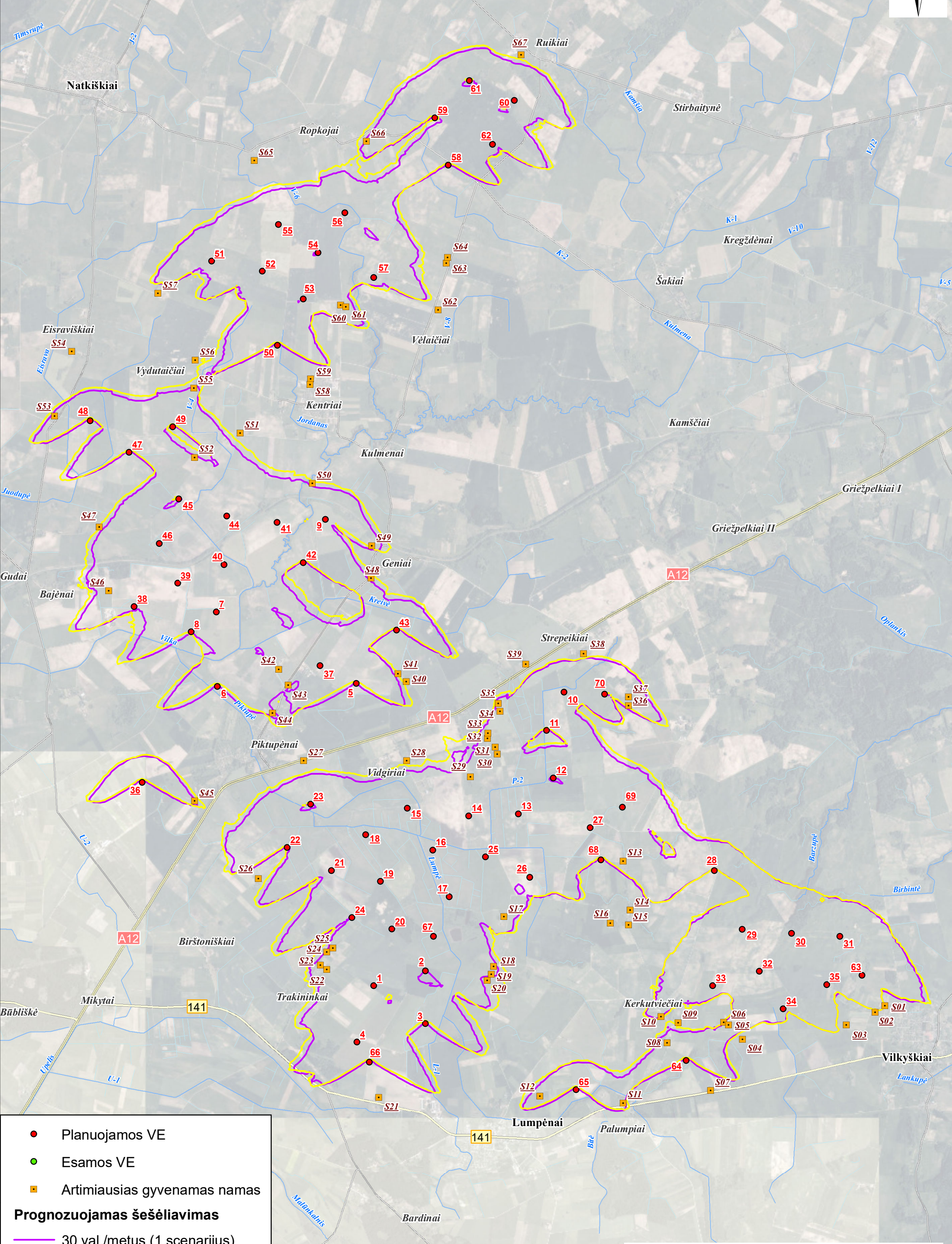


9 PRIEDAS

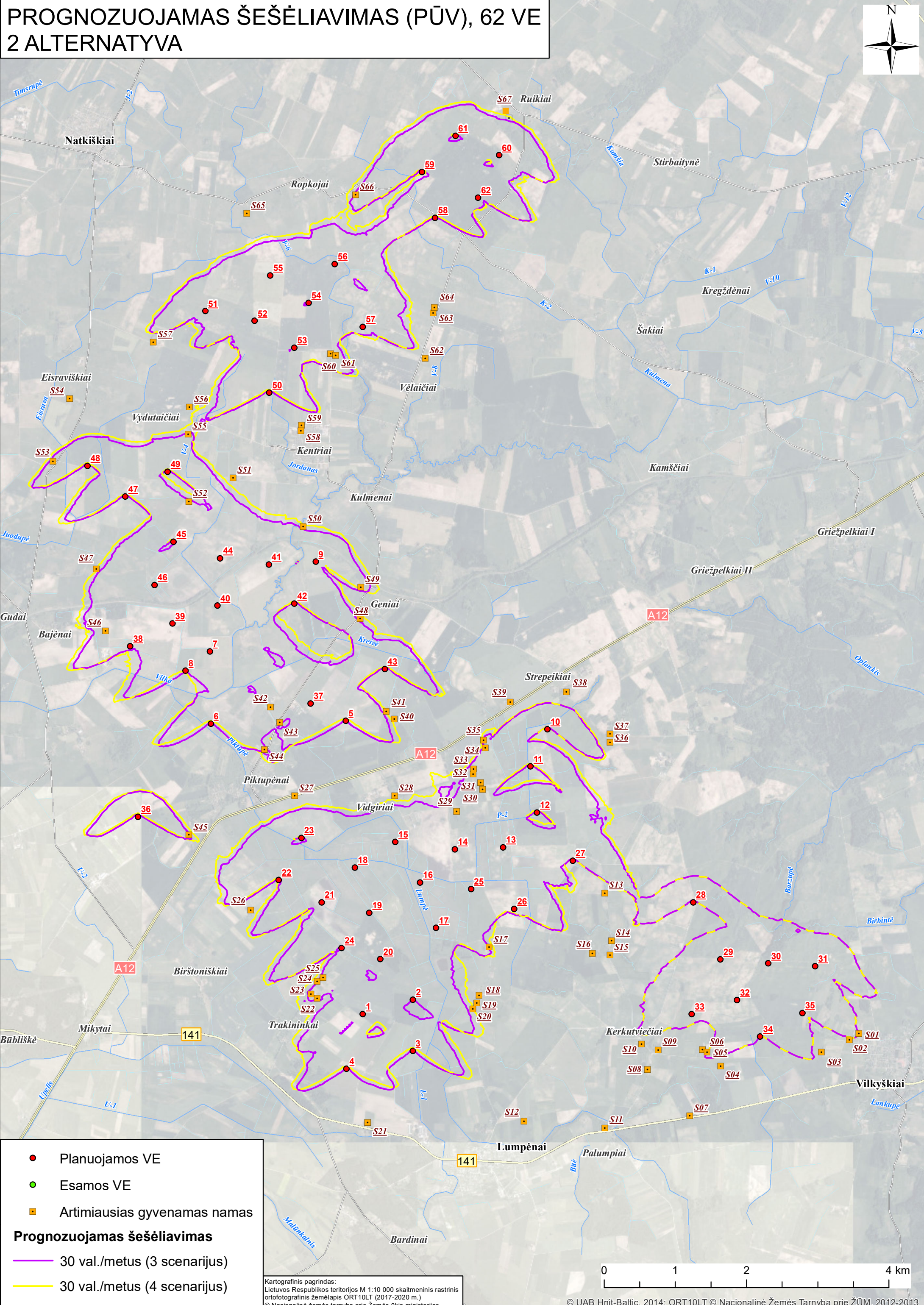
Šešliavimo modeliavimo rezultatai

PROGNOZUOJAMAS ŠEŠĖLIAVIMAS (PŪV), 70 VE
1 ALTERNATYVA



Kartografinis pagrindas:
Lietuvos Respublikos teritorijos M 1:10 000 skaitmeninis rastrinis
ortofotografinis žemėlapis ORT10LT (2017-2020 m.)
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PROGNOZUOJAMAS ŠEŠĖLIAVIMAS (PŪV), 62 VE
2 ALTERNATYVA



- Planuojamos VE
- Esamos VE
- Artimiausias gyvenamas namas

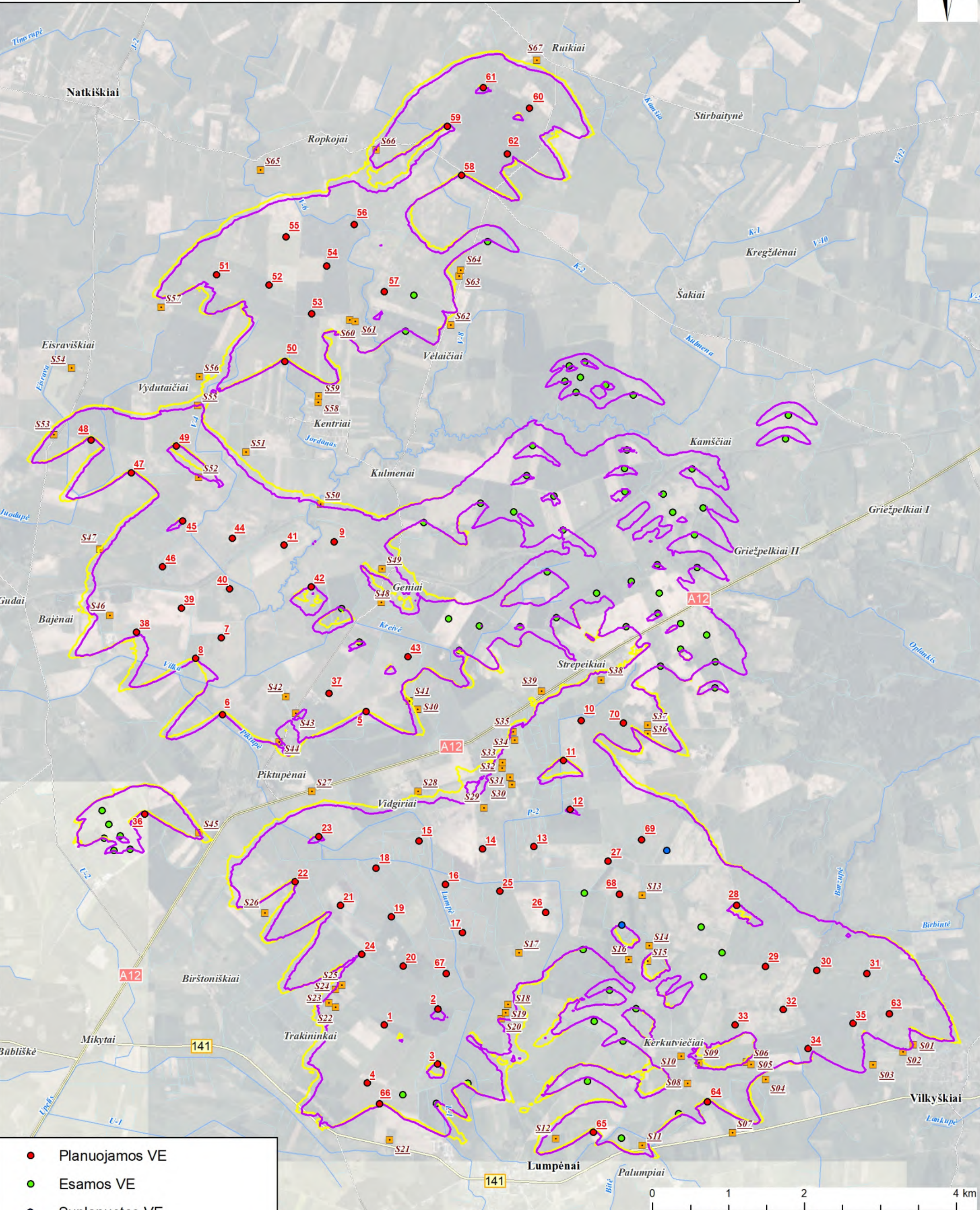
Prognozuojamas šešėliavimas

- 30 val./metus (3 scenarijus)
- 30 val./metus (4 scenarijus)

Kartografinis pagrindas:
Lietuvos Respublikos teritorijos M 1:10 000 skaitmeninis rastrinis
ortofotografinis žemėlapis ORT10LT (2017-2020 m.)
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0 1 2 4 km

1 IR 2 ŠEŠĖLIAVIMO VERTINIMO SCENARIJAI (PŪV 1 ALTERNATYVA)
PROGNOZUOJAMAS ŠEŠĖLIAVIMAS, SUMINIS + PŪV 70 VE



●

 Planuojamos VE

●

 Esamos VE

●

 Suplanuotos VE

■

 Artimiausias gyvenamas namas

—

 30 val./metus (1 scenarijus)

—

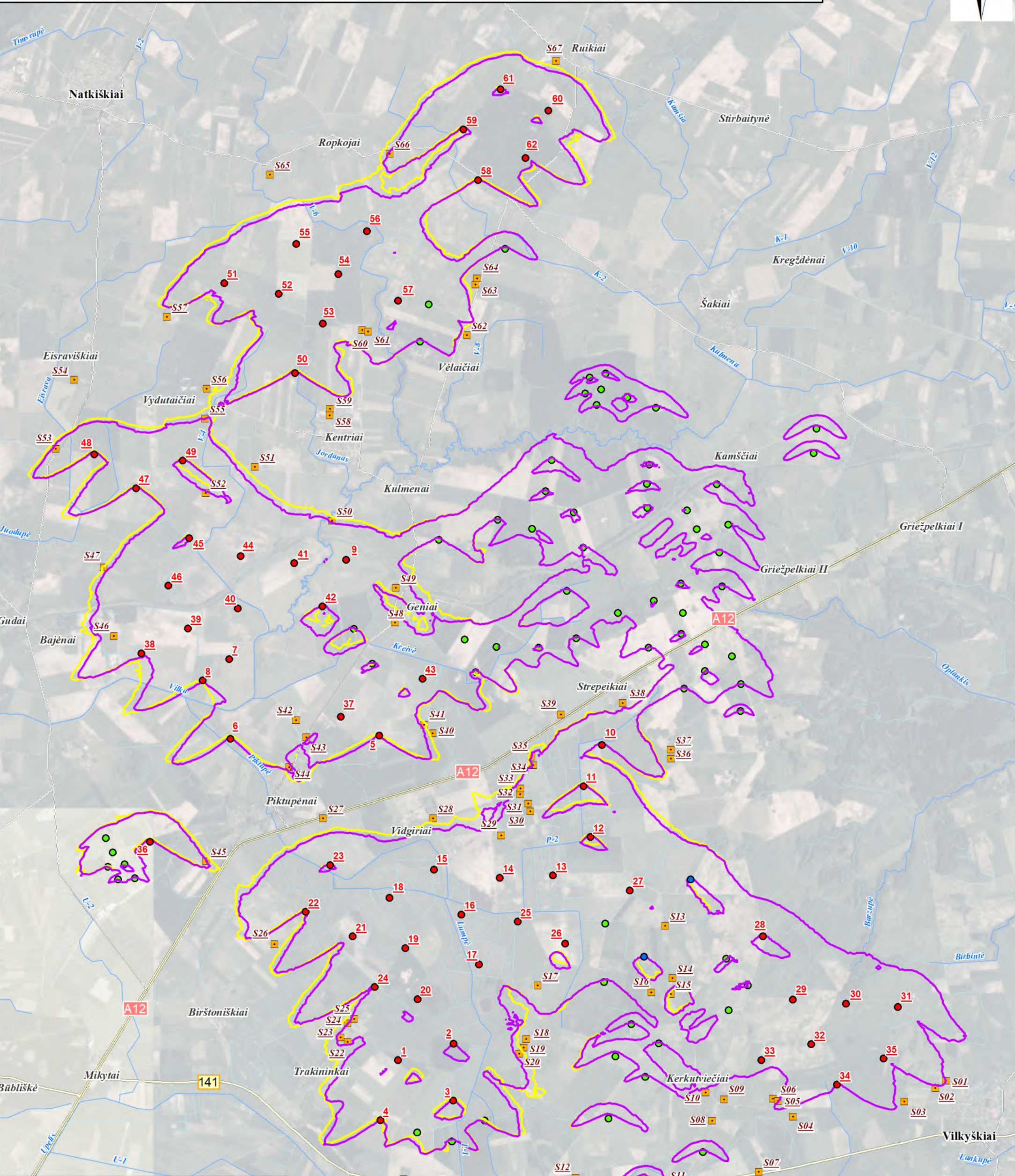
 30 val./metus (2 scenarijus)

Prognozuojamas šešėliavimas

Kartografinis pagrindas:
Lietuvos Respublikos teritorijos M 1:10 000 skaitmeninis rastrinis
ortofotografinis žemėlapis ORT10LT (2017-2020 m.)
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	1 scenarijus	2 scenarijus
VE Bokšto aukštis	115 m (VE01-VE09); 135 m (VE10-VE70)	135 m (VE10,VE27-VE35); 160 m (VE01-VE09, VE11-VE26, VE36-VE70)
VE rotoriaus skersmuo	170 m	170 m (VE10,VE27-VE35); 180 m (VE01-VE09, VE11-VE26, VE36-VE70)
VE bendras aukštis	200 m (VE01-VE09); 220 m (VE10-VE70)	220 m (VE10,VE27-VE35); 250 m (VE01-VE09, VE11-VE26, VE36-VE70)

3 IR 4 ŠEŠĖLIAVIMO VERTINIMO SCENARIJAI (PŪV 2 ALTERNATYVA)
PROGNOZUOJAMAS ŠEŠĖLIAVIMAS, SUMINIS + PŪV 62 VE



● Planuojamos VE

● Esamos VE

● Suplanuotos VE

■ Artimiausias gyvenamas namas

Prognozuojamas šešėliavimas

— 30 val./metus (3 scenarijus)

— 30 val./metus (4 scenarijus)

Kartografinis pagrindas:
Lietuvos Respublikos teritorijos M 1:10 000 skaitmeninis rastrinis
ortofotografinis žemėlapis ORT10LT (2017-2020 m.)
© Nacionalinė žemės tarnyba prie Žemės ūkio ministerijos

	3 scenarijus	4 scenarijus
VE Bokšto aukštis	115 m (VE01-VE09); 135 m (VE10-VE70)	135 m (VE10,VE27-VE35); 160 m (VE01-VE09, VE11-VE26, VE36-VE62)
VE rotoriaus skersmuo	170 m	170 m (VE10,VE27-VE35); 180 m (VE01-VE09, VE11-VE26, VE36-VE62)
VE bendras aukštis	200 m (VE01-VE09); 220 m (VE10-VE70)	220 m (VE10,VE27-VE35); 250 m (VE01-VE09, VE11-VE26, VE36-VE62)

1 scenarijus: PUV

Project: Pagegiu VE
Description: 1 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-09-30 12:34/3.4.415

SHADOW - Main Result

Calculation: PUV

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A ZVI 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: reljef2.wpo (2)

Obstacles not used in calculation

Eye height for map: 1,5 m

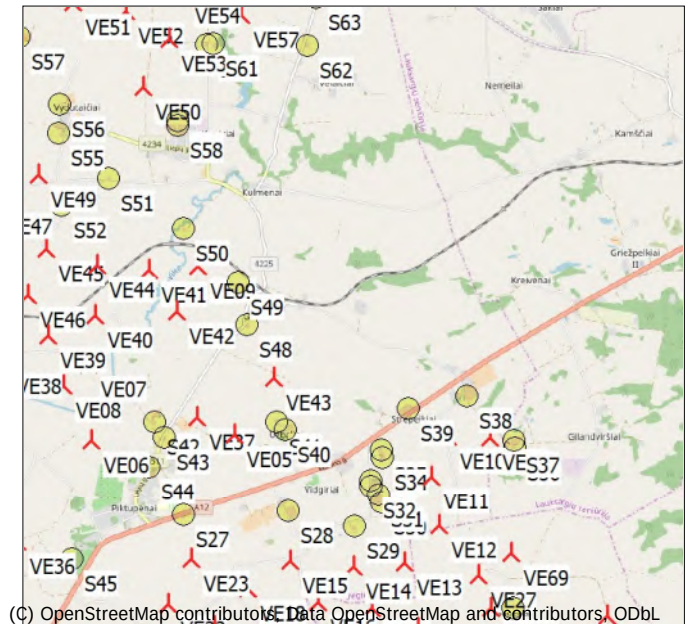
Grid resolution: 30,0 m

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6.0-... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...



SHADOW - Main Result

Calculation: PUV

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 443	14,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 119 675	15,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 169	32,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE63	379 772	6 111 949	33,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE64	377 377	6 110 789	35,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE65	375 874	6 110 388	25,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE66	373 058	6 110 763	21,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE67	373 934	6 112 479	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE68	376 216	6 113 524	20,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE69	376 506	6 114 242	26,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE70	376 265	6 115 782	38,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: PUV

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

per year

[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	17:06
S05	38:54
S06	30:19
S07	0:00
S08	41:41
S09	25:02
S10	29:14
S11	39:30
S12	54:22
S13	111:35
S14	21:33

To be continued on next page...

SHADOW - Main Result

Calculation: PUV

...continued from previous page

Shadow, expected values

No. Shadow hours
per year
[h/year]

S15 16:41
S16 21:57
S17 46:05
S18 34:33
S19 33:09
S20 28:22
S21 0:00
S22 34:35
S23 34:12
S24 33:23
S25 41:58
S26 17:34
S27 14:01
S28 18:44
S29 44:14
S30 48:37
S31 51:38
S32 37:40
S33 37:37
S34 35:38
S35 32:17
S36 55:39
S37 97:37
S38 24:23
S39 18:21
S40 20:21
S41 25:11
S42 58:34
S43 36:55
S44 31:41
S45 31:44
S46 46:47
S47 24:30
S48 27:23
S49 50:27
S50 27:36
S51 16:57
S52 31:41
S53 36:36
S54 4:25
S55 31:25
S56 20:41
S57 18:03
S58 0:00
S59 0:00
S60 64:45
S61 41:21
S62 19:06
S63 10:39
S64 9:40
S65 8:02
S66 29:52
S67 19:00

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

No.	Name	Worst case [h/year]	Expected [h/year]
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42	29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23	31:15
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49	9:01
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27	2:52
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54	51:27
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	134:53	38:58

To be continued on next page...

SHADOW - Main Result

Calculation: PUV

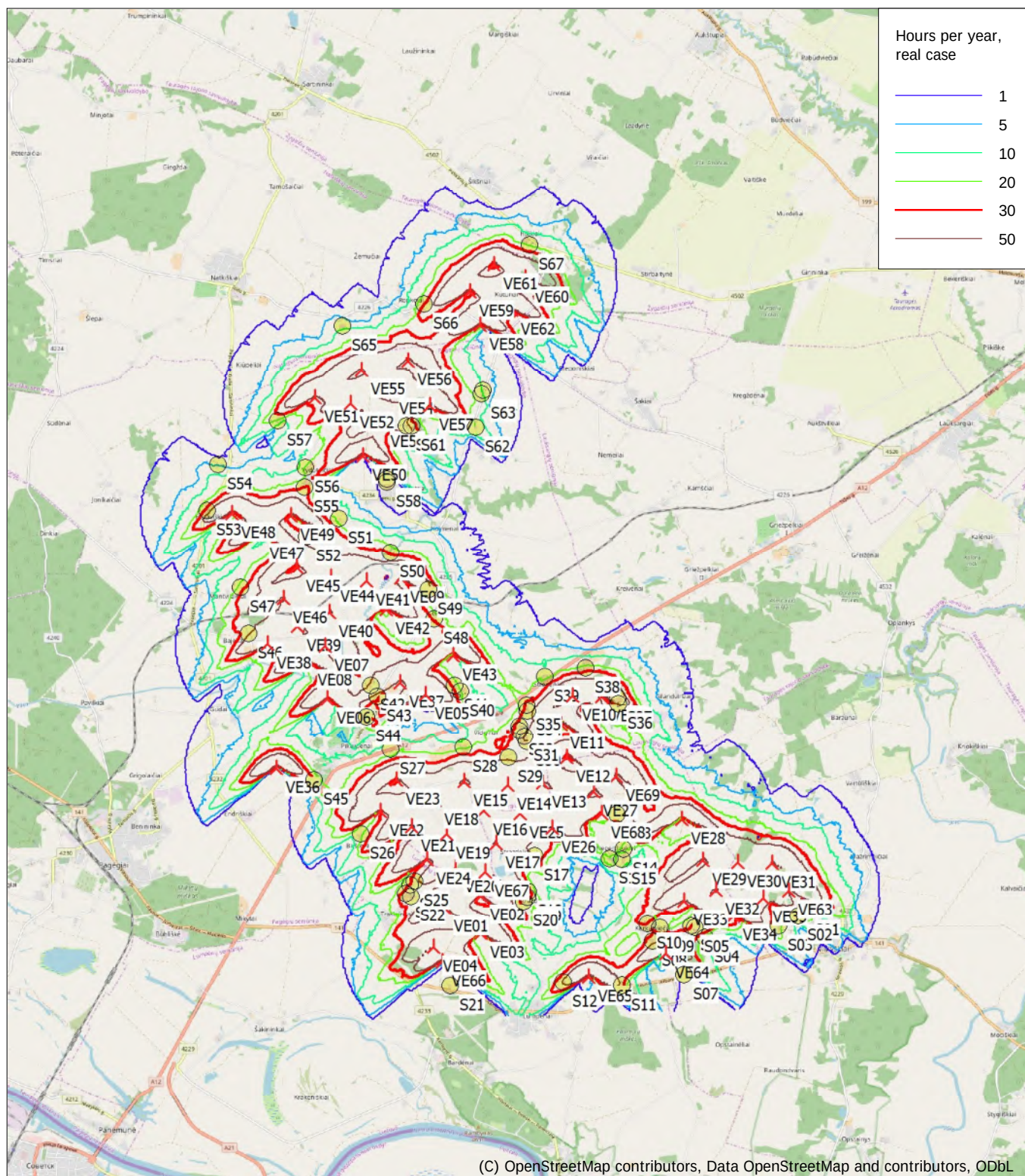
...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42	2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17	12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	266:11	52:38
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	367:06	97:42
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32	26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	115:44	16:43
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	200:09	20:15
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09	19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30	3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	88:38	28:40
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22	11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47	4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	187:04	62:52
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55	8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44	1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28	13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14	2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08	1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	77:34	20:13
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	87:00	27:43
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	198:01	60:34
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	159:07	31:49
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04	12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29	4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14	26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:01	17:33
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19	22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25	10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	170:16	25:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34	8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46	21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	166:48	41:32
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10	27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	94:32	26:47
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17	13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15	15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	181:40	59:30
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23	2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27	5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37	9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11	27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59	3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	54:49	15:50
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09	8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52	17:47
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55	1:44
VE63	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (493)	0:00	0:00
VE64	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (496)	568:08	86:54
VE65	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (497)	294:01	91:32
VE66	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (498)	18:30	1:33
VE67	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (499)	156:54	47:20
VE68	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (500)	331:18	109:47
VE69	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (501)	0:00	0:00
VE70	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (502)	538:00	149:42

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.

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipėda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-09-30 12:34/3.4.415

Calculation: PUV



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, ODbL

Map: EMD OpenStreetMap , Print scale 1:110 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 374 550 North: 6 117 690

 New WTG Shadow receptor

Flicker map level: Height Contours: reljef2.wpo (2)

1 scenarijus: PUV (pritaikius priemones)

Project: Pagegiu VE
Description: 1 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-10-01 10:48/3.4.415

SHADOW - Main Result

Calculation: PUV shutdown

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

Flicker curtailment by stopping specific turbines

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: reljef2.wpo (2)

Obstacles not used in calculation

Eye height for map: 1,5 m

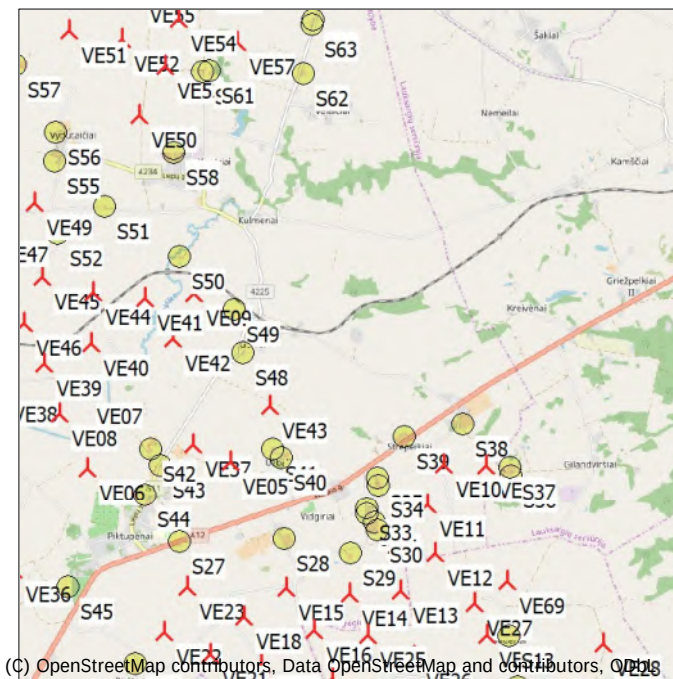
Grid resolution: 30,0 m

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

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SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 443	14,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 119 077	15,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 169	32,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE63	379 772	6 111 949	33,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE64	377 377	6 110 789	35,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE65	375 874	6 110 388	25,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE66	373 058	6 110 763	21,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE67	373 934	6 112 479	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE68	376 216	6 113 524	20,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE69	376 506	6 114 242	26,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE70	376 265	6 115 782	38,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

No.	Shadow, expected values	
	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	17:06	
S05*	14:48	24:10
S06*	14:27	15:54
S07	0:00	
S08*	3:08	38:31
S09*	23:14	1:56
S10*	29:11	0:02
S11*	7:18	32:11
S12*	0:00	54:22

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S13*	11:28	100:09
S14	21:33	
S15	16:41	
S16	21:57	
S17*	22:22	23:30
S18*	14:25	19:56
S19*	26:59	6:07
S20	28:22	
S21	0:00	
S22*	22:42	12:10
S23*	17:23	17:13
S24*	13:30	20:12
S25*	18:11	24:16
S26	17:34	
S27	14:01	
S28	18:44	
S29*	21:22	22:53
S30*	21:05	28:48
S31*	19:02	33:38
S32*	23:15	14:34
S33*	24:44	12:57
S34*	24:14	11:24
S35*	23:32	8:45
S36*	16:43	38:44
S37*	14:53	82:42
S38	24:23	
S39	18:21	
S40	20:21	
S41	25:11	
S42*	22:25	36:12
S43*	25:56	10:59
S44*	8:04	23:33
S45*	3:58	27:43
S46*	17:27	29:27
S47	24:30	
S48	27:23	
S49*	12:04	38:08
S50	27:36	
S51	16:57	
S52*	21:08	10:34
S53*	5:45	30:54
S54	4:25	
S55*	18:12	13:40
S56	20:41	
S57	18:03	
S58	0:00	
S59	0:00	
S60*	15:14	49:31
S61*	12:09	29:12
S62	19:06	
S63	10:39	
S64	9:40	
S65	8:02	
S66*	16:03	13:52
S67	19:00	

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42		29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23		31:18
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49		9:00

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

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No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27		2:52
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54		51:29
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	61:02	73:51	15:24
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42		2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17		12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	146:29	119:42	14:29
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	74:07	292:59	9:48
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32		26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	115:44		16:43
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	78:33	121:36	8:17
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09		19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30		3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	10:58	77:40	3:55
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22		11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47		4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	48:11	138:53	14:50
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55		8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44		1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28		13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14		2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08		1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	77:34		20:13
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06		27:40
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20		17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	82:44	88:38	24:47
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	0:00	87:00	0:00
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	53:08	144:53	11:59
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	22:11	136:56	1:53
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04		12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29		4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14		26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:01		17:33
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19		22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25		10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	62:55	107:21	14:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34		8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46		21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	57:41	109:07	9:54
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10		27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	55:08	39:24	13:06
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17		13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15		15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	23:42	157:58	8:11
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23		2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27		5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37		9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11		27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59		3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	13:28	41:21	1:58
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09		8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52		17:47
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55		1:44
VE63	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (493)	0:00		0:00
VE64	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (496)	384:24	183:44	51:33
VE65	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (497)	32:11	261:50	4:59
VE66	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (498)	18:30		1:33
VE67	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (499)	91:22	65:32	26:38
VE68	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (500)	27:59	303:19	9:37
VE69	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (501)	0:00		0:00
VE70	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (502)	180:55	357:05	32:27

Project: Pagegiu VE
Description: 1 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-10-01 10:48/3.4.415

SHADOW - Main Result

Calculation: PUV shutdown

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.

1 scenarijus: suminis PŪV ir esamos VE

Project:

Pagegiu VE

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 12:53/3.4.415

SHADOW - Main Result

Calculation: Suminis

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

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: reljef2.wpo (2)

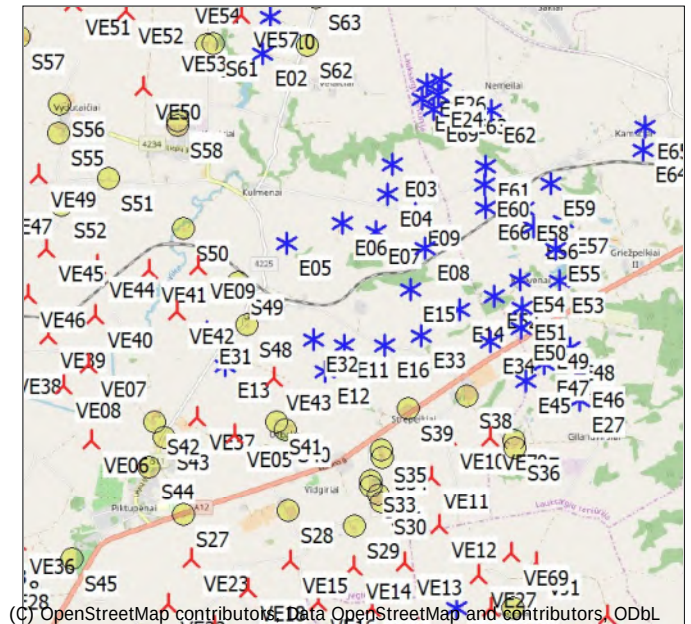
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



Scale 1:100 000
New WTG Existing WTG Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 443	14,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 119 077	15,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 169	32,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE63	379 772	6 111 949	33,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE64	377 377	6 110 789	35,4	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE65	375 874	6 110 388	25,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE66	373 058	6 110 763	21,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE67	373 934	6 112 479	12,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE68	376 216	6 113 524	20,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE69	376 506	6 114 242	26,4	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE70	376 265	6 115 782	38,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5.... Yes		GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5.... Yes		GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

per year

[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	17:07
S05	39:55
S06	31:19
S07	3:23
S08	52:07
S09	27:47
S10	34:41
S11	45:36
S12	56:33
S13	136:46

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

Shadow, expected values

No. Shadow hours

per year

[h/year]

S14	54:41
S15	28:19
S16	43:09
S17	55:32
S18	36:50
S19	35:37
S20	31:06
S21	1:33
S22	34:51
S23	34:21
S24	33:25
S25	42:01
S26	17:34
S27	14:01
S28	18:44
S29	44:19
S30	49:09
S31	51:53
S32	37:48
S33	37:37
S34	35:38
S35	32:17
S36	55:48
S37	97:49
S38	37:38
S39	21:09
S40	20:21
S41	28:04
S42	60:08
S43	36:55
S44	31:41
S45	32:29
S46	46:47
S47	24:30
S48	38:26
S49	55:48
S50	29:07
S51	16:57
S52	31:41
S53	36:36
S54	4:25
S55	31:25
S56	20:41
S57	18:03
S58	0:17
S59	1:25
S60	77:56
S61	59:07
S62	25:38
S63	17:04
S64	15:17
S65	8:02
S66	29:59
S67	19:00

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

No. Name

E01	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (2)
E02	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (3)
E03	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (4)
E04	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (5)
E05	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (6)

Worst case Expected
[h/year] [h/year]

3:57	1:04
73:50	15:48
1:50	0:08
0:00	0:00
9:01	1:34

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
E06	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (7)	9:18	3:08
E07	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (8)	10:07	3:25
E08	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (9)	0:00	0:00
E09	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (10)	0:00	0:00
E10	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (11)	72:28	21:32
E11	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (12)	8:34	1:55
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:26	4:36
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:32	6:52
E14	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (15)	0:00	0:00
E15	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (16)	0:00	0:00
E16	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (17)	21:41	6:46
E17	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (18)	35:03	7:52
E18	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (19)	74:37	20:31
E19	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (20)	73:47	23:51
E20	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (21)	30:28	8:07
E21	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (22)	35:45	6:35
E22	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (23)	111:56	20:13
E23	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (24)	0:00	0:00
E24	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (25)	0:00	0:00
E25	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (26)	0:00	0:00
E26	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (27)	0:00	0:00
E27	ENERCON E-40/5.40 500 40.3 !O! hub: 44,0 m (TOT: 64,2 m) (28)	0:00	0:00
E28	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (29)	0:00	0:00
E29	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (30)	0:00	0:00
E30	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (31)	0:00	0:00
E31	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (32)	16:46	3:00
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:04	0:42
E33	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (34)	0:00	0:00
E34	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (35)	0:00	0:00
E35	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (36)	4:54	1:27
E36	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (37)	39:45	4:47
E37	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (38)	0:00	0:00
E38	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (39)	8:33	1:45
E39	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (40)	3:56	0:23
E40	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (41)	83:33	25:08
E41	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (42)	61:36	8:21
E42	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (43)	6:46	2:09
E43	ENERCON E-66/18.70 1800 70.0 !O! hub: 65,0 m (TOT: 100,0 m) (44)	2:45	0:44
E44	ENERCON E-70 E4 2000 71.0 !O! hub: 64,0 m (TOT: 99,5 m) (45)	4:17	0:22
E45	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (46)	12:21	4:06
E46	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (47)	2:25	0:45
E47	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (48)	7:39	2:44
E48	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (49)	3:47	1:21
E49	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (50)	5:23	1:48
E50	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (51)	0:00	0:00
E51	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (52)	0:00	0:00
E52	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (53)	0:00	0:00
E53	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (54)	0:00	0:00
E54	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (55)	0:00	0:00
E55	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (56)	0:00	0:00
E56	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (57)	0:00	0:00
E57	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (58)	0:00	0:00
E58	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (59)	0:00	0:00
E59	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (60)	0:00	0:00
E60	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (61)	0:00	0:00
E61	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (62)	0:00	0:00
E62	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (63)	0:00	0:00
E63	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (64)	0:00	0:00
E64	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (65)	0:00	0:00
E65	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (66)	0:00	0:00
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00	0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00	0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00	0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00	0:00
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42	29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23	31:15

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49	9:01
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27	2:52
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54	51:27
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	134:53	38:58
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42	2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17	12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	266:11	52:38
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	367:06	97:42
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32	26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	115:44	16:43
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	200:09	20:15
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09	19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30	3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	88:38	28:40
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22	11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47	4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	187:04	62:52
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55	8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44	1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28	13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14	2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08	1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	77:34	20:13
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	87:00	27:43
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	198:01	60:34
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	159:07	31:49
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04	12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29	4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14	26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:01	17:33
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19	22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25	10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	170:16	25:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34	8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46	21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	166:48	41:32
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10	27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	94:32	26:47
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17	13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15	15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	181:40	59:30
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23	2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27	5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37	9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11	27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59	3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	54:49	15:50
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09	8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52	17:47
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55	1:44
VE63	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (493)	0:00	0:00
VE64	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (496)	568:08	86:54
VE65	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (497)	294:01	91:32
VE66	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (498)	18:30	1:33
VE67	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (499)	156:54	47:20
VE68	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (500)	331:18	109:47

To be continued on next page...

Project:

Pagegiu VE

Licensed user:

Vsi Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipeda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 12:53/3.4.415

SHADOW - Main Result

Calculation: Suminis

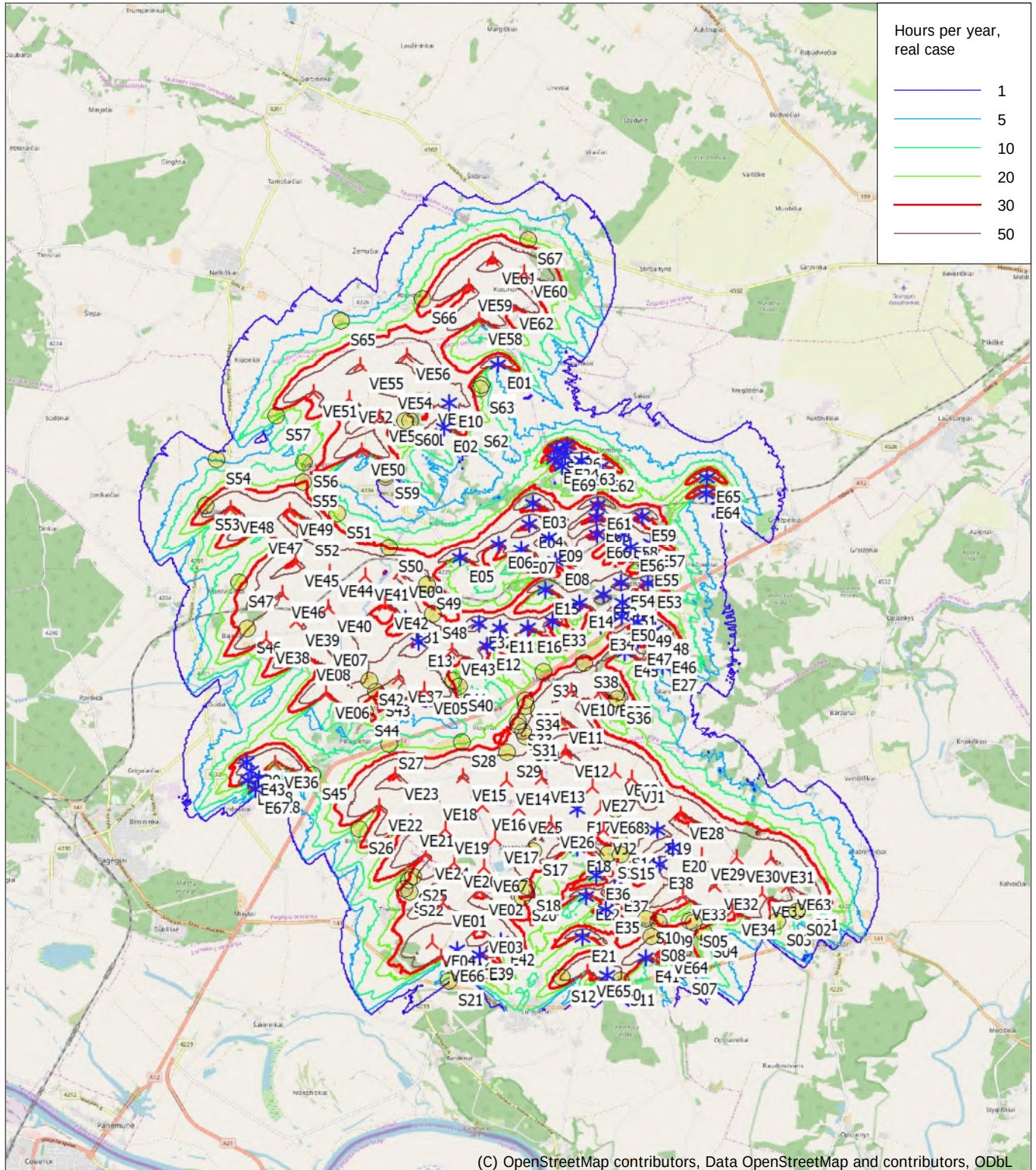
...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE69	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (501)	0:00	0:00
VE70	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (502)	538:00	149:42
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (503)	0:00	0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (504)	192:31	34:41

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.

SHADOW - Map

Calculation: Suminis



Map: EMD OpenStreetMap, Print scale 1:110 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 374 550 North: 6 117 690
 New WTG Existing WTG Shadow receptor
 Flicker map level: Height Contours: reljef2.wpo (2)

1 scenarijus: suminis PŪV ir esamos VE (pritaikius priemones)

Project:

Pagegiu VE

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipeda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 14:40/3.4.415

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

Flicker curtailment by stopping specific turbines

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: reljef2.wpo (2)

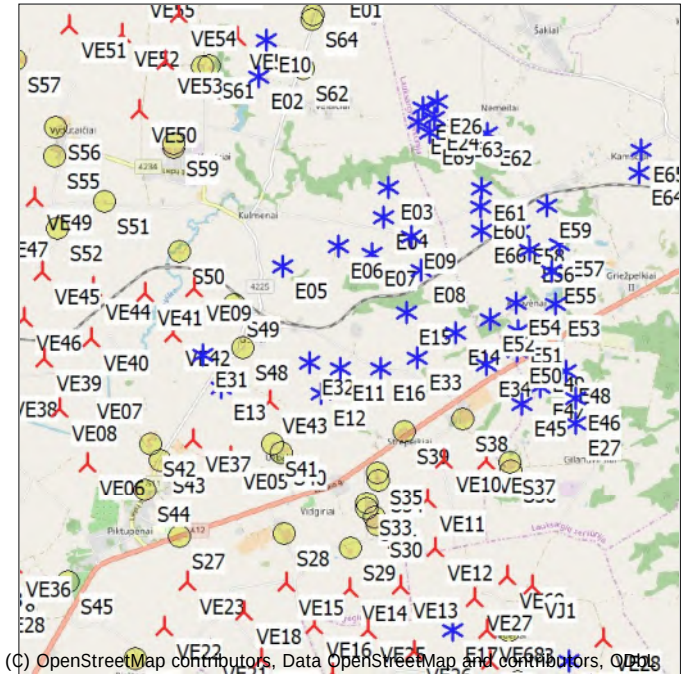
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



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Scale 1:100 000
New WTG Existing WTG Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0

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SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

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	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

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	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 443	14,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 119 077	15,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 169	32,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE63	379 772	6 111 949	33,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE64	377 377	6 110 789	35,4	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE65	375 874	6 110 388	25,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE66	373 058	6 110 763	21,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE67	373 934	6 112 479	12,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE68	376 216	6 113 524	20,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE69	376 506	6 114 242	26,4	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE70	376 265	6 115 782	38,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5.... Yes		GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5.... Yes		GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	17:07	
S05*	11:18	28:37
S06*	10:08	21:14
S07	3:23	
S08*	13:29	38:31
S09*	27:42	0:05
S10*	26:34	9:22
S11*	22:45	22:39

To be continued on next page...

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S12*	2:11	54:22
S13*	29:04	108:18
S14*	29:15	25:24
S15*	24:52	3:26
S16*	26:15	16:56
S17*	29:33	25:51
S18*	16:43	19:56
S19*	26:58	8:33
S20*	26:53	4:08
S21	1:33	
S22*	22:59	12:10
S23*	17:34	17:13
S24*	13:32	20:12
S25*	18:14	24:16
S26	17:34	
S27	14:01	
S28	18:44	
S29*	21:26	22:53
S30*	21:40	28:48
S31*	19:19	33:38
S32*	23:23	14:34
S33*	24:44	12:57
S34*	24:14	11:24
S35*	23:32	8:45
S36*	16:52	38:44
S37*	15:05	82:42
S38*	26:25	11:29
S39	21:09	
S40	20:21	
S41	28:04	
S42*	23:58	36:12
S43*	25:56	10:59
S44*	8:04	23:33
S45*	4:42	27:43
S46*	17:27	29:27
S47	24:30	
S48*	27:53	10:46
S49*	17:23	38:08
S50	29:07	
S51	16:57	
S52*	21:08	10:34
S53*	5:45	30:54
S54	4:25	
S55*	18:12	13:40
S56	20:41	
S57	18:03	
S58	0:17	
S59	1:25	
S60*	28:23	49:31
S61*	29:54	29:12
S62	25:38	
S63	17:04	
S64	15:17	
S65	8:02	
S66*	16:09	13:52
S67	19:00	

* Receptors where shadow flicker is reduced by curtailment

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00		0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00		0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00		0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00		0:00
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42		29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23		31:18
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49		9:00
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27		2:52
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54		51:29
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	61:02	73:51	15:24
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42		2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17		12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	146:29	119:42	14:29
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	74:07	292:59	9:48
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32		26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	103:35	12:09	12:45
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	78:33	121:36	8:17
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09		19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30		3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	10:58	77:40	3:55
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22		11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47		4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	39:09	147:55	12:32
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55		8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44		1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28		13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14		2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08		1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	20:40	56:54	3:19
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	18:36	65:30	6:20
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20		17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	95:51	75:31	28:59
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	0:00	87:00	0:00
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	53:08	144:53	11:59
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	22:11	136:56	1:53
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04		12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29		4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14		26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	31:24	34:37	6:47
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19		22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25		10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	62:55	107:21	14:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34		8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46		21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	57:41	109:07	9:54
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10		27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	55:08	39:24	13:06
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17		13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15		15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	23:42	157:58	8:11
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23		2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27		5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37		9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11		27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59		3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	13:28	41:21	1:58
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09		8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52		17:47

To be continued on next page...

Project:

Pagegiu VE

Licensed user:

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Calculated:

2021-09-30 14:40/3.4.415

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

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No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55		1:44
VE63	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (493)	0:00		0:00
VE64	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (496)	196:04	372:04	25:17
VE65	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (497)	32:11	261:50	4:59
VE66	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (498)	18:30		1:33
VE67	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (499)	77:22	79:32	22:26
VE68	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (500)	27:59	303:19	9:37
VE69	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (501)	0:00		0:00
VE70	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (502)	70:27	467:33	20:58
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (503)	0:00		0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (504)	156:37	35:54	23:53

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.

2 scenarijus: PUV

Project: Pagegiu VE
Description: 2 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-09-30 12:34/3.4.415

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,41 2,36 4,03 5,55 8,35 8,36 8,16 7,72 5,06 3,23 1,33 0,98

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 438 613 701 788 701 701 876 1 051 1 314 788 350 8 759

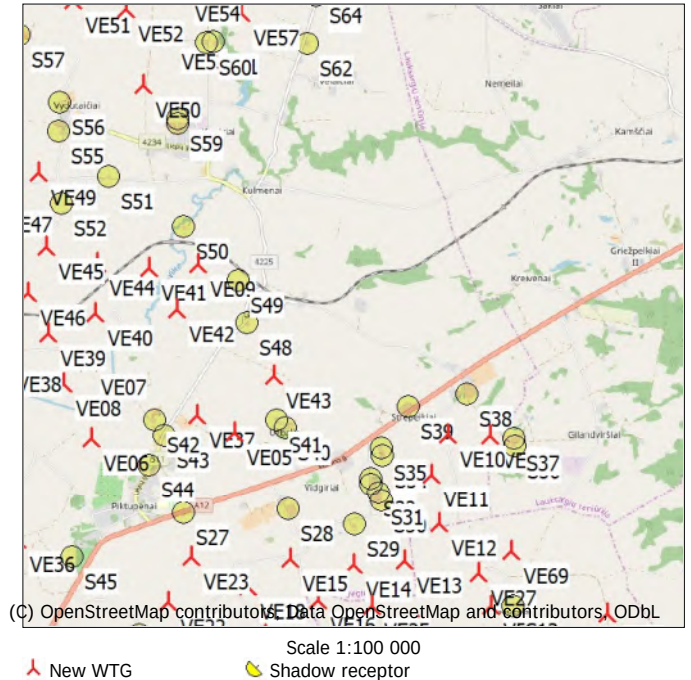
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: reljef2.wpo (2)
Obstacles not used in calculation
Eye height for map: 1,5 m
Grid resolution: 30,0 m

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	373 577	6 114 225	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0

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SHADOW - Main Result

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	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE63	379 772	6 111 949	33,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE64	377 377	6 110 789	35,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE65	375 874	6 110 388	25,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE66	373 058	6 110 763	21,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE67	373 934	6 112 479	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE68	376 216	6 113 524	20,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE69	376 506	6 114 242	26,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE70	376 265	6 115 782	38,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

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No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

per year

[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	18:19
S05	39:57
S06	31:00
S07	0:00
S08	46:22
S09	28:29
S10	31:20
S11	40:47
S12	55:30
S13	108:22
S14	22:55

To be continued on next page...

SHADOW - Main Result

...continued from previous page
Shadow, expected values

No.	Shadow hours per year [h/year]
S15	18:29
S16	25:12
S17	54:10
S18	40:40
S19	38:23
S20	35:16
S21	0:00
S22	39:32
S23	40:00
S24	42:27
S25	51:16
S26	22:10
S27	17:35
S28	25:04
S29	53:46
S30	53:13
S31	60:53
S32	45:39
S33	44:07
S34	37:54
S35	34:32
S36	44:40
S37	97:02
S38	25:52
S39	20:11
S40	25:23
S41	29:40
S42	76:13
S43	40:34
S44	36:31
S45	35:26
S46	55:32
S47	30:37
S48	33:58
S49	46:57
S50	34:15
S51	21:48
S52	38:31
S53	45:02
S54	6:54
S55	35:43
S56	26:22
S57	15:25
S58	0:00
S59	0:00
S60	72:56
S61	54:28
S62	19:30
S63	13:12
S64	11:51
S65	10:40
S66	38:30
S67	23:38

Total amount of flickering on the shadow receptors caused by each WTG
No. Name

	Worst case [h/year]	Expected [h/year]
VE01 VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20	34:56
VE02 VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	157:32	42:03
VE03 VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10	12:52
VE04 VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09	5:52
VE05 VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	224:02	64:52
VE06 VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	147:41	42:52

To be continued on next page...

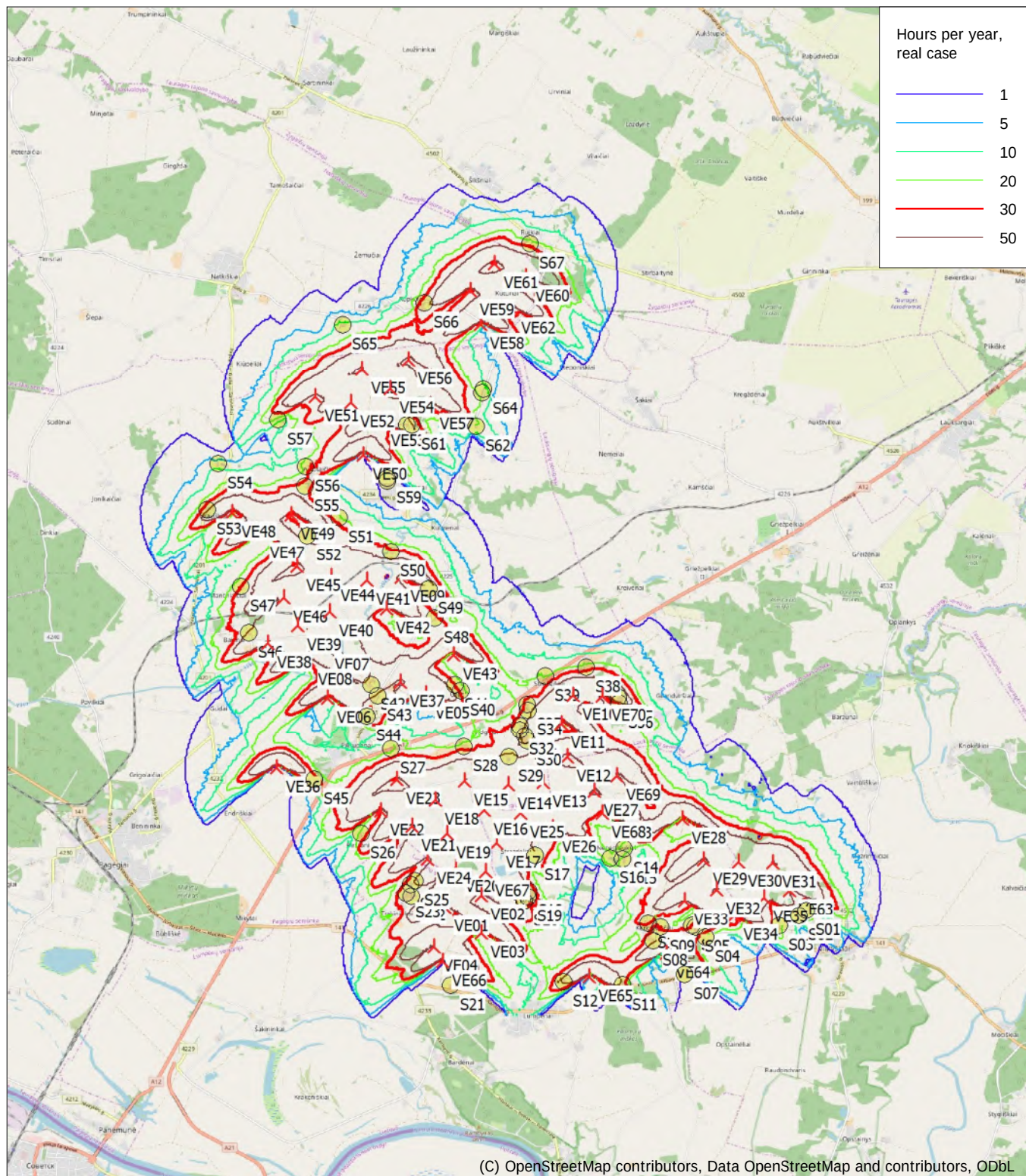
SHADOW - Main Result

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13	2:58
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:43	21:13
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	265:18	50:15
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	413:07	106:06
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03	31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	142:43	21:10
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	255:36	27:07
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00	24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32	6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	104:42	33:59
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35	15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39	5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	206:18	68:53
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47	10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53	2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10	18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59	2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33	3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	104:52	27:04
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	94:20	30:07
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	215:37	64:42
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	178:29	36:41
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:02	15:08
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:26	6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:27	32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	91:50	22:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28	29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32	14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	196:21	31:10
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22	10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01	26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	208:04	51:49
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35	32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	106:30	30:29
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28	10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	63:25	20:23
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	198:49	65:44
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24	2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08	6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11	13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51	28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31	4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	67:52	19:59
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09	11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49	21:10
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17	3:05
VE63	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (493)	0:00	0:00
VE64	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (496)	593:12	94:28
VE65	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (497)	319:21	98:39
VE66	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (498)	30:47	2:39
VE67	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (499)	165:22	50:07
VE68	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (500)	312:39	104:56
VE69	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (501)	0:00	0:00
VE70	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (502)	514:38	143:14

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.

SHADOW - Map



Map: EMD OpenStreetMap, Print scale 1:110 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 374 550 North: 6 117 690
 New WTG Shadow receptor
 Flicker map level: Height Contours: reljef2.wpo (2)

2 scenarijus: PŪV (pritaikius priemones)

Project: Pagegiu VE
Description: 2 scenarijus (tik PUV)

Licensed user:
Vsi Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-10-01 11:06/3.4.415

SHADOW - Main Result

Calculation: PUV shutdown

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,41 2,36 4,03 5,55 8,35 8,36 8,16 7,72 5,06 3,23 1,33 0,98

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 438 613 701 788 701 701 876 1 051 1 314 788 350 8 759

Flicker curtailment by stopping specific turbines

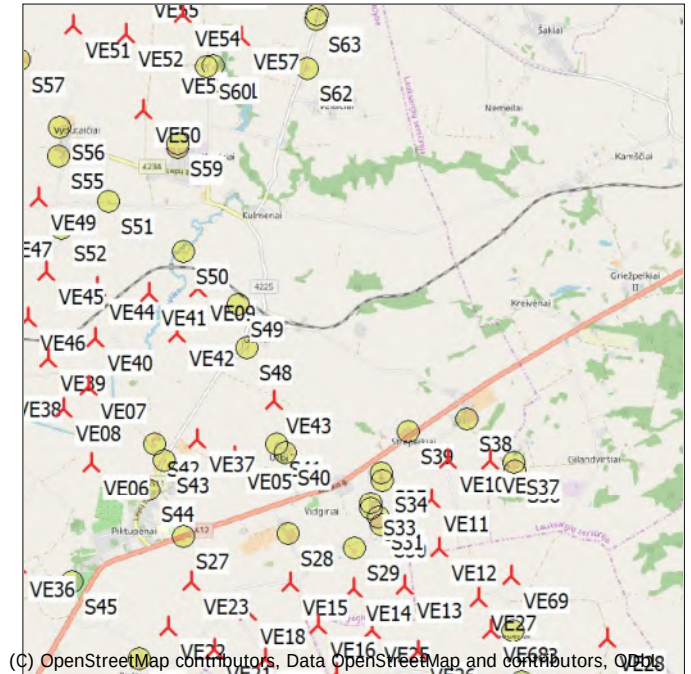
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: reljef2.wpo (2)
Obstacles not used in calculation
Eye height for map: 1,5 m
Grid resolution: 30,0 m

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	373 577	6 114 225	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...



SHADOW - Main Result

Calculation: PUV shutdown

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	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE63	379 772	6 111 949	33,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE64	377 377	6 110 789	35,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE65	375 874	6 110 388	25,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE66	373 058	6 110 763	21,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE67	373 934	6 112 479	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE68	376 216	6 113 524	20,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE69	376 506	6 114 242	26,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE70	376 265	6 115 782	38,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

No.	Shadow, expected values	
	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	18:19	
S05*	15:51	24:10
S06*	15:08	15:54
S07	0:00	
S08*	3:47	42:30
S09*	26:41	1:56
S10*	21:31	10:57
S11*	4:12	36:34
S12*	0:00	55:30

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SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S13*	13:46	94:38
S14	22:55	
S15	18:29	
S16	25:12	
S17*	26:27	27:28
S18*	18:06	22:19
S19*	25:30	12:45
S20*	25:36	9:34
S21	0:00	
S22*	29:35	10:14
S23*	23:08	17:21
S24*	18:48	24:13
S25*	24:06	27:42
S26	22:10	
S27	17:35	
S28	25:04	
S29*	27:44	26:00
S30*	26:26	28:07
S31*	25:25	36:44
S32*	28:07	17:50
S33*	28:43	15:35
S34*	25:00	12:54
S35*	24:40	9:51
S36*	18:17	26:12
S37*	16:21	80:36
S38	25:52	
S39	20:11	
S40	25:23	
S41	29:40	
S42*	29:08	47:09
S43*	29:37	10:56
S44*	12:40	23:48
S45*	5:15	30:07
S46*	22:12	33:25
S47*	17:30	13:35
S48*	21:23	12:59
S49*	15:02	31:43
S50*	17:27	16:54
S51	21:48	
S52*	26:30	12:00
S53*	7:02	38:04
S54	6:54	
S55*	21:31	14:39
S56	26:22	
S57	15:25	
S58	0:00	
S59	0:00	
S60*	19:17	53:40
S61*	15:01	39:28
S62	19:30	
S63	13:12	
S64	11:51	
S65	10:40	
S66*	21:11	17:27
S67	23:38	

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20		34:56
VE02	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	157:32		42:06
VE03	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10		12:52

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE04	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09		5:53
VE05	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	187:41	36:21	53:58
VE06	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	72:43	74:58	19:03
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13		2:58
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:43		21:13
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	15:43	249:35	1:37
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	108:44	304:23	14:02
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03		31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	142:43		21:10
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	112:13	143:23	11:52
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00		24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32		6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	15:05	89:37	5:22
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35		15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39		5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	23:22	182:56	6:38
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47		10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53		2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10		18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59		2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33		3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	104:52		27:04
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06		27:40
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20		17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	82:44	88:38	24:47
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	0:00	94:20	0:00
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	76:00	139:37	17:30
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	33:15	145:14	2:55
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:02		15:08
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:26		6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:27		32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	50:59	40:51	9:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28		29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32		14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	34:42	161:39	4:02
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22		10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01		26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	81:58	126:06	13:31
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35		32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	64:09	42:21	15:50
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28		10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	63:25		20:23
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	28:00	170:49	9:39
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24		2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08		6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11		13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51		28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31		4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	16:27	51:25	2:31
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09		11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49		21:10
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17		3:05
VE63	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (493)	0:00		0:00
VE64	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (496)	301:58	291:14	44:16
VE65	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (497)	41:39	277:42	6:34
VE66	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (498)	30:47		2:39
VE67	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (499)	96:30	68:52	28:24
VE68	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (500)	29:58	282:41	10:18
VE69	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (501)	0:00		0:00
VE70	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (502)	197:58	316:40	38:19

Project: Pagegiu VE
Description: 2 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-10-01 11:06/3.4.415

SHADOW - Main Result

Calculation: PUV shutdown

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.

2 scenarijus: suminis PŪV ir esamos VE

Project:

Pagegiu VE

Licensed user:

VSI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 12:52/3.4.415

SHADOW - Main Result

Calculation: Suminis

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

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: reljef2.wpo (2)

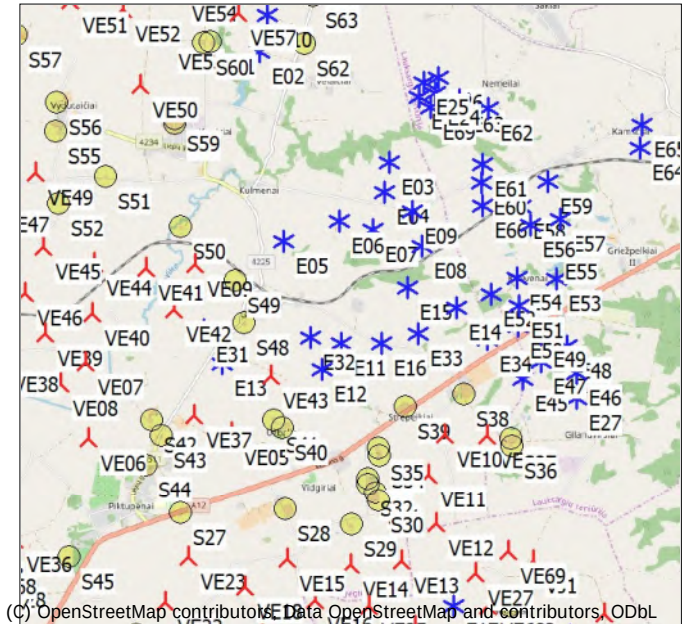
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



Scale 1:100 000
New WTG Existing WTG Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	375 577	6 114 225	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE63	379 772	6 111 949	33,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE64	377 377	6 110 789	35,4	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE65	375 874	6 110 388	25,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE66	373 058	6 110 763	21,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE67	373 934	6 112 479	12,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE68	376 216	6 113 524	20,5	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE69	376 506	6 114 242	26,4	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE70	376 265	6 115 782	38,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5.... Yes	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5.... Yes	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

per year

[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	18:36
S05	40:58
S06	32:01
S07	3:23
S08	56:49
S09	31:15
S10	36:47
S11	44:04
S12	57:41
S13	136:21

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

Shadow, expected values

No. Shadow hours

per year

[h/year]

S14	56:02
S15	30:07
S16	46:26
S17	63:37
S18	42:56
S19	40:50
S20	38:01
S21	1:33
S22	39:49
S23	40:10
S24	42:29
S25	51:19
S26	22:10
S27	17:35
S28	25:04
S29	54:03
S30	53:46
S31	61:07
S32	45:46
S33	44:07
S34	37:54
S35	34:32
S36	44:49
S37	97:14
S38	39:08
S39	22:59
S40	25:23
S41	32:33
S42	77:47
S43	40:34
S44	36:31
S45	36:11
S46	55:32
S47	30:37
S48	44:12
S49	52:17
S50	35:47
S51	21:48
S52	38:31
S53	45:02
S54	6:54
S55	35:43
S56	26:22
S57	15:25
S58	0:17
S59	1:25
S60	86:07
S61	72:15
S62	26:02
S63	19:38
S64	17:30
S65	10:40
S66	38:37
S67	23:38

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

No. Name

E01	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (2)
E02	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (3)
E03	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (4)
E04	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (5)
E05	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (6)

Worst case Expected
[h/year] [h/year]

3:57	1:04
73:50	15:48
1:50	0:08
0:00	0:00
9:01	1:34

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
E06	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (7)	9:18	3:08
E07	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (8)	10:07	3:25
E08	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (9)	0:00	0:00
E09	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (10)	0:00	0:00
E10	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (11)	72:28	21:32
E11	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (12)	8:34	1:55
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:26	4:36
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:32	6:52
E14	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (15)	0:00	0:00
E15	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (16)	0:00	0:00
E16	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (17)	21:41	6:46
E17	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (18)	35:03	7:52
E18	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (19)	74:37	20:31
E19	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (20)	73:47	23:51
E20	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (21)	30:28	8:07
E21	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (22)	35:45	6:35
E22	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (23)	111:56	20:13
E23	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (24)	0:00	0:00
E24	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (25)	0:00	0:00
E25	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (26)	0:00	0:00
E26	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (27)	0:00	0:00
E27	ENERCON E-40/5.40 500 40.3 !O! hub: 44,0 m (TOT: 64,2 m) (28)	0:00	0:00
E28	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (29)	0:00	0:00
E29	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (30)	0:00	0:00
E30	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (31)	0:00	0:00
E31	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (32)	16:46	3:00
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:04	0:42
E33	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (34)	0:00	0:00
E34	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (35)	0:00	0:00
E35	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (36)	4:54	1:27
E36	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (37)	39:45	4:47
E37	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (38)	0:00	0:00
E38	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (39)	8:33	1:45
E39	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (40)	3:56	0:23
E40	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (41)	83:33	25:08
E41	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (42)	61:36	8:21
E42	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (43)	6:46	2:09
E43	ENERCON E-66/18.70 1800 70.0 !O! hub: 65,0 m (TOT: 100,0 m) (44)	2:45	0:44
E44	ENERCON E-70 E4 2000 71.0 !O! hub: 64,0 m (TOT: 99,5 m) (45)	4:17	0:22
E45	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (46)	12:21	4:06
E46	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (47)	2:25	0:45
E47	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (48)	7:39	2:44
E48	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (49)	3:47	1:21
E49	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (50)	5:23	1:48
E50	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (51)	0:00	0:00
E51	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (52)	0:00	0:00
E52	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (53)	0:00	0:00
E53	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (54)	0:00	0:00
E54	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (55)	0:00	0:00
E55	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (56)	0:00	0:00
E56	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (57)	0:00	0:00
E57	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (58)	0:00	0:00
E58	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (59)	0:00	0:00
E59	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (60)	0:00	0:00
E60	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (61)	0:00	0:00
E61	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (62)	0:00	0:00
E62	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (63)	0:00	0:00
E63	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (64)	0:00	0:00
E64	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (65)	0:00	0:00
E65	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (66)	0:00	0:00
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00	0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00	0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00	0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00	0:00
VE01	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20	34:56
VE02	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	157:32	42:03

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE03	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10	12:52
VE04	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09	5:52
VE05	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	224:02	64:52
VE06	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	147:41	42:52
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13	2:58
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:43	21:13
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	265:18	50:15
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	413:07	106:06
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03	31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	142:43	21:10
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	255:36	27:07
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00	24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32	6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	104:42	33:59
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35	15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39	5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	206:18	68:53
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47	10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53	2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10	18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59	2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33	3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	104:52	27:04
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	94:20	30:07
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	215:37	64:42
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	178:29	36:41
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:02	15:08
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:26	6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:27	32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	91:50	22:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28	29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32	14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	196:21	31:10
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22	10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01	26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	208:04	51:49
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35	32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	106:30	30:29
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28	10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	63:25	20:23
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	198:49	65:44
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24	2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08	6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11	13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51	28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31	4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	67:52	19:59
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09	11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49	21:10
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17	3:05
VE63	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (493)	0:00	0:00
VE64	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (496)	593:12	94:28
VE65	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (497)	319:21	98:39
VE66	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (498)	30:47	2:39
VE67	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (499)	165:22	50:07
VE68	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (500)	312:39	104:56

To be continued on next page...

Project:

Pagegiu VE

Licensed user:

Vsi Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipeda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 12:52/3.4.415

SHADOW - Main Result

Calculation: Suminis

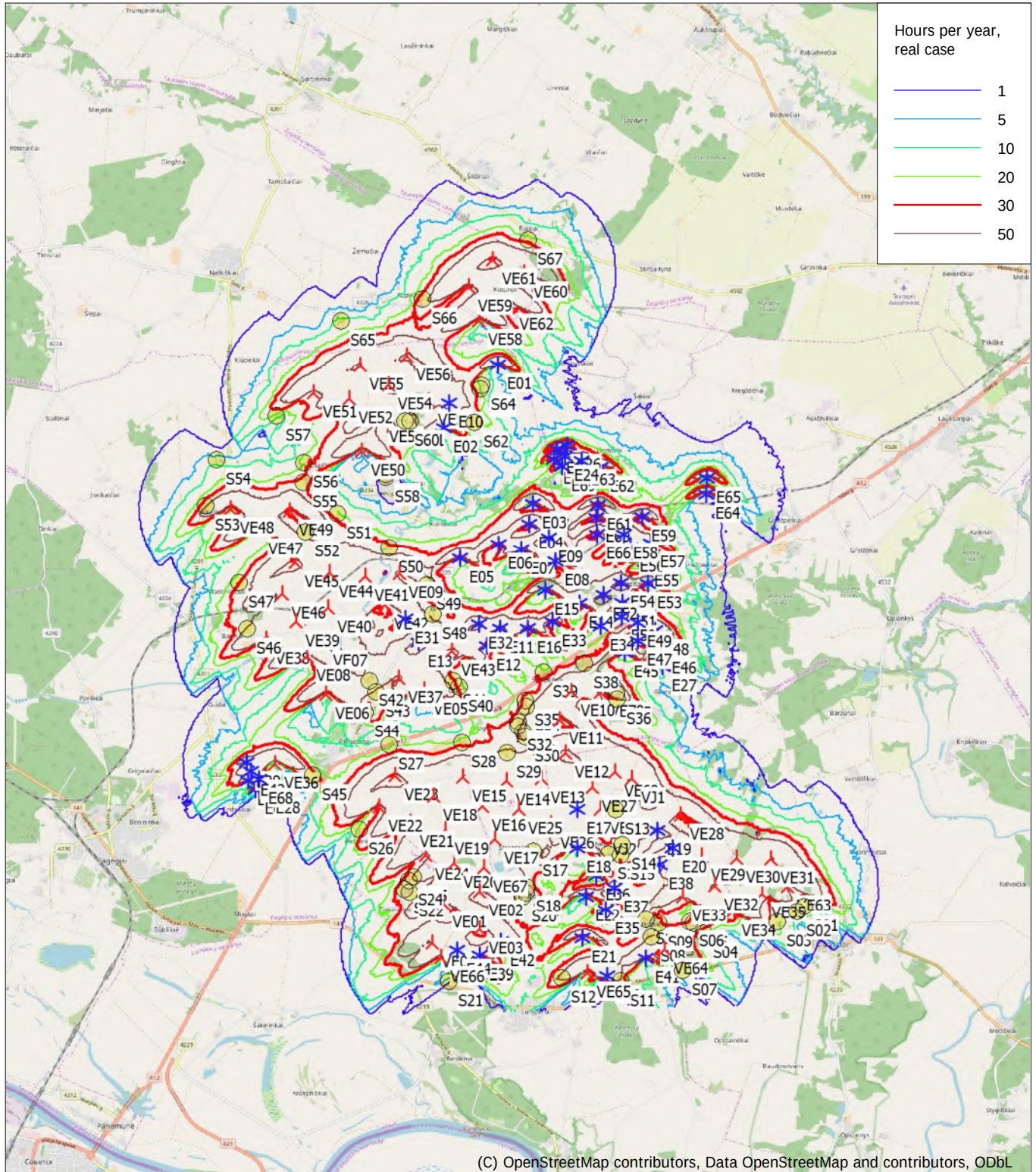
...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE69	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (501)	0:00	0:00
VE70	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (502)	514:38	143:14
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (505)	0:00	0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (506)	192:31	34:41

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.

SHADOW - Map

Calculation: Suminis



Map: EMD OpenStreetMap, Print scale 1:110 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 374 550 North: 6 117 690
 New WTG Existing WTG Shadow receptor
 Flicker map level: Height Contours: reljef2.wpo (2)

2 scenarijus: suminis PŪV ir esamos VE (pritaikius priemones)

Project:

Pagegiu VE

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

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Calculated:

2021-09-30 15:36/3.4.415

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

Flicker curtailment by stopping specific turbines

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: reljef2.wpo (2)

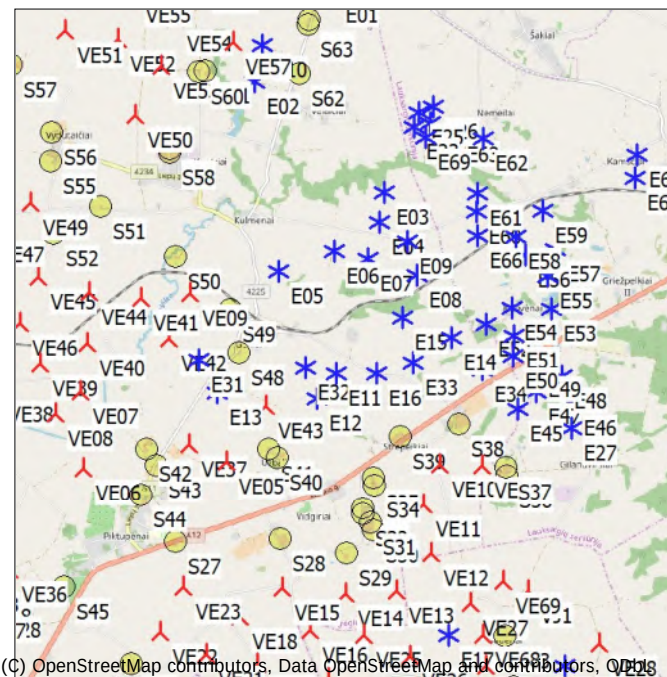
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



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Scale 1:100 000
New WTG Existing WTG Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	373 577	6 114 225	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE63	379 772	6 111 949	33,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE64	377 377	6 110 789	35,4	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE65	375 874	6 110 388	25,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE66	373 058	6 110 763	21,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE67	373 934	6 112 479	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE68	376 216	6 113 524	20,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE69	376 506	6 114 242	26,4	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE70	376 265	6 115 782	38,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5....	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5....	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	18:36	
S05*	11:38	29:19
S06*	10:08	21:55
S07	3:23	
S08*	14:07	42:30
S09*	17:08	15:29
S10*	27:03	10:57
S11*	26:57	17:06

To be continued on next page...

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S12*	2:11	55:30
S13*	29:04	107:52
S14*	29:15	26:45
S15*	19:22	10:49
S16*	26:15	20:11
S17*	25:41	37:47
S18*	22:06	20:38
S19*	22:25	18:17
S20*	22:05	15:57
S21	1:33	
S22*	24:32	15:48
S23*	21:14	19:30
S24*	18:50	24:13
S25*	24:10	27:42
S26	22:10	
S27	17:35	
S28	25:04	
S29*	28:00	26:00
S30*	27:02	28:07
S31*	25:41	36:44
S32*	28:16	17:50
S33*	28:43	15:35
S34*	25:00	12:54
S35*	24:40	9:51
S36*	18:26	26:12
S37*	16:34	80:36
S38*	26:24	12:54
S39	22:59	
S40*	21:47	3:35
S41*	11:05	21:28
S42*	24:36	53:11
S43*	29:37	10:56
S44*	12:40	23:48
S45*	5:59	30:07
S46*	22:12	33:25
S47*	28:16	2:55
S48*	20:42	23:52
S49*	20:22	31:43
S50*	19:02	16:54
S51	21:48	
S52*	26:30	12:00
S53*	7:02	38:04
S54	6:54	
S55*	21:31	14:39
S56	26:22	
S57	15:25	
S58	0:17	
S59	1:25	
S60*	18:58	66:59
S61*	22:55	49:13
S62	26:02	
S63	19:38	
S64	17:30	
S65	10:40	
S66*	21:18	17:27
S67	23:38	

* Receptors where shadow flicker is reduced by curtailment

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00		0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00		0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00		0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00		0:00
VE01	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20		34:56
VE02	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	109:29	48:03	26:52
VE03	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10		12:52
VE04	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09		5:53
VE05	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	83:16	140:46	26:22
VE06	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	72:43	74:58	19:03
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13		2:58
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:43		21:13
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	15:43	249:35	1:37
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	108:44	304:23	14:02
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03		31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	126:09	16:34	15:45
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	112:13	143:23	11:52
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00		24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32		6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	15:05	89:37	5:22
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35		15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39		5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	66:04	140:14	20:22
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47		10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53		2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10		18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59		2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33		3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	30:02	74:50	4:43
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	0:00	84:06	0:00
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20		17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	95:51	75:31	28:59
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	0:00	94:20	0:00
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	76:00	139:37	17:30
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	0:00	178:29	0:00
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:02		15:08
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:26		6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	130:45	34:42	21:17
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	50:59	40:51	9:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28		29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32		14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	73:22	122:59	17:38
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22		10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01		26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	81:58	126:06	13:31
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35		32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	64:09	42:21	15:50
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28		10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	16:40	46:45	5:20
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	28:00	170:49	9:39
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24		2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08		6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11		13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51		28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31		4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	16:27	51:25	2:31
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09		11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49		21:10

To be continued on next page...

Project:

Pagegiu VE

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipeda

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Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 15:36/3.4.415

SHADOW - Main Result

Calculation: SUMINIS SHUTDOWN

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17		3:05
VE63	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (493)	0:00		0:00
VE64	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (496)	79:43	513:29	18:32
VE65	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (497)	41:39	277:42	6:34
VE66	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (498)	30:47		2:39
VE67	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (499)	57:26	107:56	15:48
VE68	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (500)	0:00	312:39	0:00
VE69	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (501)	0:00		0:00
VE70	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (502)	83:39	430:59	25:25
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (505)	0:00		0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (506)	156:37	35:54	23:53

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.

3 scenarijus: PUV

Project: Pagegiu VE
Description: 3 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
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Viaceslav / gis@corpi.lt
Calculated:
2021-09-30 12:33/3.4.415

SHADOW - Main Result

Calculation: PUV - 62 VE

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

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: reljef2.wpo (2)

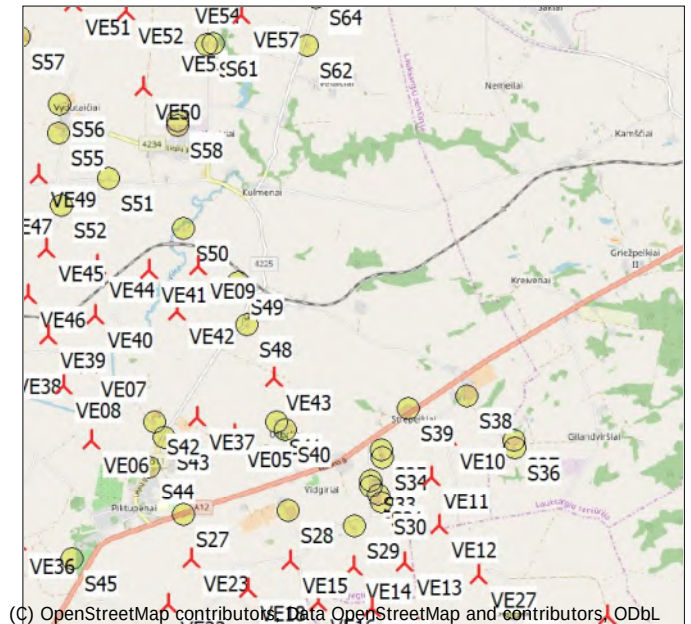
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

WTGs



	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: PUV - 62 VE

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 443	14,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 121 077	15,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 169	32,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: PUV - 62 VE

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

per year

[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	8:26
S05	30:23
S06	20:50
S07	0:00
S08	4:06
S09	12:37
S10	19:37
S11	0:00
S12	0:00
S13	11:28
S14	21:33
S15	16:41
S16	21:57
S17	30:37
S18	14:25
S19	18:25
S20	24:09
S21	0:00
S22	30:19

To be continued on next page...

SHADOW - Main Result

Calculation: PUV - 62 VE

...continued from previous page

Shadow, expected values

No. Shadow hours

per year

[h/year]

S23	30:56
S24	29:53
S25	38:01
S26	17:34
S27	14:01
S28	18:44
S29	44:14
S30	45:51
S31	45:44
S32	33:35
S33	33:41
S34	31:44
S35	30:20
S36	16:43
S37	14:53
S38	12:49
S39	14:14
S40	20:21
S41	25:11
S42	58:34
S43	36:55
S44	31:41
S45	31:44
S46	46:47
S47	24:30
S48	27:23
S49	50:27
S50	27:36
S51	16:57
S52	31:41
S53	36:36
S54	4:25
S55	31:25
S56	20:41
S57	18:03
S58	0:00
S59	0:00
S60	64:45
S61	41:21
S62	19:06
S63	10:39
S64	9:40
S65	8:02
S66	29:52
S67	19:00

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

No.	Name	Worst case [h/year]	Expected [h/year]
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42	29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23	31:15
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49	9:01
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27	2:52
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54	51:27
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	134:53	38:58
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42	2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17	12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	266:11	52:38
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	367:06	97:42
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32	26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	115:44	16:43
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	200:09	20:15

To be continued on next page...

SHADOW - Main Result

Calculation: PUV - 62 VE

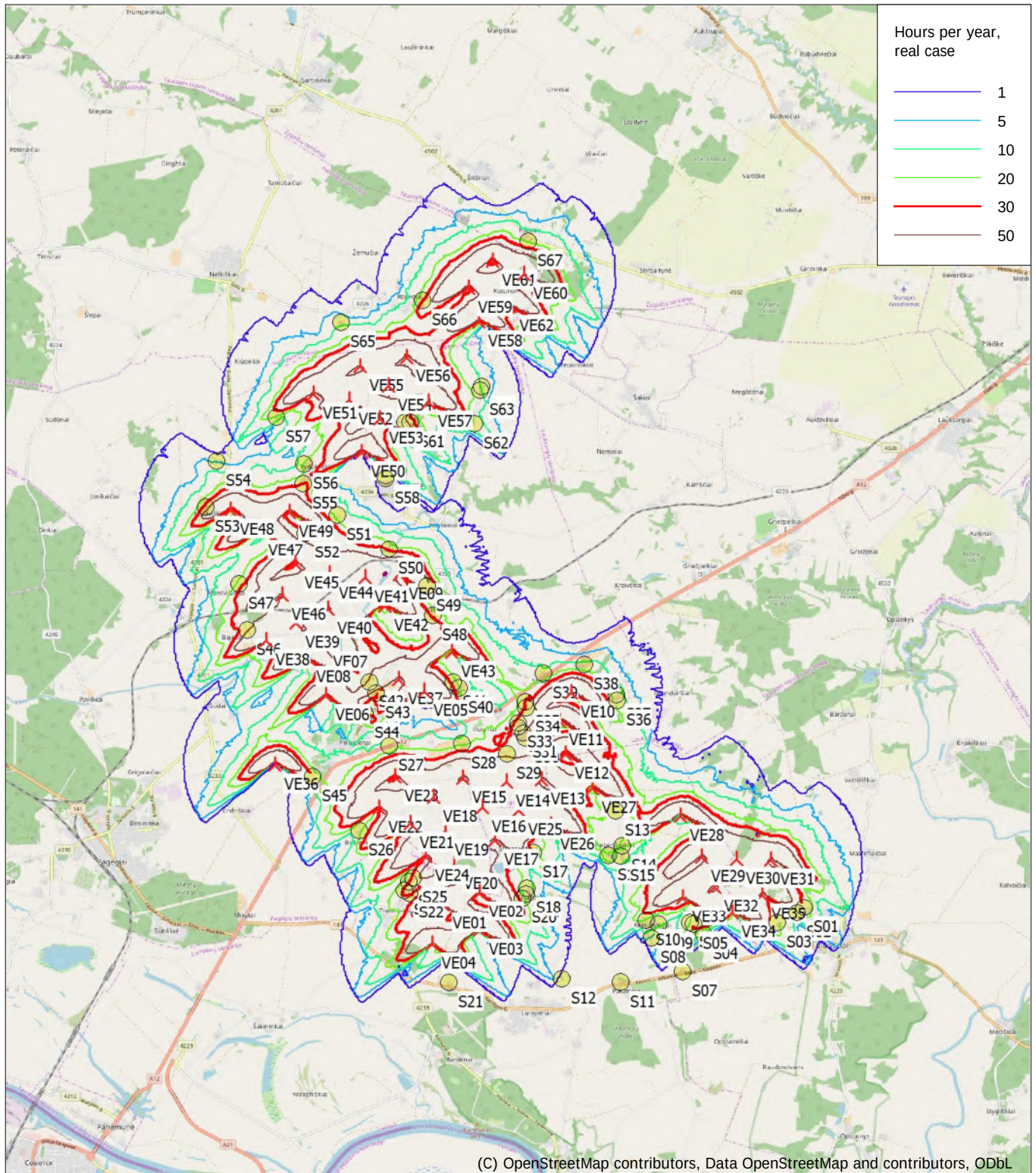
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No.	Name	Worst case [h/year]	Expected [h/year]
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09	19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30	3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	88:38	28:40
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22	11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47	4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	187:04	62:52
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55	8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44	1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28	13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14	2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08	1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	77:34	20:13
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	87:00	27:43
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	198:01	60:34
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	159:07	31:49
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04	12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29	4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14	26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:01	17:33
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19	22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25	10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	170:16	25:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34	8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46	21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	166:48	41:32
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10	27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	94:32	26:47
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17	13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15	15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	181:40	59:30
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23	2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27	5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37	9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11	27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59	3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	54:49	15:50
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09	8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52	17:47
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55	1:44

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.

SHADOW - Map

Calculation: PUV - 62 VE



Map: EMD OpenStreetMap, Print scale 1:110 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 374 550 North: 6 117 690
 New WTG Shadow receptor
 Flicker map level: Height Contours: reljef2.wpo (2)

3 scenarijus: PUV (pritaikius priemones)

Project: Pagegiu VE
Description: 3 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-10-01 11:19/3.4.415

SHADOW - Main Result

Calculation: PUV shutdown

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,41 2,36 4,03 5,55 8,35 8,36 8,16 7,72 5,06 3,23 1,33 0,98

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 438 613 701 788 701 701 876 1 051 1 314 788 350 8 759

Flicker curtailment by stopping specific turbines

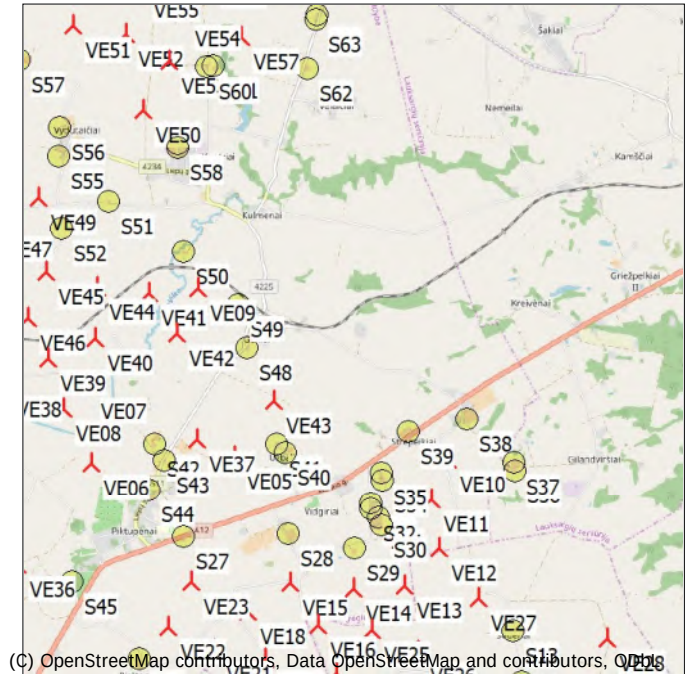
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: reljef2.wpo (2)
Obstacles not used in calculation
Eye height for map: 1,5 m
Grid resolution: 30,0 m

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...



SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 424	14,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 119 077	15,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 469	32,8	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6.0-...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	8:26	
S05*	6:14	24:10
S06*	9:08	11:42
S07	0:00	
S08*	0:50	3:16
S09*	12:31	0:05
S10	19:37	
S11	0:00	
S12	0:00	
S13	11:28	
S14	21:33	
S15	16:41	
S16	21:57	
S17*	6:57	23:30
S18	14:25	
S19	18:25	
S20	24:09	

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S21	0:00	
S22*	18:29	12:10
S23*	14:11	17:13
S24*	11:09	19:05
S25*	14:20	24:16
S26	17:34	
S27	14:01	
S28	18:44	
S29*	21:22	22:53
S30*	21:05	25:57
S31*	15:17	31:37
S32*	19:13	14:34
S33*	20:49	12:57
S34*	20:19	11:24
S35*	21:34	8:45
S36	16:43	
S37	14:53	
S38	12:49	
S39	14:14	
S40	20:21	
S41	25:11	
S42*	22:25	36:12
S43*	25:56	10:59
S44*	8:04	23:33
S45*	3:58	27:43
S46*	17:27	29:27
S47	24:30	
S48	27:23	
S49*	12:04	38:08
S50	27:36	
S51	16:57	
S52*	21:08	10:34
S53*	5:45	30:54
S54	4:25	
S55*	18:12	13:40
S56	20:41	
S57	18:03	
S58	0:00	
S59	0:00	
S60*	15:14	49:31
S61*	12:09	29:12
S62	19:06	
S63	10:39	
S64	9:40	
S65	8:02	
S66	29:52	
S67	19:00	

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42		29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23		31:18
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49		9:00
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27		2:52
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54		51:29
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	61:02	73:51	15:24
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42		2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17		12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	146:29	119:42	14:29
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	74:07	292:59	9:48

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32		26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	115:44		16:43
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	78:33	121:36	8:17
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09		19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30		3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	10:58	77:40	3:55
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22		11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47		4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	51:25	135:39	15:57
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55		8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44		1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28		13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14		2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08		1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	77:34		20:13
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06		27:40
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20		17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	95:51	75:31	28:59
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	0:00	87:00	0:00
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	53:08	144:53	11:59
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	22:11	136:56	1:53
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04		12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29		4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14		26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:01		17:33
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19		22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25		10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	62:55	107:21	14:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34		8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46		21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	57:41	109:07	9:54
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10		27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	55:08	39:24	13:06
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17		13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15		15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	23:42	157:58	8:11
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23		2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27		5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37		9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11		27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59		3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	54:49		15:50
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09		8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52		17:47
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55		1:44

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.

3 scenarijus: suminis PŪV ir esamos VE

Project:

Pagegiu VE

Licensed user:

VSI Pajuriu tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipeda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 12:51/3.4.415

SHADOW - Main Result

Calculation: Suminis

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

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: reljef2.wpo (2)

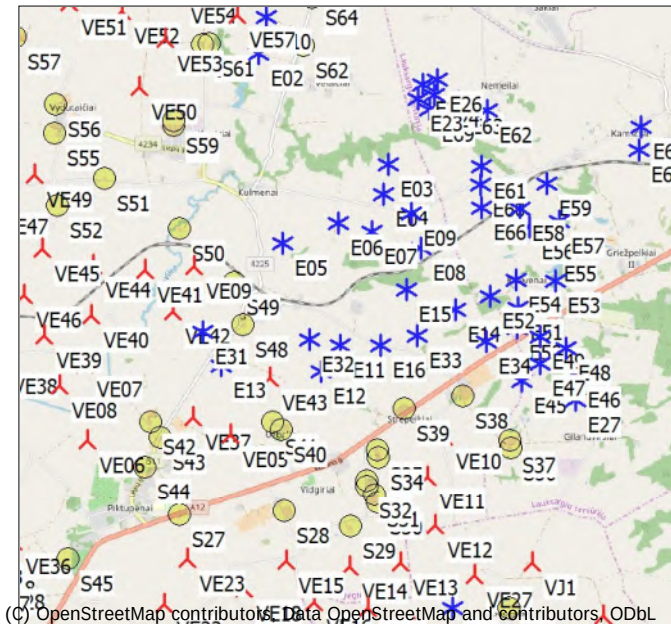
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

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	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 443	14,2	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 119 077	15,6	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 169	32,8	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6... Yes	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5.... Yes	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5.... Yes	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours
per year
[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	8:49
S05	31:23
S06	21:51
S07	3:23
S08	14:20
S09	15:29
S10	25:07
S11	22:45
S12	2:11
S13	40:29
S14	54:41
S15	28:19
S16	43:09
S17	40:04
S18	16:43
S19	20:52
S20	26:53

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

Shadow, expected values

No. Shadow hours

per year

[h/year]

S21	1:33
S22	30:36
S23	31:06
S24	29:55
S25	38:04
S26	17:34
S27	14:01
S28	18:44
S29	44:19
S30	46:23
S31	45:59
S32	33:42
S33	33:41
S34	31:44
S35	30:20
S36	16:52
S37	15:05
S38	26:25
S39	17:01
S40	20:21
S41	28:04
S42	60:08
S43	36:55
S44	31:41
S45	32:29
S46	46:47
S47	24:30
S48	38:26
S49	55:48
S50	29:07
S51	16:57
S52	31:41
S53	36:36
S54	4:25
S55	31:25
S56	20:41
S57	18:03
S58	0:17
S59	1:25
S60	77:56
S61	59:07
S62	25:38
S63	17:04
S64	15:17
S65	8:02
S66	29:59
S67	19:00

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

No. Name

Worst case Expected

[h/year] [h/year]

E01	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (2)	3:57	1:04
E02	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (3)	73:50	15:48
E03	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (4)	1:50	0:08
E04	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (5)	0:00	0:00
E05	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (6)	9:01	1:34
E06	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (7)	9:18	3:08
E07	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (8)	10:07	3:25
E08	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (9)	0:00	0:00
E09	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (10)	0:00	0:00
E10	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (11)	72:28	21:32
E11	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (12)	8:34	1:55
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:26	4:36

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:32	6:52
E14	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (15)	0:00	0:00
E15	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (16)	0:00	0:00
E16	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (17)	21:41	6:46
E17	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (18)	35:03	7:52
E18	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (19)	74:37	20:31
E19	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (20)	73:47	23:51
E20	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (21)	30:28	8:07
E21	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (22)	35:45	6:35
E22	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (23)	111:56	20:13
E23	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (24)	0:00	0:00
E24	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (25)	0:00	0:00
E25	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (26)	0:00	0:00
E26	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (27)	0:00	0:00
E27	ENERCON E-40/5.40 500 40.3 !O! hub: 44,0 m (TOT: 64,2 m) (28)	0:00	0:00
E28	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (29)	0:00	0:00
E29	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (30)	0:00	0:00
E30	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (31)	0:00	0:00
E31	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (32)	16:46	3:00
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:04	0:42
E33	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (34)	0:00	0:00
E34	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (35)	0:00	0:00
E35	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (36)	4:54	1:27
E36	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (37)	39:45	4:47
E37	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (38)	0:00	0:00
E38	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (39)	8:33	1:45
E39	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (40)	3:56	0:23
E40	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (41)	83:33	25:08
E41	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (42)	61:36	8:21
E42	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (43)	6:46	2:09
E43	ENERCON E-66/18.70 1800 70.0 !O! hub: 65,0 m (TOT: 100,0 m) (44)	2:45	0:44
E44	ENERCON E-70 E4 2000 71.0 !O! hub: 64,0 m (TOT: 99,5 m) (45)	4:17	0:22
E45	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (46)	12:21	4:06
E46	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (47)	2:25	0:45
E47	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (48)	7:39	2:44
E48	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (49)	3:47	1:21
E49	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (50)	5:23	1:48
E50	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (51)	0:00	0:00
E51	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (52)	0:00	0:00
E52	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (53)	0:00	0:00
E53	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (54)	0:00	0:00
E54	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (55)	0:00	0:00
E55	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (56)	0:00	0:00
E56	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (57)	0:00	0:00
E57	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (58)	0:00	0:00
E58	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (59)	0:00	0:00
E59	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (60)	0:00	0:00
E60	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (61)	0:00	0:00
E61	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (62)	0:00	0:00
E62	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (63)	0:00	0:00
E63	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (64)	0:00	0:00
E64	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (65)	0:00	0:00
E65	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (66)	0:00	0:00
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00	0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00	0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00	0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00	0:00
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42	29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23	31:15
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49	9:01
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27	2:52
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54	51:27
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	134:53	38:58
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42	2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17	12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	266:11	52:38

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

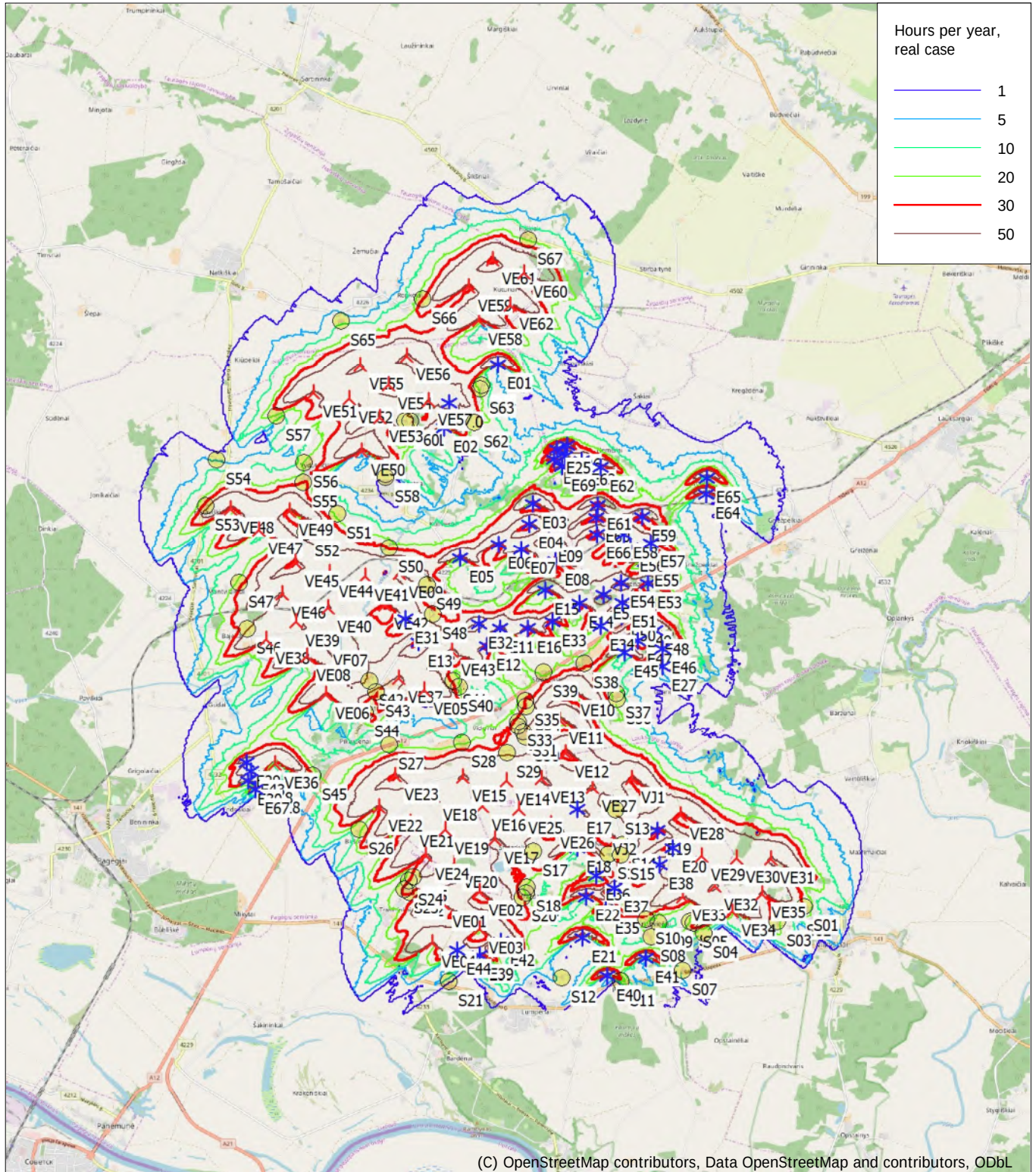
...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	367:06	97:42
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32	26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	115:44	16:43
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	200:09	20:15
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09	19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30	3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	88:38	28:40
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22	11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47	4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	187:04	62:52
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55	8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44	1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28	13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14	2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08	1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	77:34	20:13
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	87:00	27:43
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	198:01	60:34
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	159:07	31:49
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04	12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29	4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14	26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:01	17:33
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19	22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25	10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	170:16	25:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34	8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46	21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	166:48	41:32
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10	27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	94:32	26:47
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17	13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15	15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	181:40	59:30
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23	2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27	5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37	9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11	27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59	3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	54:49	15:50
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09	8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52	17:47
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55	1:44
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (503)	0:00	0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (504)	192:31	34:41

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.

SHADOW - Map

Calculation: Suminis



Map: EMD OpenStreetMap , Print scale 1:110 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 374 550 North: 6 117 690
 New WTG Existing WTG Shadow receptor
 Flicker map level: Height Contours: reljef2.wpo (2)

3 scenarijus: suminis PŪV ir esamos VE (pritaikius priemones)

Project:

Pagegiu VE

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 15:39/3.4.415

SHADOW - Main Result

Calculation: Copy of Suminis

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

Flicker curtailment by stopping specific turbines

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: reljef2.wpo (2)

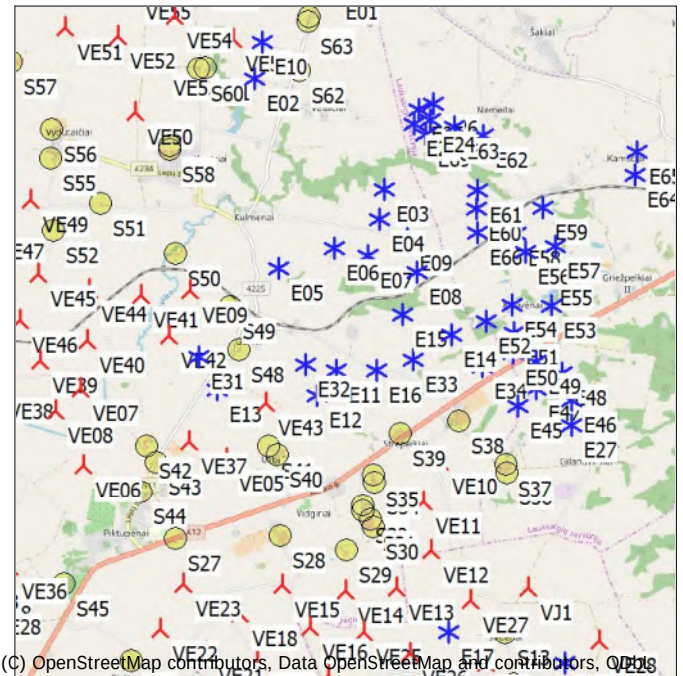
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, CC-BY

Scale 1:100 000
New WTG Existing WTG Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

SHADOW - Main Result

Calculation: Copy of Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE02	373 824	6 112 010	18,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE03	373 821	6 111 289	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE04	372 892	6 111 037	20,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE05	372 880	6 115 929	15,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE06	370 985	6 115 889	10,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE07	370 972	6 116 904	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE08	370 632	6 116 630	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE09	372 458	6 118 163	15,9	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	115,0	1 768	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE12	375 565	6 114 640	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE13	375 090	6 114 150	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE14	374 414	6 114 122	14,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE15	373 577	6 114 225	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE16	373 925	6 113 655	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE17	374 149	6 113 018	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE18	373 009	6 113 867	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE19	373 210	6 113 229	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE20	373 365	6 112 579	16,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE21	372 543	6 113 377	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE22	371 941	6 113 689	10,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE23	372 256	6 114 283	13,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE24	372 821	6 112 733	12,1	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE25	374 640	6 113 564	12,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE26	375 245	6 113 284	14,7	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

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SHADOW - Main Result

Calculation: Copy of Suminis

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	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE37	372 389	6 116 170	16,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE38	369 853	6 116 977	10,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE39	370 446	6 117 293	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE40	371 080	6 117 545	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE41	371 799	6 118 124	15,4	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE42	372 158	6 117 574	14,1	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE43	373 428	6 116 655	14,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE44	371 115	6 118 210	16,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE45	370 461	6 118 443	14,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE46	370 198	6 117 837	12,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE47	369 786	6 119 077	15,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE48	369 255	6 119 509	18,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE49	370 381	6 119 426	17,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE50	371 806	6 120 538	26,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE51	370 907	6 121 685	36,2	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE52	371 600	6 121 547	37,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE53	372 160	6 121 169	32,8	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE54	372 358	6 121 800	36,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE55	371 822	6 122 185	39,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE56	372 725	6 122 344	34,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE57	373 119	6 121 462	32,5	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE58	374 134	6 122 995	36,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE59	373 949	6 123 640	38,0	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE60	375 033	6 123 875	41,7	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE61	374 421	6 124 147	43,6	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE62	374 738	6 123 275	38,7	Siemens Gamesa SG6... Yes		Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5.... Yes		GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5.... Yes		GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5

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SHADOW - Main Result

Calculation: Copy of Suminis

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No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	8:49	
S05*	7:13	24:10
S06*	10:08	11:42
S07	3:23	
S08*	11:12	3:16
S09*	15:23	0:05
S10	25:07	
S11	22:45	
S12	2:11	
S13*	29:04	11:28
S14*	29:15	25:24
S15*	24:52	3:26
S16*	26:15	16:56
S17*	16:27	23:30
S18	16:43	

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SHADOW - Main Result

Calculation: Copy of Suminis

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Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S19	20:52	
S20	26:53	
S21	1:33	
S22*	18:47	12:10
S23*	22:22	8:55
S24*	10:07	20:12
S25*	21:30	16:54
S26	17:34	
S27	14:01	
S28	18:44	
S29*	21:26	22:53
S30*	21:40	25:57
S31*	15:33	31:37
S32*	19:21	14:34
S33*	20:49	12:57
S34*	20:19	11:24
S35*	21:34	8:45
S36	16:52	
S37	15:05	
S38	26:25	
S39	17:01	
S40	20:21	
S41	28:04	
S42*	23:58	36:12
S43*	25:56	10:59
S44*	8:04	23:33
S45*	4:42	27:43
S46*	17:27	29:27
S47	24:30	
S48*	27:53	10:46
S49*	17:23	38:08
S50	29:07	
S51	16:57	
S52*	21:08	10:34
S53*	5:45	30:54
S54	4:25	
S55*	18:12	13:40
S56	20:41	
S57	18:03	
S58	0:17	
S59	1:25	
S60*	28:23	49:31
S61*	29:54	29:12
S62	25:38	
S63	17:04	
S64	15:17	
S65	8:02	
S66*	16:09	13:52
S67	19:00	

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
E01	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (2)	3:57		1:04
E02	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (3)	73:50		15:48
E03	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (4)	1:50		0:08
E04	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (5)	0:00		0:00
E05	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (6)	9:01		1:34
E06	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (7)	9:18		3:08
E07	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (8)	10:07		3:25
E08	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (9)	0:00		0:00

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SHADOW - Main Result

Calculation: Copy of Suminis

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No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
E09	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (10)	0:00		0:00
E10	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (11)	72:28		21:32
E11	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (12)	8:34		1:55
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:26		4:36
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:32		6:52
E14	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (15)	0:00		0:00
E15	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (16)	0:00		0:00
E16	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (17)	21:41		6:46
E17	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (18)	35:03		7:52
E18	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (19)	74:37		20:31
E19	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (20)	73:47		23:49
E20	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (21)	30:28		8:07
E21	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (22)	35:45		6:35
E22	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (23)	111:56		20:13
E23	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (24)	0:00		0:00
E24	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (25)	0:00		0:00
E25	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (26)	0:00		0:00
E26	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (27)	0:00		0:00
E27	ENERCON E-40/5.40 500 40.3 !O! hub: 44,0 m (TOT: 64,2 m) (28)	0:00		0:00
E28	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (29)	0:00		0:00
E29	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (30)	0:00		0:00
E30	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (31)	0:00		0:00
E31	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (32)	16:46		3:00
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:04		0:42
E33	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (34)	0:00		0:00
E34	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (35)	0:00		0:00
E35	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (36)	4:54		1:27
E36	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (37)	39:45		4:47
E37	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (38)	0:00		0:00
E38	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (39)	8:33		1:45
E39	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (40)	3:56		0:23
E40	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (41)	83:33		25:08
E41	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (42)	61:36		8:21
E42	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (43)	6:46		2:09
E43	ENERCON E-66/18.70 1800 70.0 !O! hub: 65,0 m (TOT: 100,0 m) (44)	2:45		0:44
E44	ENERCON E-70 E4 2000 71.0 !O! hub: 64,0 m (TOT: 99,5 m) (45)	4:17		0:22
E45	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (46)	12:21		4:06
E46	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (47)	2:25		0:45
E47	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (48)	7:39		2:44
E48	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (49)	3:47		1:21
E49	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (50)	5:23		1:48
E50	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (51)	0:00		0:00
E51	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (52)	0:00		0:00
E52	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (53)	0:00		0:00
E53	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (54)	0:00		0:00
E54	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (55)	0:00		0:00
E55	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (56)	0:00		0:00
E56	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (57)	0:00		0:00
E57	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (58)	0:00		0:00
E58	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (59)	0:00		0:00
E59	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (60)	0:00		0:00
E60	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (61)	0:00		0:00
E61	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (62)	0:00		0:00
E62	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (63)	0:00		0:00
E63	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (64)	0:00		0:00
E64	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (65)	0:00		0:00
E65	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (66)	0:00		0:00
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00		0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00		0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00		0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00		0:00
VE01	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (433)	157:42		29:18
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23		31:18
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49		9:00
VE04	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (436)	33:27		2:52

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SHADOW - Main Result

Calculation: Copy of Suminis

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No.	Name	Worst case	Stopped due to flicker curtailment	Expected
		[h/year]	[h/year]	[h/year]
VE05	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (437)	187:54		51:29
VE06	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (438)	61:02	73:51	15:24
VE07	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (439)	9:42		2:24
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:17		12:59
VE09	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (492)	146:29	119:42	14:29
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (448)	74:07	292:59	9:48
VE12	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (447)	169:32		26:49
VE13	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (446)	103:35	12:09	12:45
VE14	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (445)	78:33	121:36	8:17
VE15	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (480)	151:09		19:16
VE16	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (481)	40:30		3:53
VE17	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (482)	10:58	77:40	3:55
VE18	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (483)	78:22		11:49
VE19	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (441)	14:47		4:07
VE20	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (444)	93:32	93:32	30:30
VE21	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (443)	27:55		8:31
VE22	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (484)	10:44		1:56
VE23	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (442)	123:28		13:35
VE24	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (450)	12:14		2:24
VE25	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (451)	19:08		1:46
VE26	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (479)	20:40	56:54	3:19
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	18:36	65:30	6:20
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20		17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	95:51	75:31	28:59
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (457)	0:00	87:00	0:00
VE37	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (463)	53:08	144:53	11:59
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	22:11	136:56	1:53
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:04		12:38
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:29		4:39
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:14		26:38
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	31:24	34:37	6:47
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:19		22:36
VE44	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (465)	82:25		10:57
VE45	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (489)	62:55	107:21	14:13
VE46	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (490)	39:34		8:28
VE47	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (467)	121:46		21:58
VE48	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (468)	57:41	109:07	9:54
VE49	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (466)	181:10		27:00
VE50	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (469)	55:08	39:24	13:06
VE51	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (470)	40:17		13:47
VE52	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (471)	49:15		15:47
VE53	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (473)	23:42	157:58	8:11
VE54	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (474)	25:23		2:16
VE55	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (472)	55:27		5:10
VE56	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (488)	37:37		9:23
VE57	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (475)	93:11		27:07
VE58	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (476)	17:59		3:39
VE59	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (477)	13:28	41:21	1:58
VE60	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (487)	90:09		8:42
VE61	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (486)	66:52		17:47
VE62	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (478)	6:55		1:44
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (503)	0:00		0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (504)	156:37	35:54	23:53

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.

4 scenarijus: PUV

Project: Pagegiu VE
Description: 4 scenarijus (tik PUV)

Licensed user:
VSI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-09-30 12:50/3.4.415

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence
Calculate only when more than 20 % of sun is covered by the blade
Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1,41 2,36 4,03 5,55 8,35 8,36 8,16 7,72 5,06 3,23 1,33 0,98

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
438 438 613 701 788 701 701 876 1 051 1 314 788 350 8 759

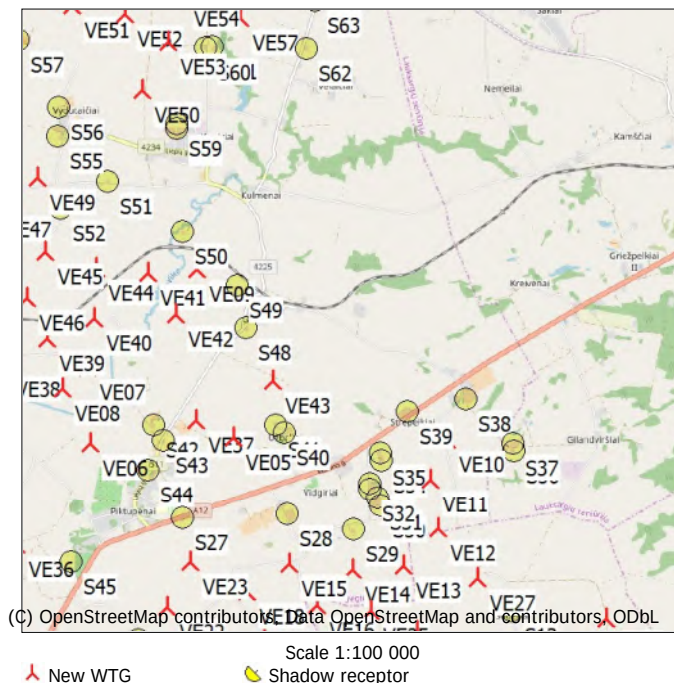
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:
Height contours used: Height Contours: reljef2.wpo (2)
Obstacles not used in calculation
Eye height for map: 1,5 m
Grid resolution: 30,0 m

All coordinates are in
Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	373 577	6 114 225	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0

To be continued on next page...



SHADOW - Main Result

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,8	90,0	"Green house mode"	2,8
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours
per year
[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	8:26
S05	30:23
S06	20:50
S07	0:00
S08	4:06
S09	12:37
S10	19:37
S11	0:00
S12	0:00
S13	13:46
S14	22:55
S15	18:29
S16	25:12
S17	37:03
S18	19:49
S19	24:58
S20	33:28
S21	0:00
S22	33:54

To be continued on next page...

SHADOW - Main Result

...continued from previous page
Shadow, expected values

No. Shadow hours
per year
[h/year]

S23	35:40
S24	37:56
S25	46:18
S26	22:10
S27	17:35
S28	25:04
S29	53:46
S30	48:37
S31	52:30
S32	40:22
S33	39:06
S34	33:34
S35	32:29
S36	18:17
S37	16:21
S38	12:49
S39	15:34
S40	25:23
S41	29:40
S42	76:13
S43	40:34
S44	36:31
S45	35:26
S46	55:32
S47	30:37
S48	33:58
S49	46:57
S50	34:15
S51	21:48
S52	38:31
S53	45:02
S54	6:54
S55	35:43
S56	26:22
S57	15:25
S58	0:00
S59	0:00
S60	72:56
S61	54:28
S62	19:30
S63	13:12
S64	11:51
S65	10:40
S66	38:30
S67	23:38

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

No.	Name	Worst case [h/year]	Expected [h/year]
VE01	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20	34:56
VE02	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	157:32	42:03
VE03	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10	12:52
VE04	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09	5:52
VE05	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	224:02	64:52
VE06	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	147:41	42:52
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13	2:59
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:40	21:12
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	265:18	50:15
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	413:07	106:06
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03	31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	142:43	21:10
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	255:36	27:07

To be continued on next page...

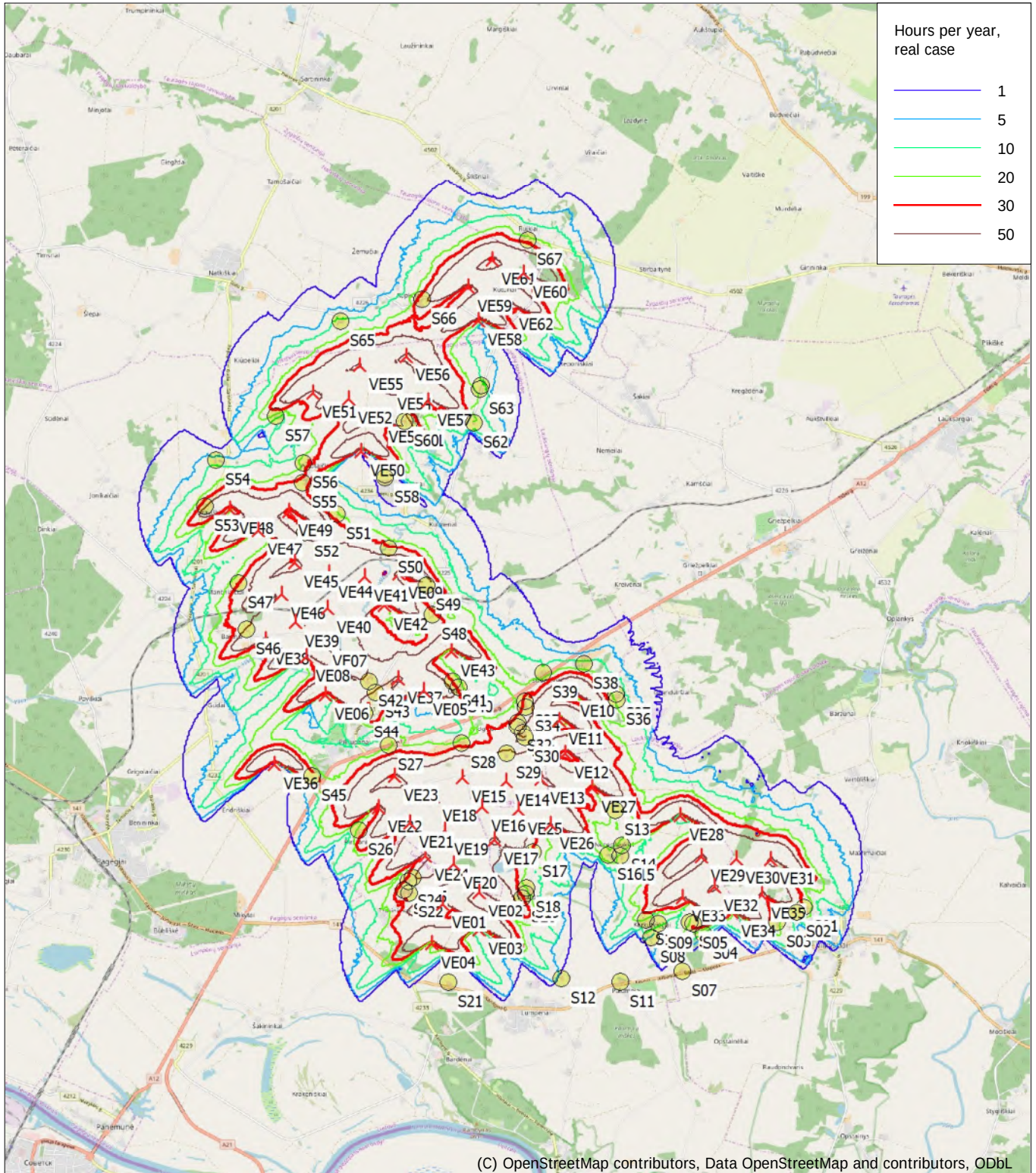
SHADOW - Main Result

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00	24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32	6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	104:42	33:59
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35	15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39	5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	206:18	68:53
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47	10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53	2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10	18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59	2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33	3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	104:52	27:04
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	94:20	30:07
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	215:37	64:42
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	178:49	36:43
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:00	15:07
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:25	6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:27	32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	91:50	22:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28	29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32	14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	196:21	31:10
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22	10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01	26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	208:04	51:49
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35	32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	106:30	30:29
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28	10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	63:25	20:23
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	198:49	65:44
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24	2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08	6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11	13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51	28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31	4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	67:52	19:59
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09	11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49	21:10
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17	3:05

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.

SHADOW - Map



Map: EMD OpenStreetMap, Print scale 1:110 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 374 550 North: 6 117 690
 New WTG Shadow receptor
 Flicker map level: Height Contours: reljef2.wpo (2)

4 scenarijus: PŪV (pritaikius priemones)

Project: Pagegiu VE
Description: 4 scenarijus (tik PUV)

Licensed user:
Vsi Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / gis@corpi.lt
Calculated:
2021-10-01 11:31/3.4.415

SHADOW - Main Result

Calculation: PUV shutdown

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence 3 °
Day step for calculation 1 days
Time step for calculation 1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

Flicker curtailment by stopping specific turbines

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: reljef2.wpo (2)

Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

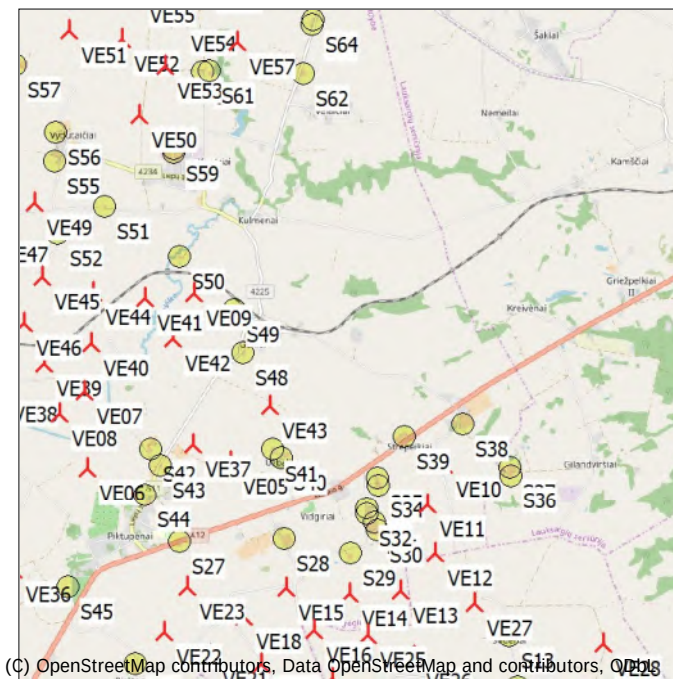
All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	373 577	6 114 225	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...



SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,8	90,0	"Green house mode"	2,8
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	8:26	
S05*	6:14	24:10
S06*	9:08	11:42
S07	0:00	
S08*	0:50	3:16
S09*	12:31	0:05
S10	19:37	
S11	0:00	
S12	0:00	
S13	13:46	
S14	22:55	
S15	18:29	
S16	25:12	
S17*	9:23	27:28
S18	19:49	
S19*	22:31	2:25
S20*	23:47	9:34

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S21	0:00	
S22*	24:00	10:14
S23*	18:53	17:21
S24*	14:23	24:13
S25*	19:15	27:42
S26	22:10	
S27	17:35	
S28	25:04	
S29*	27:44	26:00
S30*	26:26	23:21
S31*	20:23	33:31
S32*	22:55	17:50
S33*	23:45	15:35
S34*	20:39	12:54
S35*	22:37	9:51
S36	18:17	
S37	16:21	
S38	12:49	
S39	15:34	
S40	25:23	
S41	29:40	
S42*	29:08	47:09
S43*	29:37	10:56
S44*	12:40	23:48
S45*	5:15	30:07
S46*	22:09	33:27
S47*	28:16	2:55
S48*	21:23	12:59
S49*	15:02	31:43
S50*	17:27	16:54
S51	21:48	
S52*	26:30	12:00
S53*	7:02	38:04
S54	6:54	
S55*	21:31	14:39
S56	26:22	
S57	15:25	
S58	0:00	
S59	0:00	
S60*	19:17	53:40
S61*	15:01	39:28
S62	19:30	
S63	13:12	
S64	11:51	
S65	10:40	
S66*	21:11	17:27
S67	23:38	

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20		34:56
VE02	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	157:32		42:06
VE03	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10		12:52
VE04	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09		5:53
VE05	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	187:41	36:21	53:58
VE06	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	72:43	74:58	19:03
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13		2:59
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:40		21:12
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	15:43	249:35	1:37
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	108:44	304:23	14:02

To be continued on next page...

SHADOW - Main Result

Calculation: PUV shutdown

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03		31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	142:43		21:10
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	112:13	143:23	11:52
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00		24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32		6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	15:05	89:37	5:22
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35		15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39		5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	36:02	170:16	10:47
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47		10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53		2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10		18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59		2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33		3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	104:52		27:04
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06		27:40
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20		17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	95:51	75:31	28:59
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	0:00	94:20	0:00
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	76:00	139:37	17:30
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	0:00	178:49	0:00
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:00		15:07
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:25		6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:27		32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	50:59	40:51	9:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28		29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32		14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	73:22	122:59	17:38
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22		10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01		26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	81:58	126:06	13:31
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35		32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	64:09	42:21	15:50
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28		10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	63:25		20:23
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	28:00	170:49	9:39
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24		2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08		6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11		13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51		28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31		4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	16:27	51:25	2:31
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09		11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49		21:10
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17		3:05

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.

4 scenarijus: suminis PŪV ir esamos VE

Project:

Pagegiu VE

Licensed user:

VSI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 12:41/3.4.415

SHADOW - Main Result

Calculation: Suminis

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

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: reljef2.wpo (2)

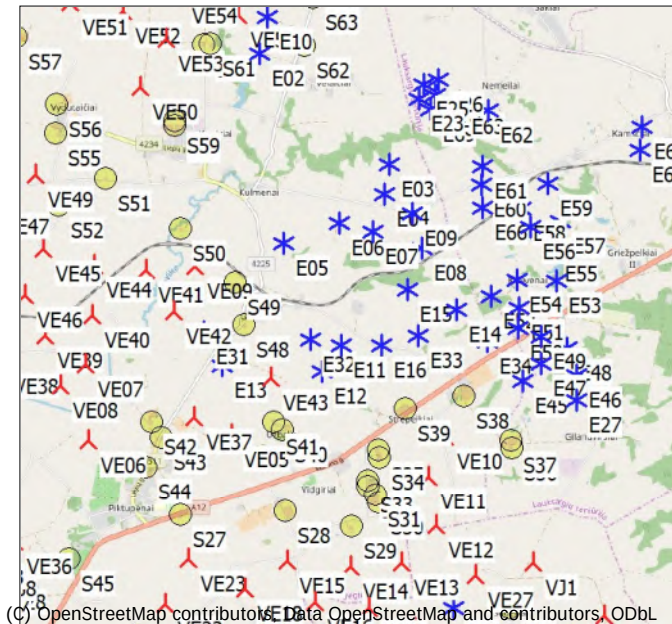
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



Scale 1:100 000
New WTG Existing WTG Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance	RPM
			[m]									[RPM]
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes	ENERCON		E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No	ENERCON		E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5... Yes	ENERCON		E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	375 577	6 114 225	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 ... Yes	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5.... Yes	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5.... Yes	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,8	90,0	"Green house mode"	2,8
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours
per year
[h/year]

S01	28:48
S02	27:14
S03	23:27
S04	8:49
S05	31:23
S06	21:51
S07	3:23
S08	14:20
S09	15:29
S10	25:07
S11	22:45
S12	2:11
S13	42:48
S14	56:02
S15	30:07
S16	46:26
S17	46:30
S18	22:06
S19	27:24
S20	36:13

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

Shadow, expected values

No. Shadow hours

per year

[h/year]

S21	1:33
S22	34:11
S23	35:50
S24	37:58
S25	46:21
S26	22:10
S27	17:35
S28	25:04
S29	54:03
S30	49:10
S31	52:45
S32	40:30
S33	39:06
S34	33:34
S35	32:29
S36	18:26
S37	16:34
S38	26:24
S39	18:20
S40	25:23
S41	32:33
S42	77:47
S43	40:34
S44	36:31
S45	36:11
S46	55:32
S47	30:37
S48	44:12
S49	52:17
S50	35:47
S51	21:48
S52	38:31
S53	45:02
S54	6:54
S55	35:43
S56	26:22
S57	15:25
S58	0:17
S59	1:25
S60	86:07
S61	72:15
S62	26:02
S63	19:38
S64	17:30
S65	10:40
S66	38:37
S67	23:38

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

No. Name

Worst case Expected

[h/year] [h/year]

E01	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (2)	3:57	1:04
E02	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (3)	73:50	15:48
E03	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (4)	1:50	0:08
E04	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (5)	0:00	0:00
E05	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (6)	9:01	1:34
E06	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (7)	9:18	3:08
E07	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (8)	10:07	3:25
E08	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (9)	0:00	0:00
E09	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (10)	0:00	0:00
E10	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (11)	72:28	21:32
E11	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (12)	8:34	1:55
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:26	4:36

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:32	6:52
E14	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (15)	0:00	0:00
E15	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (16)	0:00	0:00
E16	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (17)	21:41	6:46
E17	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (18)	35:03	7:52
E18	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (19)	74:37	20:31
E19	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (20)	73:47	23:51
E20	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (21)	30:28	8:07
E21	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (22)	35:45	6:35
E22	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (23)	111:56	20:13
E23	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (24)	0:00	0:00
E24	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (25)	0:00	0:00
E25	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (26)	0:00	0:00
E26	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (27)	0:00	0:00
E27	ENERCON E-40/5.40 500 40.3 !O! hub: 44,0 m (TOT: 64,2 m) (28)	0:00	0:00
E28	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (29)	0:00	0:00
E29	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (30)	0:00	0:00
E30	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (31)	0:00	0:00
E31	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (32)	16:46	3:00
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:04	0:42
E33	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (34)	0:00	0:00
E34	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (35)	0:00	0:00
E35	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (36)	4:54	1:27
E36	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (37)	39:45	4:47
E37	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (38)	0:00	0:00
E38	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (39)	8:33	1:45
E39	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (40)	3:56	0:23
E40	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (41)	83:33	25:08
E41	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (42)	61:36	8:21
E42	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (43)	6:46	2:09
E43	ENERCON E-66/18.70 1800 70.0 !O! hub: 65,0 m (TOT: 100,0 m) (44)	2:45	0:44
E44	ENERCON E-70 E4 2000 71.0 !O! hub: 64,0 m (TOT: 99,5 m) (45)	4:17	0:22
E45	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (46)	12:21	4:06
E46	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (47)	2:25	0:45
E47	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (48)	7:39	2:44
E48	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (49)	3:47	1:21
E49	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (50)	5:23	1:48
E50	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (51)	0:00	0:00
E51	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (52)	0:00	0:00
E52	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (53)	0:00	0:00
E53	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (54)	0:00	0:00
E54	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (55)	0:00	0:00
E55	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (56)	0:00	0:00
E56	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (57)	0:00	0:00
E57	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (58)	0:00	0:00
E58	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (59)	0:00	0:00
E59	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (60)	0:00	0:00
E60	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (61)	0:00	0:00
E61	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (62)	0:00	0:00
E62	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (63)	0:00	0:00
E63	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (64)	0:00	0:00
E64	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (65)	0:00	0:00
E65	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (66)	0:00	0:00
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00	0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00	0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00	0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00	0:00
VE01	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20	34:56
VE02	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	157:32	42:03
VE03	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10	12:52
VE04	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09	5:52
VE05	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	224:02	64:52
VE06	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	147:41	42:52
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13	2:59
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:40	21:12
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	265:18	50:15

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

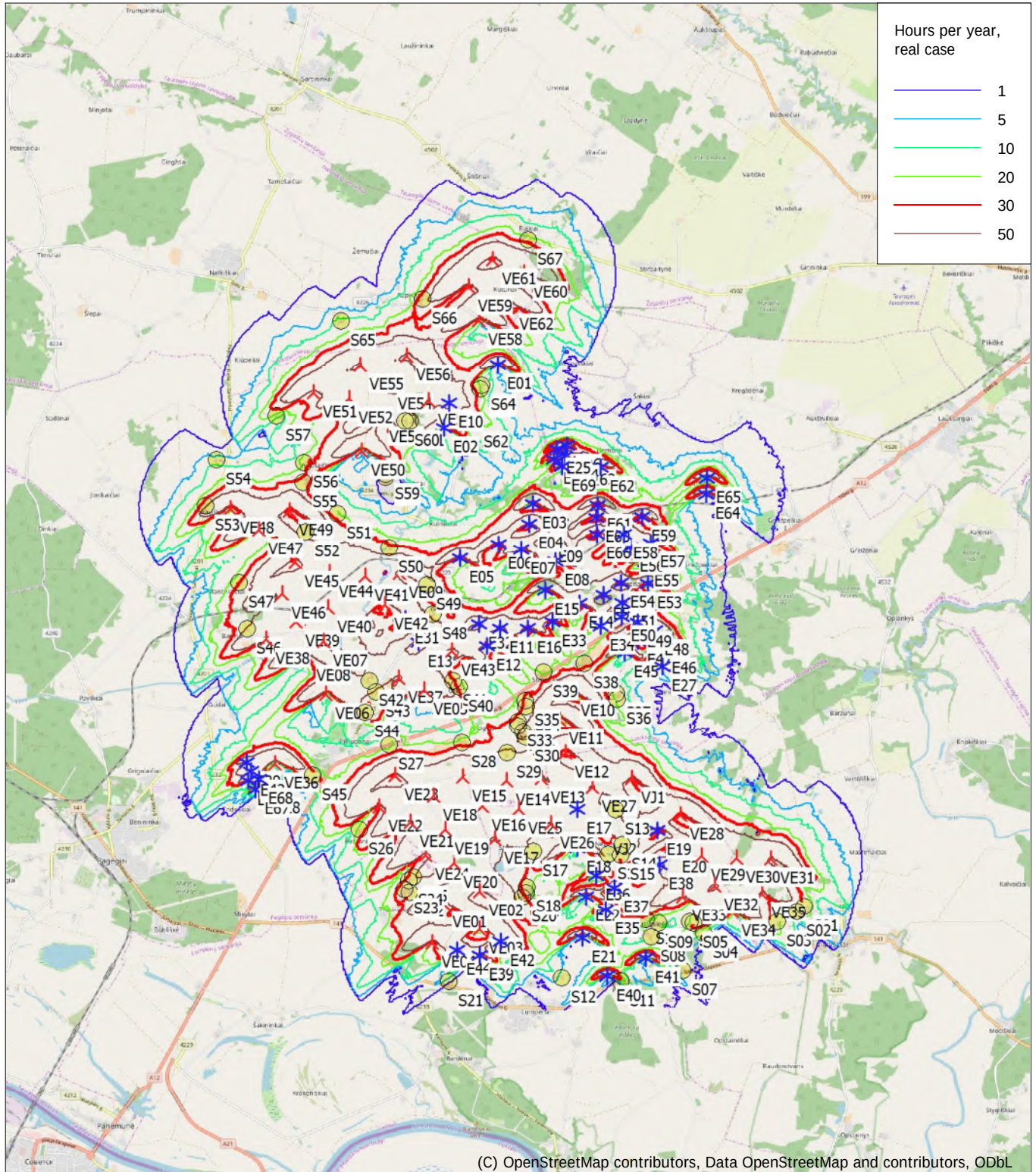
...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29	87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	413:07	106:06
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03	31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	142:43	21:10
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	255:36	27:07
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00	24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32	6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	104:42	33:59
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35	15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39	5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	206:18	68:53
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47	10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53	2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10	18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59	2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33	3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	104:52	27:04
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16	1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	84:06	27:41
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00	5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07	4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00	0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53	31:38
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	72:20	17:07
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	171:22	54:48
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18	54:01
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	94:20	30:07
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	215:37	64:42
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	178:49	36:43
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:00	15:07
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:25	6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:27	32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	91:50	22:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28	29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32	14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	196:21	31:10
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22	10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01	26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	208:04	51:49
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35	32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	106:30	30:29
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28	10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	63:25	20:23
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	198:49	65:44
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24	2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08	6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11	13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51	28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31	4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	67:52	19:59
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09	11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49	21:10
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17	3:05
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (505)	0:00	0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (506)	192:31	34:41

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.

SHADOW - Map

Calculation: Suminis



4 scenarijus: suminis PŪV ir esamos VE (pritaikius priemones)

Project:

Pagegiu VE

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipeda

+370 46 398842

Viaceslav / gis@corpi.lt

Calculated:

2021-09-30 15:42/3.4.415

SHADOW - Main Result

Calculation: Suminis SHUTDOWN

Assumptions for shadow calculations

Maximum distance for influence

Calculate only when more than 20 % of sun is covered by the blade

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1,41	2,36	4,03	5,55	8,35	8,36	8,16	7,72	5,06	3,23	1,33	0,98

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
438	438	613	701	788	701	701	876	1 051	1 314	788	350	8 759

Flicker curtailment by stopping specific turbines

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: reljef2.wpo (2)

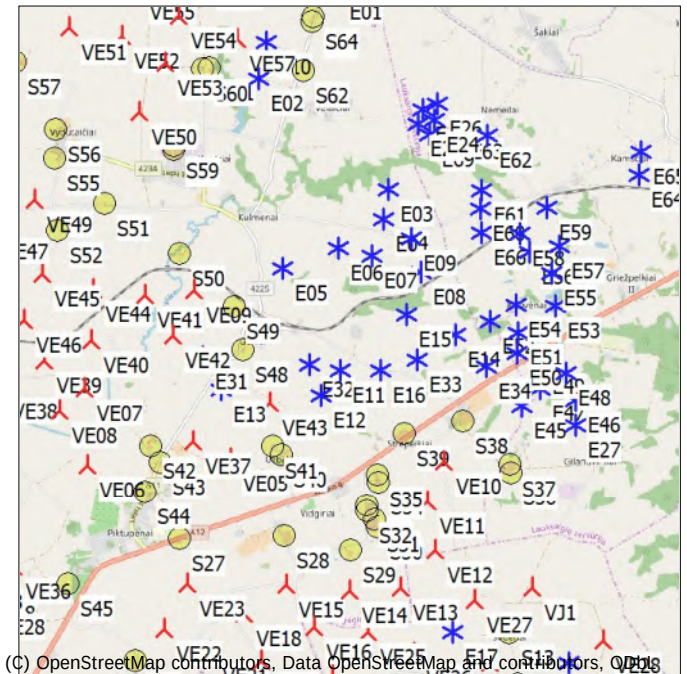
Obstacles not used in calculation

Eye height for map: 1,5 m

Grid resolution: 30,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)



(C) OpenStreetMap contributors, Data OpenStreetMap and contributors, CC-BY

Scale 1:100 000

▲ New WTG

★ Existing WTG

● Shadow receptor

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									
E01	374 480	6 122 121	34,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E02	373 397	6 120 939	31,4	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E03	375 072	6 119 434	38,2	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E04	374 994	6 119 036	49,1	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E05	373 637	6 118 422	39,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E06	374 386	6 118 675	47,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E07	374 823	6 118 559	54,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E08	375 474	6 118 324	48,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E09	375 353	6 118 767	51,8	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E10	373 506	6 121 414	35,5	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E11	374 370	6 117 058	20,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E12	374 105	6 116 735	18,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E13	372 789	6 116 843	14,0	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E14	375 913	6 117 492	40,8	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E15	375 265	6 117 772	27,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E16	374 906	6 117 048	20,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	99,0	2 216	14,5
E17	375 750	6 113 538	15,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E18	375 735	6 112 796	19,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E19	377 290	6 113 094	56,3	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E20	377 568	6 112 756	59,7	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E21	375 794	6 111 060	24,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E22	375 883	6 111 850	40,6	ENERCON E-101 3050...Yes		ENERCON	E-101-3 050	3 050	101,0	135,4	2 214	14,5
E23	375 500	6 120 280	34,8	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375 699	6 120 332	37,4	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375 555	6 120 482	35,5	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375 756	6 120 537	36,2	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377 473	6 116 240	62,0	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369 771	6 114 116	36,9	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369 402	6 114 626	47,4	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369 428	6 114 264	48,7	ENERCON E-40/5.40 ... No		ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372 556	6 117 287	14,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373 963	6 117 153	23,1	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375 382	6 117 168	26,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E34	376 302	6 117 048	48,2	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376 264	6 111 590	50,0	ENERCON E-53 800 5... Yes		ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis SHUTDOWN

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									
E36	376 087	6 112 259	52,7	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376 433	6 112 015	53,5	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377 324	6 112 439	60,0	ENERCON E-53 800 5...	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373 801	6 110 771	14,0	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E40	376 243	6 110 314	26,0	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E41	376 995	6 110 633	30,2	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	86,0	1 486	22,0
E42	374 219	6 111 035	16,6	ENERCON E-66/20.70...	No	ENERCON	E-66/20.70-2 000	2 000	70,0	86,0	2 500	22,0
E43	369 490	6 114 445	51,9	ENERCON E-66/18.70...	No	ENERCON	E-66/18.70-1 800	1 800	70,0	65,0	1 487	22,0
E44	373 362	6 110 882	18,9	ENERCON E-70 E4 20...	No	ENERCON	E-70 E4-2 000	2 000	71,0	64,0	1 644	20,0
E45	376 755	6 116 526	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E46	377 477	6 116 583	62,5	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E47	377 021	6 116 750	71,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E48	377 362	6 116 939	68,3	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E49	377 023	6 117 091	69,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E50	376 722	6 117 222	69,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E51	376 738	6 117 490	66,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E52	376 372	6 117 647	75,6	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E53	377 238	6 117 830	64,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E54	376 714	6 117 861	79,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	78,3	1 552	19,5
E55	377 202	6 118 258	62,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E56	376 919	6 118 553	56,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E57	377 316	6 118 611	68,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E58	376 794	6 118 796	47,9	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E59	377 171	6 119 126	43,7	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	98,3	1 550	19,5
E60	376 281	6 119 133	42,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E61	376 314	6 119 374	39,4	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E62	376 399	6 120 100	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E63	376 033	6 120 230	38,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E64	378 402	6 119 521	36,0	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E65	378 437	6 119 832	29,1	ENERCON E-82 2000 ...	No	ENERCON	E-82-2 000	2 000	82,0	108,3	1 550	19,5
E66	376 288	6 118 824	40,0	ENERCON E-82 E2 23...	Yes	ENERCON	E-82 E2-2 300	2 300	82,0	108,4	1 601	18,0
E67	369 559	6 114 099	40,1	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E68	369 642	6 114 293	40,3	GET Danwin 27 225 2...	No	GET	Danwin 27-225	225	29,0	30,0	2 500	37,6
E69	375 646	6 120 133	34,0	VESTAS V44 600 44.0...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373 119	6 111 805	23,3	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE02	373 824	6 112 010	18,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE03	373 821	6 111 289	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE04	372 892	6 111 037	20,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE05	372 880	6 115 929	15,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE06	370 985	6 115 889	10,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE07	370 972	6 116 904	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE08	370 632	6 116 630	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE09	372 458	6 118 163	15,9	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE10	375 713	6 115 811	23,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE11	375 476	6 115 286	14,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE12	375 565	6 114 640	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE13	375 090	6 114 150	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE14	374 414	6 114 122	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE15	373 577	6 114 225	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE16	373 925	6 113 655	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE17	374 149	6 113 018	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE18	373 009	6 113 867	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE19	373 210	6 113 229	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE20	373 365	6 112 579	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE21	372 543	6 113 377	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE22	371 941	6 113 689	10,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE23	372 256	6 114 283	13,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE24	372 821	6 112 733	12,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE25	374 640	6 113 564	12,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE26	375 245	6 113 284	14,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE27	376 067	6 113 961	20,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE28	377 759	6 113 377	75,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE29	378 139	6 112 573	56,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE30	378 812	6 112 519	47,5	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE31	379 472	6 112 481	33,6	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE32	378 375	6 112 006	55,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE33	377 739	6 111 805	64,8	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis SHUTDOWN

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	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
			[m]									[RPM]
VE34	378 699	6 111 490	38,0	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE35	379 291	6 111 823	43,2	Siemens Gamesa SG6...	Yes	Siemens Gamesa	SG6.0-170-6 200	6 200	170,0	135,0	1 766	14,0
VE36	369 964	6 114 581	30,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE37	372 389	6 116 170	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE38	369 853	6 116 977	10,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE39	370 446	6 117 293	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE40	371 080	6 117 545	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE41	371 799	6 118 124	15,4	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE42	372 158	6 117 574	14,1	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE43	373 428	6 116 655	14,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE44	371 115	6 118 210	16,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE45	370 461	6 118 443	14,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE46	370 198	6 117 837	12,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE47	369 786	6 119 077	15,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE48	369 255	6 119 509	18,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE49	370 381	6 119 426	17,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE50	371 806	6 120 538	26,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE51	370 907	6 121 685	36,2	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE52	371 600	6 121 547	37,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE53	372 160	6 121 169	32,8	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE54	372 358	6 121 800	36,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE55	371 822	6 122 185	39,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE56	372 725	6 122 344	34,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE57	373 119	6 121 462	32,5	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE58	374 134	6 122 995	36,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE59	373 949	6 123 640	38,0	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE60	375 033	6 123 875	41,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE61	374 421	6 124 147	43,6	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VE62	374 738	6 123 275	38,7	VE model VE 8.0-180 ...	Yes	VE model	VE 8.0-180-8 000	8 000	180,0	160,0	1 764	14,0
VJ1	376 838	6 114 104	36,9	GE WIND ENERGY 5....	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0
VJ2	376 246	6 113 118	30,5	GE WIND ENERGY 5....	Yes	GE WIND ENERGY	5.5-158 Thrust 665-5 500	5 500	158,0	120,9	1 819	0,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380 092	6 111 536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379 946	6 111 445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379 557	6 111 273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378 141	6 111 077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377 953	6 111 279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377 888	6 111 312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377 708	6 110 378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377 117	6 111 027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377 267	6 111 302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377 032	6 111 387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376 518	6 110 210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375 381	6 110 300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376 514	6 113 509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376 610	6 112 841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376 587	6 112 638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376 341	6 112 659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374 894	6 112 750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374 754	6 112 070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374 720	6 111 963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374 660	6 111 879	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373 186	6 110 284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372 479	6 112 030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372 389	6 112 092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372 478	6 112 270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372 561	6 112 323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371 544	6 113 274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372 164	6 114 873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373 568	6 114 875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis SHUTDOWN

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No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S29	374 436	6 114 659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374 803	6 114 963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374 771	6 115 060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374 668	6 115 178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374 678	6 115 254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374 838	6 115 552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374 814	6 115 662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376 589	6 115 633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376 587	6 115 746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375 977	6 116 338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375 194	6 116 193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373 560	6 115 957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373 443	6 116 067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371 822	6 116 121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371 952	6 115 905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371 732	6 115 526	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370 678	6 114 327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369 504	6 117 193	14,0	1,0	1,0	1,8	90,0	"Green house mode"	2,8
S47	369 378	6 118 065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373 082	6 117 365	15,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S49	372 993	6 117 927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372 279	6 118 658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371 299	6 119 343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370 675	6 119 012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368 768	6 119 576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369 003	6 120 451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370 667	6 119 959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370 685	6 120 339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370 178	6 121 252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372 249	6 120 029	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372 257	6 120 083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372 667	6 121 085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372 750	6 121 090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373 996	6 121 022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374 129	6 121 657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374 147	6 121 729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371 491	6 123 063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373 062	6 123 424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375 137	6 124 504	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	28:48	
S02	27:14	
S03	23:27	
S04	8:49	
S05*	7:13	24:10
S06*	10:08	11:42
S07	3:23	
S08*	11:12	3:16
S09*	15:23	0:05
S10	25:07	
S11	22:45	
S12	2:11	
S13*	29:04	13:46
S14*	27:41	28:16
S15*	25:38	4:28
S16*	26:15	20:11
S17*	18:53	27:28
S18	22:06	

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis SHUTDOWN

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S19*	22:25	5:00
S20*	21:04	15:09
S21	1:33	
S22*	24:19	10:14
S23*	25:43	10:24
S24*	14:25	24:13
S25*	26:10	20:36
S26	22:10	
S27	17:35	
S28	25:04	
S29*	28:00	26:00
S30*	27:02	23:21
S31*	20:40	33:31
S32*	23:04	17:50
S33*	23:45	15:35
S34*	20:39	12:54
S35*	22:37	9:51
S36	18:26	
S37	16:34	
S38	26:24	
S39	18:20	
S40*	21:47	3:35
S41*	11:05	21:28
S42*	24:36	53:11
S43*	29:37	10:56
S44*	12:40	23:48
S45*	5:59	30:07
S46*	22:09	33:27
S47*	28:16	2:55
S48*	20:42	23:52
S49*	20:22	31:43
S50*	19:02	16:54
S51	21:48	
S52*	26:30	12:00
S53*	7:02	38:04
S54	6:54	
S55*	21:31	14:39
S56	26:22	
S57	15:25	
S58	0:17	
S59	1:25	
S60*	18:58	66:59
S61*	22:55	49:13
S62	26:02	
S63	19:38	
S64	17:30	
S65	10:40	
S66*	21:18	17:27
S67	23:38	

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
E01	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (2)	3:57		1:04
E02	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (3)	73:50		15:48
E03	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (4)	1:50		0:08
E04	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (5)	0:00		0:00
E05	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (6)	9:01		1:34
E06	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (7)	9:18		3:08
E07	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (8)	10:07		3:25
E08	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (9)	0:00		0:00

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SHADOW - Main Result

Calculation: Suminis SHUTDOWN

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
E09	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (10)	0:00		0:00
E10	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (11)	72:28		21:32
E11	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (12)	8:34		1:55
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:26		4:36
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:32		6:52
E14	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (15)	0:00		0:00
E15	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (16)	0:00		0:00
E16	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (17)	21:41		6:46
E17	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (18)	35:03		7:52
E18	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (19)	74:37		20:31
E19	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (20)	73:47		23:49
E20	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (21)	30:28		8:07
E21	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (22)	35:45		6:35
E22	ENERCON E-101 3050 101.0 !-! hub: 135,4 m (TOT: 185,9 m) (23)	111:56		20:13
E23	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (24)	0:00		0:00
E24	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (25)	0:00		0:00
E25	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (26)	0:00		0:00
E26	ENERCON E-40/5.40 500 40.3 !O! hub: 65,0 m (TOT: 85,2 m) (27)	0:00		0:00
E27	ENERCON E-40/5.40 500 40.3 !O! hub: 44,0 m (TOT: 64,2 m) (28)	0:00		0:00
E28	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (29)	0:00		0:00
E29	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (30)	0:00		0:00
E30	ENERCON E-40/5.40 500 40.3 !O! hub: 50,0 m (TOT: 70,2 m) (31)	0:00		0:00
E31	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (32)	16:46		3:00
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:04		0:42
E33	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (34)	0:00		0:00
E34	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (35)	0:00		0:00
E35	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (36)	4:54		1:27
E36	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (37)	39:45		4:47
E37	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (38)	0:00		0:00
E38	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (39)	8:33		1:45
E39	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (40)	3:56		0:23
E40	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (41)	83:33		25:08
E41	ENERCON E-66/18.70 1800 70.0 !O! hub: 86,0 m (TOT: 121,0 m) (42)	61:36		8:21
E42	ENERCON E-66/20.70 2000 70.0 !-! hub: 86,0 m (TOT: 121,0 m) (43)	6:46		2:09
E43	ENERCON E-66/18.70 1800 70.0 !O! hub: 65,0 m (TOT: 100,0 m) (44)	2:45		0:44
E44	ENERCON E-70 E4 2000 71.0 !O! hub: 64,0 m (TOT: 99,5 m) (45)	4:17		0:22
E45	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (46)	12:21		4:06
E46	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (47)	2:25		0:45
E47	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (48)	7:39		2:44
E48	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (49)	3:47		1:21
E49	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (50)	5:23		1:48
E50	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (51)	0:00		0:00
E51	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (52)	0:00		0:00
E52	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (53)	0:00		0:00
E53	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (54)	0:00		0:00
E54	ENERCON E-82 2000 82.0 !O! hub: 78,3 m (TOT: 119,3 m) (55)	0:00		0:00
E55	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (56)	0:00		0:00
E56	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (57)	0:00		0:00
E57	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (58)	0:00		0:00
E58	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (59)	0:00		0:00
E59	ENERCON E-82 2000 82.0 !O! hub: 98,3 m (TOT: 139,3 m) (60)	0:00		0:00
E60	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (61)	0:00		0:00
E61	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (62)	0:00		0:00
E62	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (63)	0:00		0:00
E63	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (64)	0:00		0:00
E64	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (65)	0:00		0:00
E65	ENERCON E-82 2000 82.0 !O! hub: 108,3 m (TOT: 149,3 m) (66)	0:00		0:00
E66	ENERCON E-82 E2 2300 82.0 !O! hub: 108,4 m (TOT: 149,4 m) (67)	0:00		0:00
E67	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (68)	0:00		0:00
E68	GET Danwin 27 225 29.0 !O! hub: 30,0 m (TOT: 44,5 m) (69)	0:00		0:00
E69	VESTAS V44 600 44.0 !O! hub: 50,0 m (TOT: 72,0 m) (70)	0:00		0:00
VE01	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (433)	170:20		34:56
VE02	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (434)	109:29	48:03	26:52
VE03	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (435)	82:10		12:52
VE04	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (436)	67:09		5:53

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SHADOW - Main Result

Calculation: Suminis SHUTDOWN

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE05	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (437)	83:16	140:46	26:22
VE06	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (438)	72:43	74:58	19:03
VE07	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (439)	12:13		2:59
VE08	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (440)	73:40		21:12
VE09	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (492)	15:43	249:35	1:37
VE10	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (449)	373:29		87:38
VE11	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (448)	108:44	304:23	14:02
VE12	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (447)	195:03		31:41
VE13	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (446)	126:09	16:34	15:45
VE14	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (445)	112:13	143:23	11:52
VE15	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (480)	187:00		24:19
VE16	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (481)	69:32		6:39
VE17	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (482)	15:05	89:37	5:22
VE18	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (483)	100:35		15:37
VE19	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (441)	19:39		5:30
VE20	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (444)	106:39	99:39	34:25
VE21	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (443)	32:47		10:17
VE22	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (484)	13:53		2:34
VE23	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (442)	162:10		18:23
VE24	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (450)	14:59		2:59
VE25	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (451)	38:33		3:24
VE26	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (479)	30:02	74:50	4:43
VE27	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (491)	14:16		1:46
VE28	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (485)	18:36	65:30	6:20
VE29	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (452)	20:00		5:05
VE30	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (455)	16:07		4:50
VE31	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (456)	0:00		0:00
VE32	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (454)	95:53		31:37
VE33	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (453)	57:01	15:19	15:21
VE34	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (495)	95:51	75:31	28:59
VE35	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (494)	166:18		54:06
VE36	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (457)	0:00	94:20	0:00
VE37	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (463)	76:00	139:37	17:30
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	0:00	178:49	0:00
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:00		15:07
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:25		6:00
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	130:45	34:42	21:17
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	50:59	40:51	9:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:28		29:22
VE44	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (465)	107:32		14:16
VE45	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (489)	73:22	122:59	17:38
VE46	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (490)	55:22		10:40
VE47	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (467)	150:01		26:53
VE48	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (468)	81:58	126:06	13:31
VE49	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (466)	211:35		32:53
VE50	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (469)	64:09	42:21	15:50
VE51	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (470)	33:28		10:25
VE52	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (471)	16:40	46:45	5:20
VE53	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (473)	28:00	170:49	9:39
VE54	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (474)	30:24		2:45
VE55	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (472)	72:08		6:49
VE56	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (488)	62:11		13:28
VE57	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (475)	98:51		28:40
VE58	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (476)	21:31		4:30
VE59	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (477)	16:27	51:25	2:31
VE60	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (487)	109:09		11:02
VE61	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (486)	76:49		21:10
VE62	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (478)	18:17		3:05
VJ1	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (505)	0:00		0:00
VJ2	GE WIND ENERGY 5.5-158 Thrust 665 5500 158.0 !O! hub: 120,9 m (TOT: 199,9 m) (506)	156:37	35:54	23:53

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.