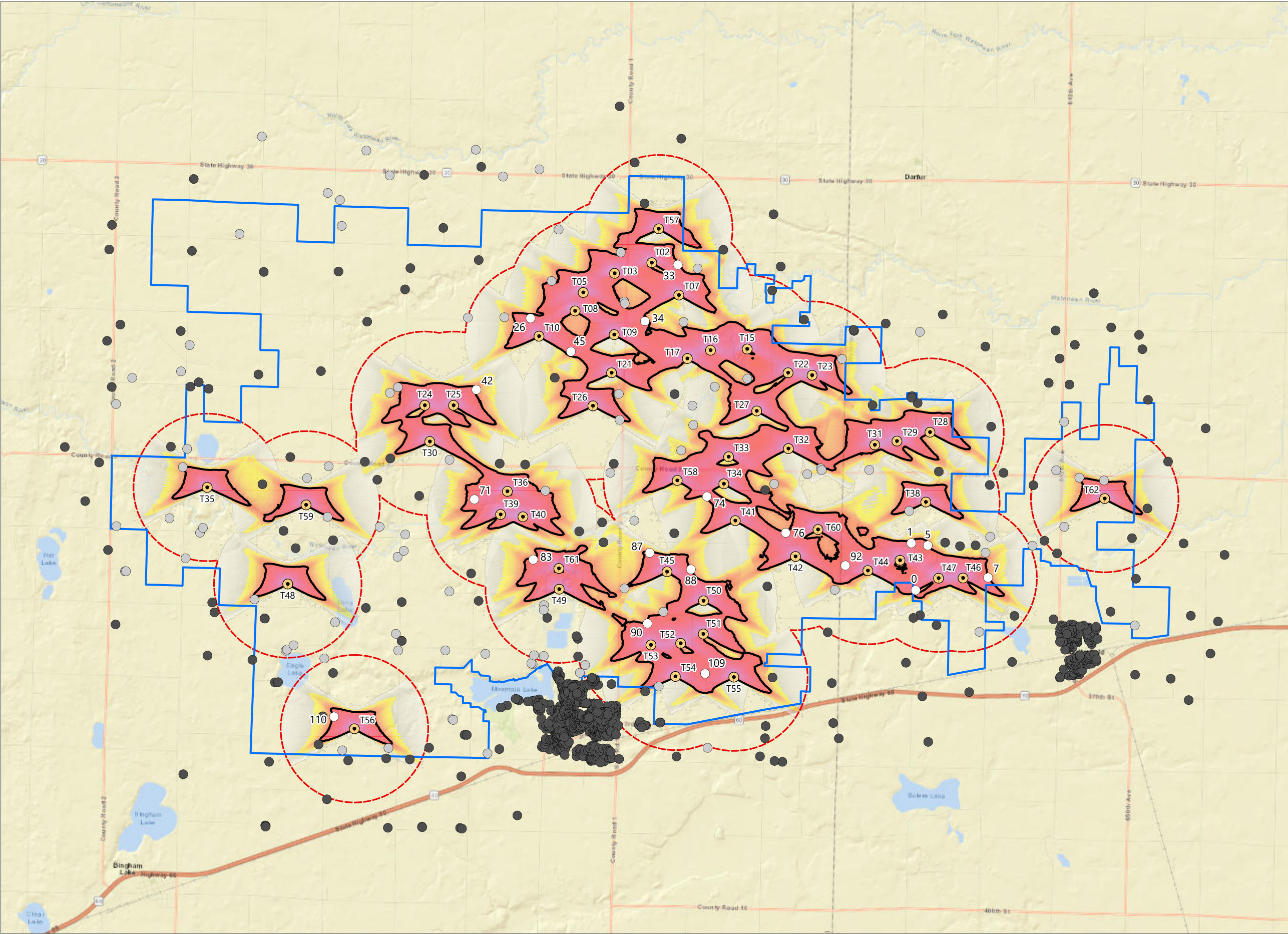
Shadow Flicker Analysis

- Wind Turbine
- Receptor
- Project Boundary



Prepared September 29, 2025
Basemap: Esri "World Street Map" map service

Figure 3. Projected Shadow Flicker – Vestas V162



Big Bend Wind Project

Cottonwood and Watonwan
Counties, Minnesota

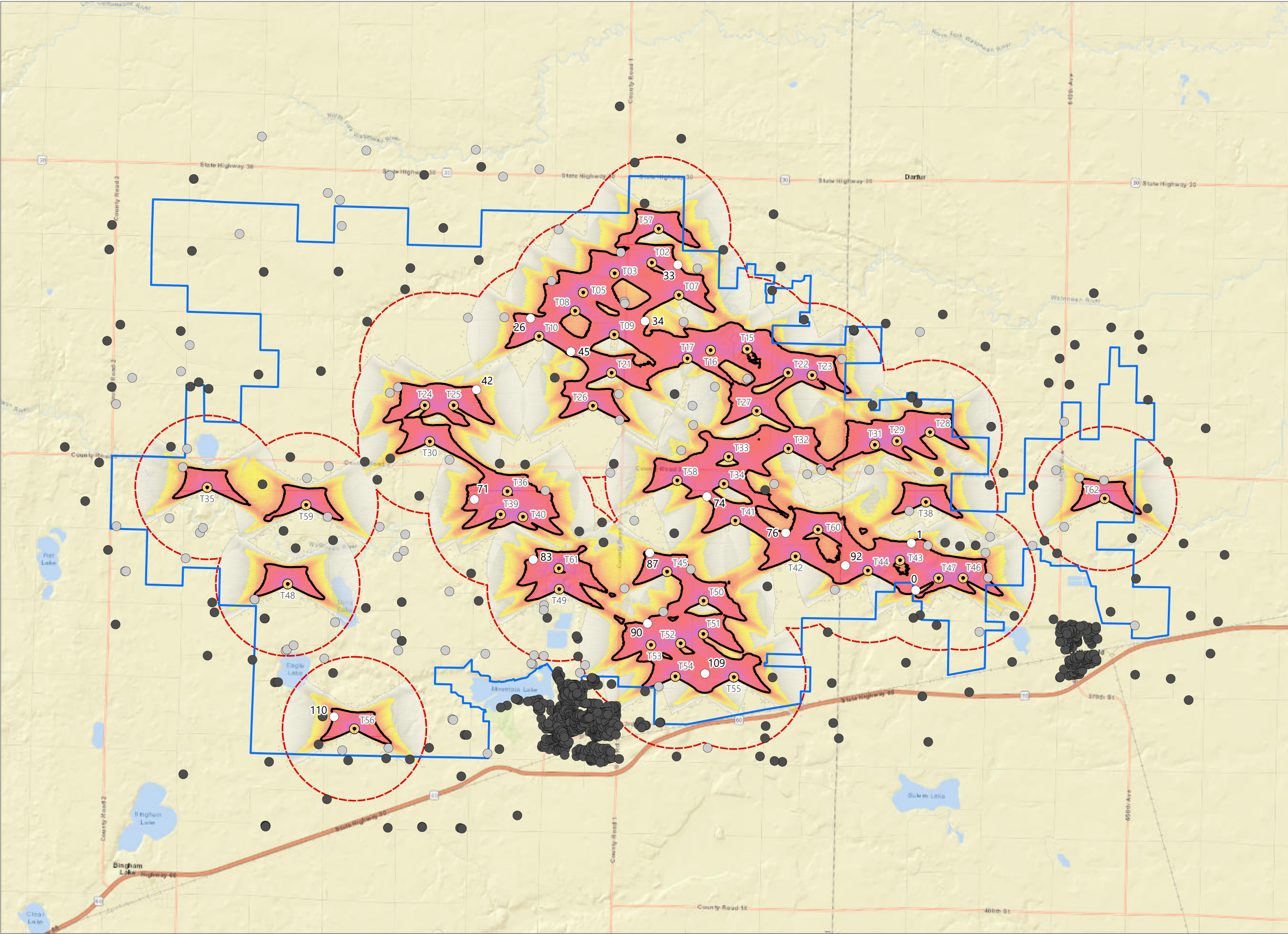
Shadow Flicker Analysis

- Wind Turbine
- Non-Participating Residence < 30 hours/year
- Participating Residence < 30 hours/year
- Participating Residence > 30 hours/year
- Project Boundary
- 1,620-Meter Study Area
- Shadow Flicker Isoline
 - 30 hours/year
- Shadow Flicker (hours/year)
 - < 1
 - 1 - 10
 - 10 - 20
 - 20 - 30
 - > 30



Prepared September 29, 2025
Basemap: Esri "World Street Map" map service

Figure 4. Projected Shadow Flicker – GE 158



Big Bend Wind Project

Cottonwood and Watonwan
Counties, Minnesota

Shadow Flicker Analysis

- Wind Turbine
- Non-Participating Residence < 30 Hours/Year
- Participating Residence < 30 Hours/Year
- Participating Residence > 30 hours/year
- Project Boundary
- 1,580-Meter Study Area
- Shadow Flicker Isolines
 - 30 hours/year
- Shadow Flicker (hours/year)
 - < 1
 - 1 - 10
 - 10 - 20
 - 20 - 30
 - > 30



Prepared September 29, 2025
Basemap: Esri "World Street Map" map service

ATTACHMENT A
Windrose and Sunshine Data

Table A1. Wind Rose Data

SECTOR	N	NNE	NE	ENE	E	ESE	SE	SSE
Frequency	5.06	3.64	2.73	2.66	3.35	3.97	5.22	7.29
Hours of Operation	443	319	239	233	293	348	457	639

SECTOR	S	SSW	SW	WSW	W	WNW	NW	NNW
Frequency	9.42	6.70	6.95	5.16	6.00	9.67	13.23	8.93
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

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

Source: NOAA Comparative Climatic Data for the United States through 2018 – St. Paul, Minnesota. 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

Tabular Shadow Flicker Results

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
0	Participating	352523	4870126	44:22	41:27
1	Participating	352429	4871159	40:19	37:59
2	Participating	352382	4871867	19:40	18:49
3	Participating	351503	4872768	4:04	3:50
4	Non-participating	352444	4874389	0:00	0:00
5	Participating	352790	4871108	31:18	29:48
6	Participating	353923	4869212	0:00	0:00
7	Participating	354115	4870403	31:32	29:58
8	Participating	354060	4870950	16:57	15:47
9	Participating	354160	4871301	14:59	4:48
10	Participating	355786	4873825	0:00	0:00
11	Participating	355611	4872760	6:06	5:42
12	Participating	355788	4871518	0:00	0:00
13	Participating	355093	4871103	0:00	0:00
14	Participating	357338	4869349	0:00	0:00
15	Participating	356120	4872599	26:29	25:28
16	Participating	356660	4872537	21:57	19:23
17	Participating	337669	4877954	0:00	0:00
18	Participating	339916	4878129	0:00	0:00
19	Participating	344680	4878049	6:14	5:55
20	Non-participating	338203	4877119	0:00	0:00
21	Non-participating	339845	4877128	0:00	0:00
22	Non-participating	341306	4876736	0:00	0:00
23	Non-participating	341423	4877202	0:00	0:00
24	Participating	342686	4876113	2:11	0:00
25	Participating	344526	4876919	26:35	24:47
26	Participating	344063	4876099	53:07	50:04
27	Participating	343489	4876121	15:27	14:45
28	Participating	346045	4877547	29:27	21:33
29	Participating	346121	4876467	25:52	24:26
30	Participating	346133	4876425	27:01	25:34
32	Participating	347732	4877194	14:02	12:40
33	Participating	347298	4877275	35:24	33:35
34	Participating	346577	4876037	39:57	37:41
35	Participating	347426	4876019	20:42	19:30
36	Non-participating	351171	4875823	0:00	0:00
37	Non-participating	351159	4875846	0:00	0:00
38	Non-participating	336591	4874598	0:00	0:00
39	Participating	340973	4874461	16:31	15:44
40	Participating	341151	4874584	26:13	25:00
41	Non-participating	340476	4876025	0:00	0:00
42	Participating	342874	4874531	31:35	30:11
44	Participating	346003	4874437	19:49	18:54
45	Participating	344951	4875368	59:00	57:02
46	Non-participating	347229	4874434	5:40	5:17
47	Participating	348113	4874596	8:50	8:25
48	Participating	348826	4874772	21:40	20:31
49	Participating	350906	4875206	19:30	18:35

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
50	Participating	336518	4873233	0:00	0:00
51	Participating	336426	4872830	28:24	27:16
52	Participating	339628	4872846	0:00	0:00
53	Participating	339152	4872589	0:00	0:00
54	Participating	342284	4872991	3:55	3:41
55	Non-participating	343385	4872908	4:02	0:00
56	Participating	346021	4873868	26:57	26:15
57	Participating	347619	4874180	3:39	3:26
58	Participating	347637	4873755	17:24	16:37
59	Participating	347374	4873197	18:23	17:31
60	Participating	350141	4872674	0:00	0:00
61	Participating	350439	4872803	23:17	22:26
62	Participating	350460	4872763	15:50	15:19
63	Participating	334966	4871532	0:00	0:00
64	Participating	336130	4871707	0:00	0:00
65	Participating	336802	4871389	0:00	0:00
66	Participating	336866	4871494	0:00	0:00
68	Participating	339605	4871738	24:40	23:53
69	Participating	340748	4871519	0:00	0:00
70	Participating	341312	4871350	0:00	0:00
71	Participating	342830	4872120	56:17	52:52
72	Participating	344389	4872311	27:36	25:48
73	Participating	346342	4871655	0:00	0:00
74	Participating	347938	4872183	43:37	42:14
75	Participating	349417	4872460	19:39	18:16
76	Participating	349669	4871388	33:34	30:25
77	Participating	336487	4870827	0:00	0:00
78	Participating	338000	4869923	20:10	19:38
79	Participating	338000	4869923	20:10	19:38
80	Participating	341142	4870860	0:00	0:00
81	Participating	341279	4870990	0:00	0:00
82	Participating	342281	4870098	0:00	0:00
83	Participating	344122	4870798	34:30	32:30
84	Participating	344360	4869798	0:00	0:00
85	Participating	344353	4869692	0:00	0:00
86	Participating	346127	4870164	28:14	27:04
87	Participating	346682	4870947	37:43	33:08
88	Participating	347586	4870582	30:19	28:50
89	Participating	346980	4869652	25:41	24:18
90	Participating	346633	4869395	34:51	30:45
91	Participating	350747	4870134	9:54	9:32
92	Participating	350980	4870668	47:04	44:40
93	Participating	338684	4868796	0:00	0:00
94	Participating	338712	4868821	0:00	0:00
95	Participating	338858	4868915	0:00	0:00
96	Participating	339533	4868625	0:00	0:00
97	Participating	339769	4869422	0:00	0:00
98	Participating	341105	4869168	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
99	Participating	341155	4868800	0:00	0:00
100	Participating	342192	4868804	0:00	0:00
101	Participating	343071	4868728	0:00	0:00
102	Participating	344109	4868502	0:00	0:00
103	Participating	344081	4868518	0:00	0:00
104	Participating	344140	4868696	0:00	0:00
105	Participating	344353	4868681	0:00	0:00
106	Participating	345261	4868483	4:34	4:18
107	Participating	345147	4868312	0:00	0:00
108	Participating	346879	4868012	2:21	1:47
109	Participating	347898	4868294	54:21	51:50
110	Participating	339746	4867346	34:01	32:29
111	Participating	339927	4866608	0:00	0:00
112	Participating	340942	4866660	16:32	16:06
113	Participating	342343	4867290	0:00	0:00
114	Participating	342365	4867276	0:00	0:00
115	Participating	343118	4866540	0:00	0:00
116	Non-participating	347271	4866472	0:00	0:00
117	Participating	347952	4866662	0:00	0:00
118	Non-participating	352799	4866793	0:00	0:00
119	Non-participating	350835	4866871	0:00	0:00
120	Non-participating	349595	4866355	0:00	0:00
121	Non-participating	349422	4866374	0:00	0:00
122	Non-participating	349103	4866475	0:00	0:00
123	Non-participating	349213	4866873	0:00	0:00
124	Non-participating	349228	4867141	0:00	0:00
125	Non-participating	350713	4867207	0:00	0:00
126	Non-participating	352670	4867794	0:00	0:00
127	Non-participating	353699	4867885	0:00	0:00
128	Non-participating	352311	4868532	0:00	0:00
129	Non-participating	350682	4868084	0:00	0:00
130	Non-participating	352982	4869356	0:00	0:00
131	Non-participating	350592	4869202	0:00	0:00
132	Non-participating	346440	4867166	0:00	0:00
133	Non-participating	346470	4867238	0:00	0:00
134	Non-participating	345927	4867324	0:00	0:00
135	Non-participating	345925	4867282	0:00	0:00
136	Non-participating	345907	4867282	0:00	0:00
137	Non-participating	345913	4867372	0:00	0:00
138	Non-participating	345950	4867371	0:00	0:00
139	Non-participating	345940	4867443	0:21	0:17
140	Non-participating	345907	4867442	1:00	0:55
141	Non-participating	345865	4867455	2:35	0:00
142	Non-participating	345847	4867444	2:29	0:00
143	Non-participating	345820	4867444	0:00	0:00
144	Non-participating	345860	4867395	0:14	0:00
145	Non-participating	345824	4867406	0:00	0:00
146	Non-participating	345879	4867329	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
147	Non-participating	345930	4867261	0:00	0:00
148	Non-participating	345942	4867487	2:15	2:07
149	Non-participating	345944	4867530	4:42	4:33
150	Non-participating	345945	4867560	6:37	6:27
151	Non-participating	345946	4867582	8:06	7:50
152	Non-participating	345912	4867536	5:56	5:44
153	Non-participating	345886	4867537	6:42	6:30
154	Non-participating	345861	4867583	9:24	9:04
155	Non-participating	345819	4867579	9:09	8:44
156	Non-participating	345748	4867576	0:00	0:00
157	Non-participating	345815	4867464	0:00	0:00
158	Non-participating	346580	4867902	17:26	16:58
159	Non-participating	352621	4869576	0:00	0:00
160	Non-participating	351577	4874192	15:54	14:59
161	Non-participating	335051	4875960	0:00	0:00
162	Non-participating	349402	4878386	0:00	0:00
164	Non-participating	343773	4865177	0:00	0:00
165	Non-participating	342515	4864903	0:00	0:00
166	Non-participating	342556	4864887	0:00	0:00
167	Non-participating	344750	4866880	0:00	0:00
168	Non-participating	344826	4866883	0:00	0:00
169	Non-participating	344835	4866860	0:00	0:00
170	Non-participating	344751	4866843	0:00	0:00
171	Non-participating	344543	4866734	0:00	0:00
172	Non-participating	344570	4866748	0:00	0:00
173	Non-participating	344610	4866766	0:00	0:00
174	Non-participating	344475	4866630	0:00	0:00
175	Non-participating	344609	4866705	0:00	0:00
176	Non-participating	344635	4866594	0:00	0:00
177	Non-participating	344665	4866665	0:00	0:00
178	Non-participating	344668	4866729	0:00	0:00
179	Non-participating	344688	4866662	0:00	0:00
180	Non-participating	344731	4866747	0:00	0:00
181	Non-participating	344712	4866671	0:00	0:00
182	Non-participating	344732	4866678	0:00	0:00
183	Non-participating	344756	4866692	0:00	0:00
184	Non-participating	344694	4866622	0:00	0:00
185	Non-participating	344728	4866632	0:00	0:00
186	Non-participating	344759	4866635	0:00	0:00
187	Non-participating	344811	4866658	0:00	0:00
188	Non-participating	344797	4866711	0:00	0:00
189	Non-participating	344785	4866604	0:00	0:00
190	Non-participating	344828	4866711	0:00	0:00
191	Non-participating	344878	4866732	0:00	0:00
192	Non-participating	344823	4866637	0:00	0:00
193	Non-participating	344772	4866770	0:00	0:00
194	Non-participating	344788	4866774	0:00	0:00
195	Non-participating	344824	4866785	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
196	Non-participating	344846	4866783	0:00	0:00
197	Non-participating	344837	4866739	0:00	0:00
198	Non-participating	344863	4866753	0:00	0:00
199	Non-participating	344794	4866823	0:00	0:00
200	Non-participating	344907	4866794	0:00	0:00
201	Non-participating	344593	4866823	0:00	0:00
202	Non-participating	344902	4866980	0:00	0:00
203	Non-participating	344898	4867036	0:00	0:00
204	Non-participating	344758	4867070	0:00	0:00
205	Non-participating	344832	4867143	0:00	0:00
206	Non-participating	344811	4867135	0:00	0:00
207	Non-participating	344787	4867127	0:00	0:00
208	Non-participating	344744	4867116	0:00	0:00
209	Non-participating	344722	4867109	0:00	0:00
210	Non-participating	344701	4867101	0:00	0:00
211	Non-participating	344681	4867093	0:00	0:00
212	Non-participating	344959	4866998	0:00	0:00
213	Non-participating	344953	4867020	0:00	0:00
214	Non-participating	344946	4867052	0:00	0:00
215	Non-participating	344930	4867105	0:00	0:00
216	Non-participating	344923	4867124	0:00	0:00
217	Non-participating	344916	4867138	0:00	0:00
218	Non-participating	344912	4867161	0:00	0:00
219	Non-participating	344865	4867161	0:00	0:00
220	Non-participating	344867	4867146	0:00	0:00
221	Non-participating	344873	4867132	0:00	0:00
222	Non-participating	344881	4867110	0:00	0:00
223	Non-participating	344908	4867176	0:00	0:00
224	Non-participating	344892	4867214	0:00	0:00
225	Non-participating	344772	4867174	0:00	0:00
226	Non-participating	344814	4867192	0:00	0:00
227	Non-participating	344850	4867198	0:00	0:00
228	Non-participating	344833	4867234	0:00	0:00
229	Non-participating	344877	4867252	0:00	0:00
230	Non-participating	344870	4867273	0:00	0:00
231	Non-participating	344829	4867261	0:00	0:00
232	Non-participating	344816	4867301	0:00	0:00
233	Non-participating	344862	4867296	0:00	0:00
234	Non-participating	345372	4867332	0:00	0:00
235	Non-participating	345349	4867253	0:00	0:00
236	Non-participating	345407	4867339	0:00	0:00
237	Non-participating	345281	4867351	0:00	0:00
238	Non-participating	345325	4867370	0:00	0:00
239	Non-participating	345320	4867395	0:00	0:00
240	Non-participating	345354	4867384	0:00	0:00
241	Non-participating	345402	4867392	0:00	0:00
242	Non-participating	345431	4867404	0:00	0:00
243	Non-participating	345396	4867421	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
244	Non-participating	345400	4867448	0:00	0:00
245	Non-participating	345402	4867474	0:00	0:00
246	Non-participating	345399	4867503	0:00	0:00
247	Non-participating	345401	4867530	0:00	0:00
248	Non-participating	345401	4867554	0:00	0:00
249	Non-participating	345460	4867413	0:00	0:00
250	Non-participating	345434	4867349	0:00	0:00
251	Non-participating	345465	4867362	0:00	0:00
252	Non-participating	345487	4867372	0:00	0:00
253	Non-participating	345360	4867046	0:00	0:00
254	Non-participating	345362	4867014	0:00	0:00
255	Non-participating	345422	4866985	0:00	0:00
256	Non-participating	345466	4867118	0:00	0:00
257	Non-participating	345444	4866998	0:00	0:00
258	Non-participating	345451	4866969	0:00	0:00
259	Non-participating	345481	4867010	0:00	0:00
260	Non-participating	345470	4866934	0:00	0:00
261	Non-participating	345489	4866945	0:00	0:00
262	Non-participating	345506	4866950	0:00	0:00
263	Non-participating	345522	4867027	0:00	0:00
264	Non-participating	345484	4867063	0:00	0:00
265	Non-participating	345530	4866958	0:00	0:00
266	Non-participating	345516	4867070	0:00	0:00
267	Non-participating	345556	4867036	0:00	0:00
268	Non-participating	345574	4866969	0:00	0:00
269	Non-participating	345484	4866894	0:00	0:00
270	Non-participating	345515	4866902	0:00	0:00
271	Non-participating	345535	4866911	0:00	0:00
272	Non-participating	345550	4866912	0:00	0:00
273	Non-participating	345570	4866916	0:00	0:00
274	Non-participating	345591	4866928	0:00	0:00
275	Non-participating	345586	4867044	0:00	0:00
276	Non-participating	345594	4866983	0:00	0:00
277	Non-participating	345546	4867080	0:00	0:00
278	Non-participating	345570	4867093	0:00	0:00
279	Non-participating	345615	4867105	0:00	0:00
280	Non-participating	345545	4867110	0:00	0:00
281	Non-participating	345573	4867116	0:00	0:00
282	Non-participating	345612	4867051	0:00	0:00
283	Non-participating	345618	4866994	0:00	0:00
284	Non-participating	345663	4867004	0:00	0:00
285	Non-participating	345652	4867042	0:00	0:00
286	Non-participating	345663	4867071	0:00	0:00
287	Non-participating	345688	4866966	0:00	0:00
288	Non-participating	345706	4866917	0:00	0:00
289	Non-participating	345704	4867048	0:00	0:00
290	Non-participating	345754	4867031	0:00	0:00
291	Non-participating	345780	4866997	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
292	Non-participating	345798	4867004	0:00	0:00
293	Non-participating	345768	4867037	0:00	0:00
294	Non-participating	345797	4866912	0:00	0:00
295	Non-participating	345734	4866956	0:00	0:00
296	Non-participating	345551	4867201	0:00	0:00
297	Non-participating	345598	4867165	0:00	0:00
298	Non-participating	345599	4867217	0:00	0:00
299	Non-participating	345627	4867227	0:00	0:00
300	Non-participating	345656	4867232	0:00	0:00
301	Non-participating	345646	4867177	0:00	0:00
302	Non-participating	345637	4867115	0:00	0:00
303	Non-participating	345679	4867151	0:00	0:00
304	Non-participating	345713	4867279	0:00	0:00
305	Non-participating	345669	4867279	0:00	0:00
306	Non-participating	345619	4867282	0:00	0:00
307	Non-participating	345598	4867284	0:00	0:00
308	Non-participating	345748	4867149	0:00	0:00
309	Non-participating	345759	4867103	0:00	0:00
310	Non-participating	345713	4867238	0:00	0:00
311	Non-participating	345793	4867164	0:00	0:00
312	Non-participating	345805	4867122	0:00	0:00
313	Non-participating	345796	4867094	0:00	0:00
314	Non-participating	345865	4867137	0:00	0:00
315	Non-participating	345839	4867129	0:00	0:00
316	Non-participating	345821	4867055	0:00	0:00
317	Non-participating	345805	4867048	0:00	0:00
318	Non-participating	345893	4867086	0:00	0:00
319	Non-participating	345879	4867199	0:00	0:00
320	Non-participating	345948	4867109	0:00	0:00
321	Non-participating	345993	4867152	0:00	0:00
322	Non-participating	345878	4867027	0:00	0:00
323	Non-participating	345827	4867019	0:00	0:00
324	Non-participating	345940	4866954	0:00	0:00
325	Non-participating	345632	4867452	0:00	0:00
326	Non-participating	345654	4867450	0:00	0:00
327	Non-participating	345674	4867448	0:00	0:00
328	Non-participating	345699	4867449	0:00	0:00
329	Non-participating	345729	4867451	0:00	0:00
330	Non-participating	345755	4867451	0:00	0:00
331	Non-participating	345624	4867398	0:00	0:00
332	Non-participating	345682	4867399	0:00	0:00
333	Non-participating	345735	4867396	0:00	0:00
334	Non-participating	345763	4867394	0:00	0:00
335	Non-participating	345536	4867445	0:00	0:00
336	Non-participating	344813	4866507	0:00	0:00
337	Non-participating	345073	4866480	0:00	0:00
338	Non-participating	345073	4866588	0:00	0:00
339	Non-participating	345155	4866517	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
340	Non-participating	345154	4866577	0:00	0:00
341	Non-participating	345177	4866551	0:00	0:00
342	Non-participating	345230	4866608	0:00	0:00
343	Non-participating	345138	4866641	0:00	0:00
344	Non-participating	345175	4866616	0:00	0:00
345	Non-participating	345223	4866546	0:00	0:00
346	Non-participating	345224	4866505	0:00	0:00
347	Non-participating	345225	4866474	0:00	0:00
348	Non-participating	345263	4866608	0:00	0:00
349	Non-participating	345325	4866601	0:00	0:00
350	Non-participating	345389	4866375	0:00	0:00
351	Non-participating	345415	4866380	0:00	0:00
352	Non-participating	345452	4866384	0:00	0:00
353	Non-participating	345363	4866423	0:00	0:00
354	Non-participating	345387	4866425	0:00	0:00
355	Non-participating	345409	4866426	0:00	0:00
356	Non-participating	345444	4866424	0:00	0:00
357	Non-participating	345406	4866588	0:00	0:00
358	Non-participating	345484	4866422	0:00	0:00
359	Non-participating	345516	4866464	0:00	0:00
360	Non-participating	345542	4866483	0:00	0:00
361	Non-participating	345582	4866473	0:00	0:00
362	Non-participating	345581	4866431	0:00	0:00
363	Non-participating	345658	4866458	0:00	0:00
364	Non-participating	345648	4866439	0:00	0:00
365	Non-participating	345675	4866361	0:00	0:00
366	Non-participating	345708	4866454	0:00	0:00
367	Non-participating	345789	4866420	0:00	0:00
368	Non-participating	345821	4866437	0:00	0:00
369	Non-participating	345852	4866438	0:00	0:00
370	Non-participating	346010	4866417	0:00	0:00
371	Non-participating	345385	4866659	0:00	0:00
372	Non-participating	345361	4866653	0:00	0:00
373	Non-participating	345444	4866656	0:00	0:00
374	Non-participating	345394	4866700	0:00	0:00
375	Non-participating	345445	4866712	0:00	0:00
376	Non-participating	345449	4866697	0:00	0:00
377	Non-participating	345467	4866597	0:00	0:00
378	Non-participating	345526	4866650	0:00	0:00
379	Non-participating	345486	4866686	0:00	0:00
380	Non-participating	345535	4866560	0:00	0:00
381	Non-participating	345588	4866595	0:00	0:00
382	Non-participating	345575	4866651	0:00	0:00
383	Non-participating	345654	4866648	0:00	0:00
384	Non-participating	345744	4866649	0:00	0:00
385	Non-participating	345760	4866595	0:00	0:00
386	Non-participating	345799	4866595	0:00	0:00
387	Non-participating	345824	4866577	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
388	Non-participating	344729	4867554	0:00	0:00
389	Non-participating	344711	4867579	0:00	0:00
390	Non-participating	344798	4867714	0:00	0:00
391	Non-participating	344817	4867664	0:00	0:00
392	Non-participating	344828	4867635	0:00	0:00
393	Non-participating	344841	4867620	0:00	0:00
394	Non-participating	344846	4867589	0:00	0:00
395	Non-participating	344858	4867551	0:00	0:00
396	Non-participating	344482	4867617	0:00	0:00
397	Non-participating	344913	4867548	0:00	0:00
398	Non-participating	344904	4867576	0:00	0:00
399	Non-participating	344941	4867543	0:00	0:00
400	Non-participating	345013	4867549	0:00	0:00
401	Non-participating	344881	4867641	0:00	0:00
402	Non-participating	344863	4867674	0:00	0:00
403	Non-participating	344761	4867777	0:00	0:00
404	Non-participating	344836	4867763	0:00	0:00
405	Non-participating	344882	4867717	0:00	0:00
406	Non-participating	344896	4867754	0:00	0:00
407	Non-participating	344993	4867740	0:00	0:00
408	Non-participating	345319	4867639	0:00	0:00
409	Non-participating	345356	4867641	0:00	0:00
410	Non-participating	345397	4867638	0:00	0:00
411	Non-participating	345458	4867642	0:00	0:00
412	Non-participating	345494	4867635	0:00	0:00
413	Non-participating	345552	4867631	0:00	0:00
415	Non-participating	342542	4866036	0:00	0:00
416	Non-participating	334279	4872084	0:00	0:00
417	Non-participating	341679	4864929	0:00	0:00
418	Non-participating	341682	4864918	0:00	0:00
419	Non-participating	340928	4864906	0:00	0:00
420	Non-participating	339590	4865531	0:00	0:00
421	Non-participating	344313	4866680	0:00	0:00
422	Non-participating	344321	4866721	0:00	0:00
423	Non-participating	344371	4866680	0:00	0:00
424	Non-participating	344380	4866740	0:00	0:00
425	Non-participating	344405	4866810	0:00	0:00
426	Non-participating	344397	4866858	0:00	0:00
427	Non-participating	344487	4866840	0:00	0:00
428	Non-participating	344522	4866852	0:00	0:00
429	Non-participating	344557	4866860	0:00	0:00
430	Non-participating	344582	4866871	0:00	0:00
431	Non-participating	344622	4866882	0:00	0:00
432	Non-participating	344636	4866885	0:00	0:00
433	Non-participating	344648	4866891	0:00	0:00
434	Non-participating	344656	4866906	0:00	0:00
435	Non-participating	344674	4866924	0:00	0:00
436	Non-participating	344667	4866943	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
437	Non-participating	344659	4866965	0:00	0:00
438	Non-participating	344637	4867015	0:00	0:00
439	Non-participating	344621	4867080	0:00	0:00
440	Non-participating	344596	4867085	0:00	0:00
441	Non-participating	344576	4867084	0:00	0:00
442	Non-participating	344562	4867069	0:00	0:00
443	Non-participating	344537	4867073	0:00	0:00
444	Non-participating	344511	4867086	0:00	0:00
445	Non-participating	344485	4867084	0:00	0:00
446	Non-participating	344464	4867084	0:00	0:00
447	Non-participating	344441	4867084	0:00	0:00
448	Non-participating	344403	4867078	0:00	0:00
449	Non-participating	344334	4867153	0:00	0:00
450	Non-participating	344427	4867136	0:00	0:00
451	Non-participating	344394	4867190	0:00	0:00
452	Non-participating	344467	4867129	0:00	0:00
453	Non-participating	344494	4867196	0:00	0:00
454	Non-participating	344511	4867129	0:00	0:00
455	Non-participating	344298	4867305	0:00	0:00
456	Non-participating	344223	4867501	0:00	0:00
457	Non-participating	344226	4867539	0:00	0:00
458	Non-participating	344192	4867630	0:00	0:00
459	Non-participating	344248	4867728	0:00	0:00
460	Non-participating	344164	4867706	0:00	0:00
461	Non-participating	344097	4867692	0:00	0:00
462	Non-participating	344005	4867683	0:00	0:00
463	Non-participating	343806	4867708	0:00	0:00
464	Non-participating	343763	4867732	0:00	0:00
465	Non-participating	343735	4867738	0:00	0:00
466	Non-participating	343547	4867593	0:00	0:00
467	Non-participating	344526	4867272	0:00	0:00
468	Non-participating	344514	4867474	0:00	0:00
469	Non-participating	344585	4867490	0:00	0:00
470	Non-participating	344663	4867500	0:00	0:00
471	Non-participating	344662	4867472	0:00	0:00
472	Non-participating	344660	4867442	0:00	0:00
473	Non-participating	344706	4867502	0:00	0:00
474	Non-participating	344707	4867473	0:00	0:00
475	Non-participating	344729	4867441	0:00	0:00
476	Non-participating	344707	4867416	0:00	0:00
477	Non-participating	344711	4867386	0:00	0:00
478	Non-participating	344661	4867413	0:00	0:00
479	Non-participating	344663	4867391	0:00	0:00
480	Non-participating	344662	4867372	0:00	0:00
481	Non-participating	344652	4867351	0:00	0:00
482	Non-participating	344612	4867197	0:00	0:00
483	Non-participating	344639	4867196	0:00	0:00
484	Non-participating	344682	4867281	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
485	Non-participating	344690	4867150	0:00	0:00
486	Non-participating	344725	4867163	0:00	0:00
487	Non-participating	344743	4867263	0:00	0:00
488	Non-participating	344755	4867210	0:00	0:00
489	Non-participating	344704	4867198	0:00	0:00
490	Non-participating	344736	4867307	0:00	0:00
491	Non-participating	344753	4867361	0:00	0:00
492	Non-participating	344659	4867134	0:00	0:00
493	Non-participating	344717	4866947	0:00	0:00
494	Non-participating	344699	4867030	0:00	0:00
495	Non-participating	344737	4866923	0:00	0:00
496	Non-participating	344741	4867042	0:00	0:00
497	Non-participating	344797	4866967	0:00	0:00
498	Non-participating	344782	4867010	0:00	0:00
499	Non-participating	344766	4867006	0:00	0:00
500	Non-participating	344795	4866938	0:00	0:00
501	Non-participating	344804	4866896	0:00	0:00
502	Non-participating	344847	4867342	0:00	0:00
503	Non-participating	344832	4867381	0:00	0:00
504	Non-participating	344826	4867397	0:00	0:00
505	Non-participating	344813	4867442	0:00	0:00
506	Non-participating	344797	4867466	0:00	0:00
507	Non-participating	344885	4867472	0:00	0:00
508	Non-participating	344831	4867500	0:00	0:00
509	Non-participating	344894	4867443	0:00	0:00
510	Non-participating	344959	4867498	0:00	0:00
511	Non-participating	344931	4867482	0:00	0:00
512	Non-participating	344944	4867454	0:00	0:00
513	Non-participating	344951	4867432	0:00	0:00
514	Non-participating	344957	4867412	0:00	0:00
515	Non-participating	344962	4867389	0:00	0:00
516	Non-participating	344968	4867376	0:00	0:00
517	Non-participating	344914	4867379	0:00	0:00
518	Non-participating	344904	4867407	0:00	0:00
519	Non-participating	344922	4867357	0:00	0:00
520	Non-participating	344930	4867341	0:00	0:00
521	Non-participating	344939	4867307	0:00	0:00
522	Non-participating	344979	4867352	0:00	0:00
523	Non-participating	344990	4867325	0:00	0:00
524	Non-participating	345002	4867280	0:00	0:00
525	Non-participating	344953	4867273	0:00	0:00
526	Non-participating	344962	4867255	0:00	0:00
527	Non-participating	344969	4867241	0:00	0:00
528	Non-participating	344939	4867186	0:00	0:00
529	Non-participating	344958	4867116	0:00	0:00
530	Non-participating	344998	4867155	0:00	0:00
531	Non-participating	344993	4867169	0:00	0:00
532	Non-participating	344931	4867224	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
533	Non-participating	344977	4867082	0:00	0:00
534	Non-participating	344990	4867011	0:00	0:00
535	Non-participating	345016	4867020	0:00	0:00
536	Non-participating	345044	4867024	0:00	0:00
537	Non-participating	345017	4867093	0:00	0:00
538	Non-participating	345076	4867096	0:00	0:00
539	Non-participating	345045	4867154	0:00	0:00
540	Non-participating	345142	4867060	0:00	0:00
541	Non-participating	345161	4867076	0:00	0:00
542	Non-participating	345150	4867105	0:00	0:00
543	Non-participating	345139	4867121	0:00	0:00
544	Non-participating	345077	4867156	0:00	0:00
545	Non-participating	345097	4867175	0:00	0:00
546	Non-participating	345030	4867203	0:00	0:00
547	Non-participating	345023	4867219	0:00	0:00
548	Non-participating	345015	4867259	0:00	0:00
549	Non-participating	345113	4867217	0:00	0:00
550	Non-participating	345050	4867270	0:00	0:00
551	Non-participating	345086	4867285	0:00	0:00
552	Non-participating	345148	4867253	0:00	0:00
553	Non-participating	345164	4867188	0:00	0:00
554	Non-participating	345121	4867293	0:00	0:00
555	Non-participating	345181	4867146	0:00	0:00
556	Non-participating	345211	4867200	0:00	0:00
557	Non-participating	345189	4867264	0:00	0:00
558	Non-participating	345222	4867275	0:00	0:00
559	Non-participating	345223	4867240	0:00	0:00
560	Non-participating	345287	4867249	0:00	0:00
561	Non-participating	345235	4867218	0:00	0:00
562	Non-participating	345208	4867323	0:00	0:00
563	Non-participating	345048	4867340	0:00	0:00
564	Non-participating	345079	4867340	0:00	0:00
565	Non-participating	345101	4867348	0:00	0:00
566	Non-participating	345086	4867388	0:00	0:00
567	Non-participating	345116	4867399	0:00	0:00
568	Non-participating	345139	4867406	0:00	0:00
569	Non-participating	345144	4867372	0:00	0:00
570	Non-participating	345191	4867347	0:00	0:00
571	Non-participating	345192	4867376	0:00	0:00
572	Non-participating	345268	4867298	0:00	0:00
573	Non-participating	345288	4867302	0:00	0:00
574	Non-participating	345308	4867308	0:00	0:00
575	Non-participating	345324	4867315	0:00	0:00
576	Non-participating	345349	4867325	0:00	0:00
577	Non-participating	344944	4867742	0:00	0:00
578	Non-participating	345006	4867695	0:00	0:00
579	Non-participating	345046	4867699	0:00	0:00
580	Non-participating	345028	4867734	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
581	Non-participating	345060	4867741	0:00	0:00
582	Non-participating	345144	4867694	0:00	0:00
583	Non-participating	345151	4867744	0:00	0:00
584	Non-participating	345197	4867777	0:00	0:00
585	Non-participating	345200	4867747	0:00	0:00
586	Non-participating	345197	4867711	0:00	0:00
587	Non-participating	345196	4867679	0:00	0:00
588	Non-participating	345149	4867669	0:00	0:00
589	Non-participating	345126	4867671	0:00	0:00
590	Non-participating	345217	4867936	0:00	0:00
591	Non-participating	345235	4867642	0:00	0:00
592	Non-participating	345260	4867638	0:00	0:00
593	Non-participating	345286	4867644	0:00	0:00
594	Non-participating	343409	4867547	0:00	0:00
595	Participating	352617	4875800	0:00	0:00
596	Non-participating	352567	4874236	1:10	0:50
597	Non-participating	354694	4869562	0:00	0:00
598	Non-participating	354152	4872437	3:05	2:56
599	Non-participating	354454	4872703	0:00	0:00
600	Non-participating	354182	4873719	4:07	3:56
601	Non-participating	354055	4875479	0:00	0:00
602	Non-participating	356437	4876650	0:00	0:00
603	Non-participating	355599	4875833	0:00	0:00
604	Non-participating	356021	4875517	0:00	0:00
605	Non-participating	355687	4875216	0:00	0:00
606	Non-participating	355902	4874643	0:00	0:00
607	Non-participating	355446	4874682	0:00	0:00
608	Non-participating	355352	4871213	0:00	0:00
609	Non-participating	355630	4870935	0:00	0:00
610	Non-participating	355553	4869487	0:00	0:00
611	Non-participating	356806	4869653	0:00	0:00
612	Non-participating	357363	4870377	0:00	0:00
613	Non-participating	357276	4871269	0:00	0:00
614	Non-participating	357615	4871921	12:46	12:02
615	Non-participating	358069	4872952	2:46	0:00
616	Non-participating	357627	4874308	0:00	0:00
617	Non-participating	357430	4875734	0:00	0:00
618	Non-participating	357505	4875420	0:00	0:00
619	Non-participating	356819	4875899	0:00	0:00
620	Non-participating	353119	4876184	0:00	0:00
621	Non-participating	353033	4872732	7:02	6:36
622	Non-participating	355110	4872432	2:19	0:00
623	Non-participating	353498	4871094	3:28	3:17
624	Non-participating	353171	4871171	6:53	6:33
625	Non-participating	354643	4868550	0:00	0:00
626	Non-participating	355692	4868205	0:00	0:00
627	Non-participating	355705	4868226	0:00	0:00
628	Non-participating	355890	4868247	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
629	Non-participating	355778	4868387	0:00	0:00
630	Non-participating	355951	4868260	0:00	0:00
631	Non-participating	356003	4868263	0:00	0:00
632	Non-participating	356051	4868273	0:00	0:00
633	Non-participating	356076	4868276	0:00	0:00
634	Non-participating	356066	4868302	0:00	0:00
635	Non-participating	356128	4868280	0:00	0:00
636	Non-participating	356112	4868326	0:00	0:00
637	Non-participating	356112	4868349	0:00	0:00
638	Non-participating	356044	4868344	0:00	0:00
639	Non-participating	355995	4868317	0:00	0:00
640	Non-participating	356050	4868375	0:00	0:00
641	Non-participating	356046	4868391	0:00	0:00
642	Non-participating	356045	4868412	0:00	0:00
643	Non-participating	356116	4868389	0:00	0:00
644	Non-participating	356100	4868440	0:00	0:00
645	Non-participating	356172	4868448	0:00	0:00
646	Non-participating	356176	4868477	0:00	0:00
647	Non-participating	356186	4868367	0:00	0:00
648	Non-participating	356303	4868492	0:00	0:00
649	Non-participating	356390	4868511	0:00	0:00
650	Non-participating	355970	4868434	0:00	0:00
651	Non-participating	355906	4868513	0:00	0:00
652	Non-participating	355902	4868535	0:00	0:00
653	Non-participating	355893	4868586	0:00	0:00
654	Non-participating	355956	4868520	0:00	0:00
655	Non-participating	355989	4868484	0:00	0:00
656	Non-participating	356007	4868520	0:00	0:00
657	Non-participating	356040	4868494	0:00	0:00
658	Non-participating	356092	4868505	0:00	0:00
659	Non-participating	356160	4868520	0:00	0:00
660	Non-participating	356139	4868541	0:00	0:00
661	Non-participating	356212	4868528	0:00	0:00
662	Non-participating	356262	4868539	0:00	0:00
663	Non-participating	356203	4868559	0:00	0:00
664	Non-participating	356206	4868592	0:00	0:00
665	Non-participating	356230	4868596	0:00	0:00
666	Non-participating	356282	4868604	0:00	0:00
667	Non-participating	356251	4868605	0:00	0:00
668	Non-participating	356097	4868534	0:00	0:00
669	Non-participating	356030	4868540	0:00	0:00
670	Non-participating	356027	4868567	0:00	0:00
671	Non-participating	355940	4868594	0:00	0:00
672	Non-participating	356018	4868599	0:00	0:00
673	Non-participating	356015	4868632	0:00	0:00
674	Non-participating	356011	4868647	0:00	0:00
675	Non-participating	356066	4868631	0:00	0:00
676	Non-participating	356138	4868631	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
677	Non-participating	356190	4868643	0:00	0:00
678	Non-participating	356219	4868645	0:00	0:00
679	Non-participating	356265	4868655	0:00	0:00
680	Non-participating	356265	4868681	0:00	0:00
681	Non-participating	356132	4868668	0:00	0:00
682	Non-participating	356131	4868692	0:00	0:00
683	Non-participating	356318	4868612	0:00	0:00
684	Non-participating	356339	4868628	0:00	0:00
685	Non-participating	356427	4868604	0:00	0:00
686	Non-participating	356408	4868633	0:00	0:00
687	Non-participating	356331	4868663	0:00	0:00
688	Non-participating	356383	4868682	0:00	0:00
689	Non-participating	356421	4868689	0:00	0:00
690	Non-participating	356457	4868686	0:00	0:00
691	Non-participating	356366	4868697	0:00	0:00
692	Non-participating	356446	4868715	0:00	0:00
693	Non-participating	356494	4868564	0:00	0:00
694	Non-participating	356498	4868606	0:00	0:00
695	Non-participating	356392	4868940	0:00	0:00
696	Non-participating	356392	4868989	0:00	0:00
697	Non-participating	356422	4869067	0:00	0:00
698	Non-participating	356382	4869063	0:00	0:00
699	Non-participating	356377	4869031	0:00	0:00
700	Non-participating	356327	4869052	0:00	0:00
701	Non-participating	356331	4869023	0:00	0:00
702	Non-participating	356309	4869087	0:00	0:00
703	Non-participating	356374	4869101	0:00	0:00
704	Non-participating	356437	4869110	0:00	0:00
705	Non-participating	356438	4869161	0:00	0:00
706	Non-participating	356390	4869157	0:00	0:00
707	Non-participating	356355	4869151	0:00	0:00
708	Non-participating	356307	4869137	0:00	0:00
709	Non-participating	356302	4869170	0:00	0:00
710	Non-participating	356412	4869220	0:00	0:00
711	Non-participating	356053	4868972	0:00	0:00
712	Non-participating	356080	4868980	0:00	0:00
713	Non-participating	356079	4869006	0:00	0:00
714	Non-participating	356073	4869033	0:00	0:00
715	Non-participating	356055	4869050	0:00	0:00
716	Non-participating	356006	4868977	0:00	0:00
717	Non-participating	355993	4869003	0:00	0:00
718	Non-participating	355994	4869031	0:00	0:00
719	Non-participating	355949	4868966	0:00	0:00
720	Non-participating	355946	4868986	0:00	0:00
721	Non-participating	355947	4869008	0:00	0:00
722	Non-participating	355943	4869023	0:00	0:00
723	Non-participating	355969	4868875	0:00	0:00
724	Non-participating	355889	4868864	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
725	Non-participating	355881	4868899	0:00	0:00
726	Non-participating	355878	4868939	0:00	0:00
727	Non-participating	355870	4868966	0:00	0:00
728	Non-participating	355844	4868823	0:00	0:00
729	Non-participating	355839	4868859	0:00	0:00
730	Non-participating	355839	4868894	0:00	0:00
731	Non-participating	355829	4868931	0:00	0:00
732	Non-participating	355828	4868944	0:00	0:00
733	Non-participating	355807	4868818	0:00	0:00
734	Non-participating	355933	4869063	0:00	0:00
735	Non-participating	355928	4869079	0:00	0:00
736	Non-participating	355926	4869091	0:00	0:00
737	Non-participating	355917	4869113	0:00	0:00
738	Non-participating	355917	4869134	0:00	0:00
739	Non-participating	355986	4869080	0:00	0:00
740	Non-participating	355980	4869124	0:00	0:00
741	Non-participating	355971	4869143	0:00	0:00
742	Non-participating	356059	4869086	0:00	0:00
743	Non-participating	356057	4869101	0:00	0:00
744	Non-participating	356099	4869163	0:00	0:00
745	Non-participating	355885	4869055	0:00	0:00
746	Non-participating	355860	4869054	0:00	0:00
747	Non-participating	355849	4869113	0:00	0:00
748	Non-participating	355870	4869117	0:00	0:00
749	Non-participating	355807	4869058	0:00	0:00
750	Non-participating	355802	4869095	0:00	0:00
751	Non-participating	355794	4869128	0:00	0:00
752	Non-participating	355782	4869165	0:00	0:00
753	Non-participating	355770	4869187	0:00	0:00
754	Non-participating	355755	4869047	0:00	0:00
755	Non-participating	355711	4869040	0:00	0:00
756	Non-participating	355760	4868992	0:00	0:00
757	Non-participating	355694	4868990	0:00	0:00
758	Non-participating	355689	4869183	0:00	0:00
759	Non-participating	355698	4869275	0:00	0:00
760	Non-participating	355723	4869356	0:00	0:00
761	Non-participating	355751	4869319	0:00	0:00
762	Non-participating	355809	4869334	0:00	0:00
763	Non-participating	355817	4869271	0:00	0:00
764	Non-participating	355843	4869284	0:00	0:00
765	Non-participating	355886	4869292	0:00	0:00
766	Non-participating	355951	4869296	0:00	0:00
767	Non-participating	355935	4869318	0:00	0:00
768	Non-participating	355931	4869376	0:00	0:00
769	Non-participating	356001	4869360	0:00	0:00
770	Non-participating	356005	4869310	0:00	0:00
771	Non-participating	356030	4869257	0:00	0:00
772	Non-participating	356003	4869256	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
773	Non-participating	356012	4869188	0:00	0:00
774	Non-participating	356036	4869192	0:00	0:00
775	Non-participating	356032	4869238	0:00	0:00
776	Non-participating	355964	4869180	0:00	0:00
777	Non-participating	355961	4869199	0:00	0:00
778	Non-participating	355956	4869255	0:00	0:00
779	Non-participating	355911	4869176	0:00	0:00
780	Non-participating	355907	4869212	0:00	0:00
781	Non-participating	355894	4869247	0:00	0:00
782	Non-participating	355823	4869224	0:00	0:00
783	Non-participating	355849	4869163	0:00	0:00
784	Non-participating	356273	4869294	0:00	0:00
785	Non-participating	356327	4869308	0:00	0:00
786	Non-participating	356329	4869276	0:00	0:00
787	Non-participating	356285	4869243	0:00	0:00
788	Non-participating	356217	4869348	0:00	0:00
789	Non-participating	356142	4869333	0:00	0:00
790	Non-participating	356488	4869269	0:00	0:00
791	Non-participating	356488	4869322	0:00	0:00
792	Non-participating	356521	4869056	0:00	0:00
793	Non-participating	351866	4875985	0:00	0:00
794	Non-participating	357345	4868269	0:00	0:00
795	Non-participating	358127	4868180	0:00	0:00
796	Non-participating	359000	4868732	0:00	0:00
797	Non-participating	358409	4871152	0:00	0:00
798	Participating	338161	4880092	0:00	0:00
799	Participating	340457	4879785	0:00	0:00
800	Non-participating	342979	4879428	0:00	0:00
801	Participating	342860	4879804	0:00	0:00
802	Participating	344257	4879373	0:00	0:00
803	Non-participating	346022	4880757	0:00	0:00
804	Non-participating	346353	4879521	0:00	0:00
805	Non-participating	347374	4880046	0:00	0:00
806	Non-participating	334869	4878152	0:00	0:00
807	Non-participating	336665	4879160	0:00	0:00
808	Participating	339609	4878853	0:00	0:00
809	Participating	339876	4878698	0:00	0:00
810	Participating	340969	4879236	0:00	0:00
811	Non-participating	341727	4879250	0:00	0:00
812	Non-participating	342147	4878086	0:00	0:00
813	Participating	343459	4879213	0:00	0:00
814	Non-participating	346568	4878623	4:57	3:34
815	Non-participating	334807	4877612	0:00	0:00
816	Non-participating	336624	4877581	0:00	0:00
817	Non-participating	342925	4877379	0:00	0:00
818	Non-participating	348298	4877605	7:15	4:41
819	Non-participating	349372	4876711	0:00	0:00
820	Non-participating	349560	4877237	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
821	Non-participating	350071	4876070	3:43	3:33
822	Non-participating	334761	4875604	0:00	0:00
823	Participating	335312	4874792	0:00	0:00
824	Participating	336576	4875510	0:00	0:00
825	Non-participating	336378	4875819	0:00	0:00
826	Participating	336384	4874934	0:00	0:00
827	Non-participating	336991	4874550	0:00	0:00
828	Non-participating	336774	4874696	0:00	0:00
829	Non-participating	338085	4874866	0:00	0:00
830	Non-participating	339459	4874939	0:00	0:00
831	Non-participating	344595	4874794	17:52	17:00
832	Non-participating	333832	4873272	0:00	0:00
833	Non-participating	334862	4874592	0:00	0:00
834	Participating	334958	4874215	0:00	0:00
835	Non-participating	334586	4872932	0:00	0:00
836	Non-participating	336162	4873279	0:49	0:20
837	Non-participating	338786	4873051	0:00	0:00
838	Non-participating	340983	4873020	20:20	19:47
839	Non-participating	340423	4872948	9:36	4:31
840	Non-participating	343945	4872887	1:59	1:08
841	Participating	345816	4872706	3:10	3:01
842	Non-participating	345892	4872903	3:20	3:09
843	Non-participating	338174	4872453	13:35	12:57
844	Non-participating	338637	4871428	0:00	0:00
845	Non-participating	339725	4871223	0:29	0:11
847	Non-participating	341617	4872198	0:00	0:00
848	Non-participating	340697	4872553	0:00	0:00
849	Non-participating	345132	4871418	6:47	6:23
850	Non-participating	345666	4871176	9:36	9:05
851	Non-participating	345635	4871615	0:00	0:00
853	Non-participating	347220	4871377	4:32	4:15
854	Non-participating	349219	4872327	25:36	24:04
856	Non-participating	334781	4871010	0:00	0:00
857	Participating	335152	4870543	0:00	0:00
858	Participating	335176	4870542	0:00	0:00
859	Non-participating	337070	4869855	0:00	0:00
860	Non-participating	337119	4869638	0:00	0:00
861	Non-participating	338904	4871049	0:00	0:00
862	Non-participating	340446	4869737	0:00	0:00
863	Non-participating	341233	4869865	0:00	0:00
864	Non-participating	342758	4870493	0:00	0:00
865	Non-participating	342923	4869891	0:00	0:00
866	Non-participating	349266	4870209	3:02	2:55
867	Non-participating	334947	4869374	0:00	0:00
868	Non-participating	337953	4868597	0:00	0:00
869	Non-participating	338227	4869503	0:00	0:00
870	Non-participating	338448	4868102	0:00	0:00
871	Non-participating	338518	4868105	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
872	Non-participating	339725	4868307	0:00	0:00
873	Non-participating	336967	4868688	0:00	0:00
874	Non-participating	338219	4869504	0:00	0:00
875	Non-participating	341232	4869013	0:00	0:00
876	Non-participating	341232	4869013	0:00	0:00
877	Non-participating	344669	4868346	0:00	0:00
878	Non-participating	344721	4868250	0:00	0:00
879	Non-participating	344634	4868277	0:00	0:00
880	Non-participating	344647	4868236	0:00	0:00
881	Non-participating	344664	4868206	0:00	0:00
882	Non-participating	344679	4868180	0:00	0:00
883	Non-participating	344691	4868155	0:00	0:00
884	Non-participating	344708	4868129	0:00	0:00
885	Non-participating	344749	4868074	0:00	0:00
886	Non-participating	344752	4868013	0:00	0:00
887	Non-participating	344761	4867974	0:00	0:00
888	Non-participating	344773	4867945	0:00	0:00
889	Non-participating	344846	4868005	0:00	0:00
890	Non-participating	344907	4867995	0:00	0:00
891	Non-participating	344933	4868048	0:00	0:00
892	Non-participating	344905	4868049	0:00	0:00
893	Non-participating	344872	4868050	0:00	0:00
894	Non-participating	344892	4868073	0:00	0:00
895	Non-participating	344795	4867894	0:00	0:00
896	Non-participating	344803	4867873	0:00	0:00
897	Non-participating	344805	4867852	0:00	0:00
898	Non-participating	344812	4867827	0:00	0:00
899	Non-participating	344828	4867812	0:00	0:00
900	Non-participating	344949	4867811	0:00	0:00
901	Non-participating	344887	4867861	0:00	0:00
902	Non-participating	344887	4867891	0:00	0:00
903	Non-participating	345021	4867901	0:00	0:00
904	Non-participating	344998	4867808	0:00	0:00
905	Non-participating	345080	4867809	0:00	0:00
906	Non-participating	345110	4867806	0:00	0:00
907	Non-participating	345136	4867810	0:00	0:00
908	Non-participating	345156	4867808	0:00	0:00
909	Non-participating	345205	4867815	0:00	0:00
910	Non-participating	345155	4867859	0:00	0:00
911	Non-participating	345113	4867871	0:00	0:00
912	Non-participating	345144	4867902	0:00	0:00
913	Non-participating	345161	4867967	0:00	0:00
914	Non-participating	345161	4867998	0:00	0:00
915	Non-participating	345124	4867997	0:00	0:00
916	Non-participating	345213	4868052	0:00	0:00
917	Non-participating	345307	4868046	0:00	0:00
918	Non-participating	345355	4868046	0:00	0:00
919	Non-participating	345499	4868043	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
920	Non-participating	345548	4868047	0:00	0:00
921	Non-participating	345419	4868097	0:00	0:00
922	Non-participating	345422	4868130	0:00	0:00
923	Non-participating	345479	4868127	0:00	0:00
924	Non-participating	345482	4868161	0:00	0:00
925	Non-participating	345467	4868172	0:16	0:12
926	Non-participating	345442	4868188	1:39	1:35
927	Non-participating	345411	4868192	2:48	2:41
928	Non-participating	345411	4868201	3:19	3:13
929	Non-participating	345060	4868051	0:00	0:00
930	Non-participating	345032	4868050	0:00	0:00
931	Non-participating	345006	4868052	0:00	0:00
932	Non-participating	344982	4868051	0:00	0:00
933	Non-participating	344959	4868051	0:00	0:00
934	Non-participating	344979	4868001	0:00	0:00
935	Non-participating	345003	4868001	0:00	0:00
936	Non-participating	345082	4867861	0:00	0:00
937	Non-participating	345108	4868670	0:00	0:00
938	Non-participating	345101	4869058	2:34	0:00
939	Non-participating	345073	4869116	0:00	0:00
940	Non-participating	345842	4868063	3:59	3:44
941	Non-participating	349380	4868208	12:17	11:42
942	Non-participating	339407	4866737	21:39	21:05
943	Non-participating	339495	4867354	16:00	15:14
944	Non-participating	338320	4866355	0:00	0:00
945	Non-participating	339495	4867354	16:00	15:14
946	Non-participating	340056	4866386	0:00	0:00
947	Non-participating	340891	4866430	0:00	0:00
948	Non-participating	341412	4866409	11:01	10:46
950	Non-participating	341834	4866663	0:00	0:00
951	Non-participating	342614	4866948	0:00	0:00
952	Non-participating	342664	4866947	0:00	0:00
953	Non-participating	343379	4866634	0:00	0:00
954	Non-participating	346917	4867222	0:00	0:00
955	Non-participating	346902	4867214	0:00	0:00
957	Non-participating	346601	4867154	0:00	0:00
958	Non-participating	346574	4867159	0:00	0:00
959	Non-participating	346504	4867107	0:00	0:00
960	Non-participating	336434	4866082	0:00	0:00
961	Non-participating	338235	4864957	0:00	0:00
962	Non-participating	338247	4864948	0:00	0:00
963	Non-participating	358896	4873681	0:00	0:00
964	Non-participating	359309	4870901	0:00	0:00
965	Non-participating	358521	4867711	0:00	0:00
966	Non-participating	358569	4869565	0:00	0:00
967	Non-participating	359166	4869438	0:00	0:00
969	Non-participating	352433	4874356	0:00	0:00
970	Non-participating	352474	4869517	0:00	0:00

Receptor ID	Receptor Status	X Coordinate	Y Coordinate	Projected Expected Case Annual Shadow Flicker (hh:mm/year)	
				Vestas V162	GE 158
971	Non-participating	344430	4869517	0:00	0:00
973	Non-participating	338242	4864932	0:00	0:00
974	Non-participating	353841	4871109	7:36	7:09
975	Non-participating	344236	4867651	0:00	0:00
976	Non-participating	344270	4867644	0:00	0:00
977	Non-participating	344307	4867641	0:00	0:00
978	Non-participating	344344	4867638	0:00	0:00
979	Non-participating	344230	4867580	0:00	0:00
980	Non-participating	344283	4867533	0:00	0:00
981	Non-participating	344286	4867500	0:00	0:00
982	Non-participating	344256	4867479	0:00	0:00
983	Non-participating	344454	4867197	0:00	0:00
984	Non-participating	345598	4866341	0:00	0:00