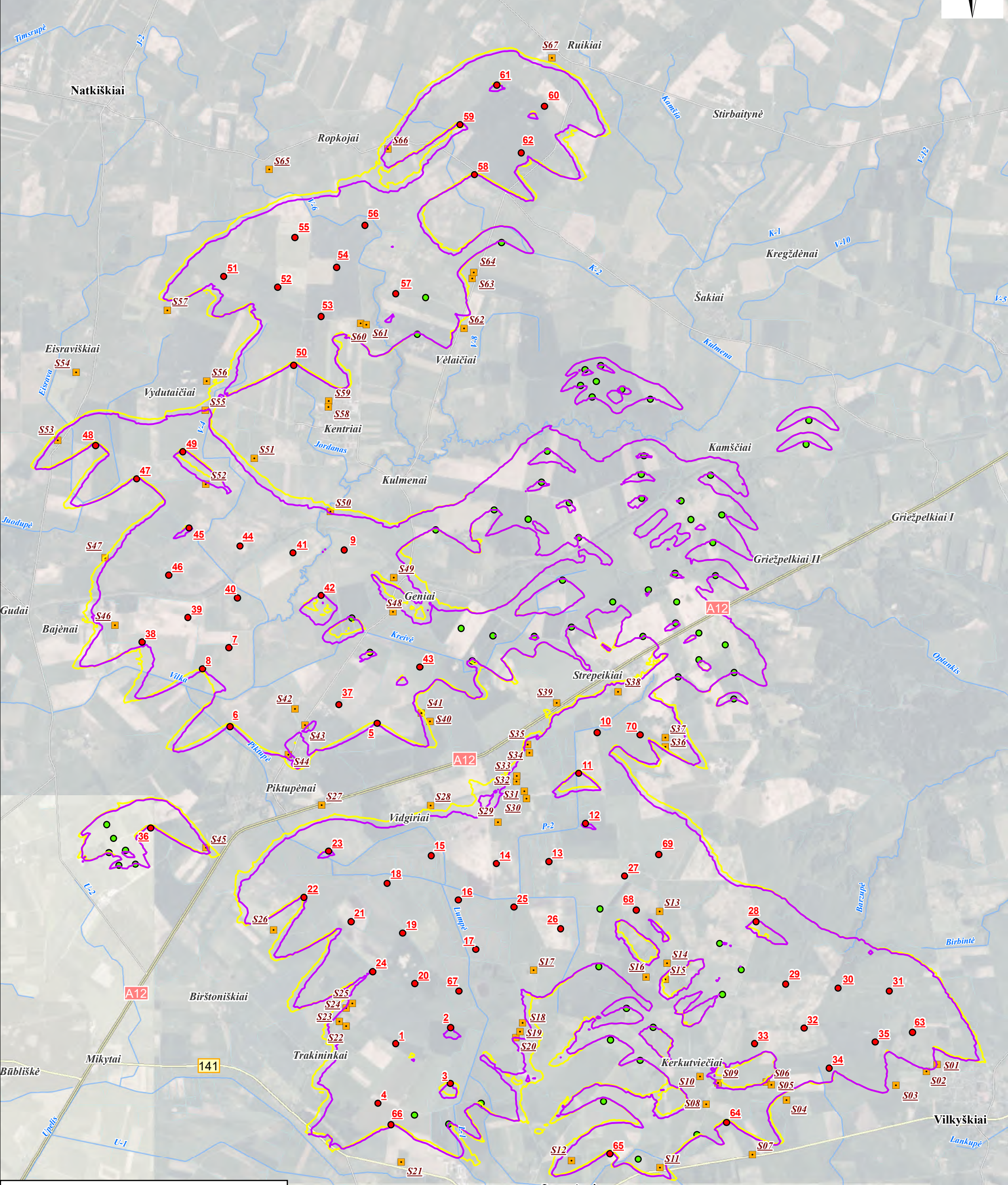


9 PRIEDAS

Šešliavimo modeliavimo rezultatai

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



Planuojamos VE

Esamos VE

Artimiausias gyvenamas namas

Prognozuojamas šešėliavimas

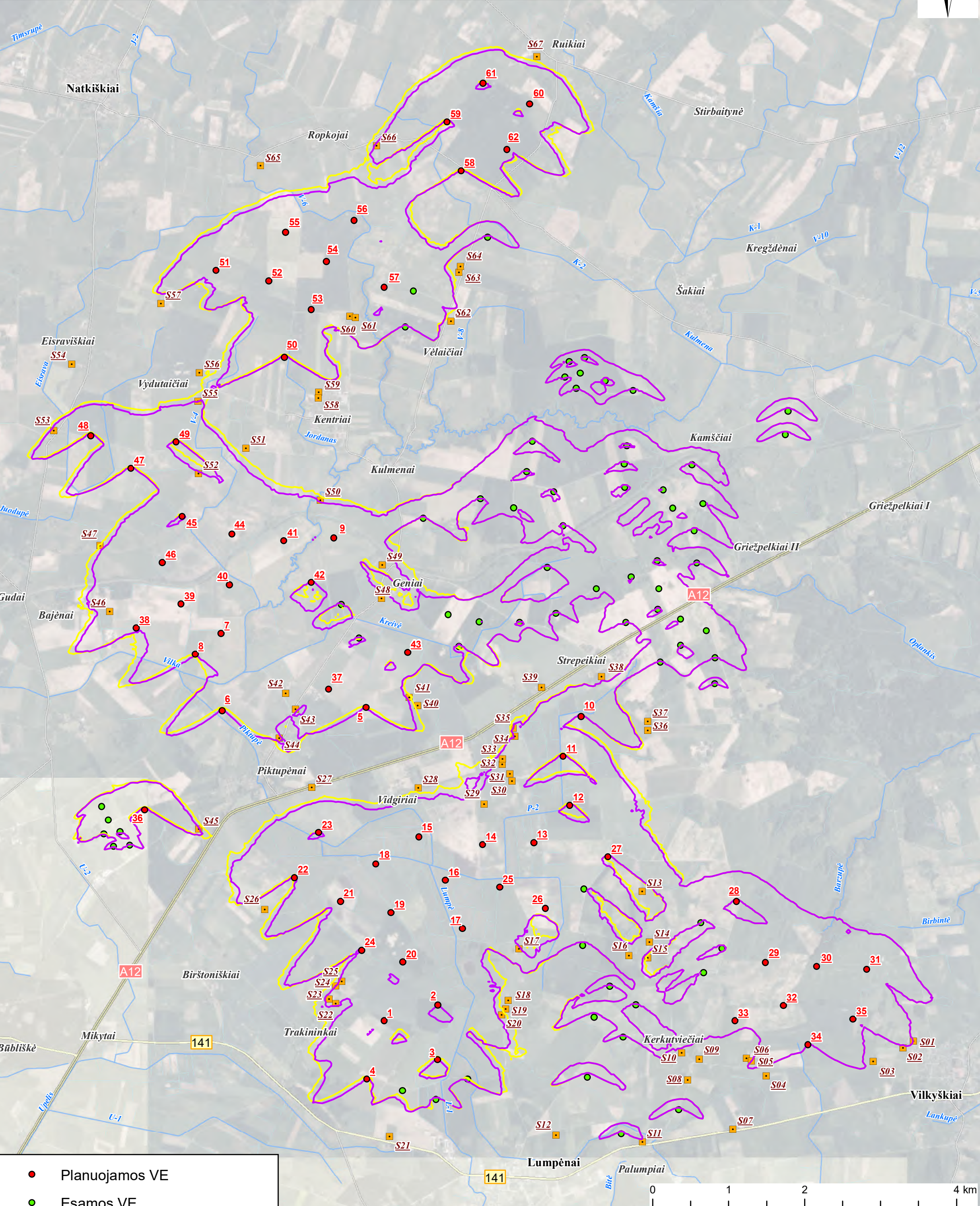
30 val./metus (1 scenarijus)

30 val./metus (2 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

	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
- 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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	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 (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_1alt_70VE_SG

Licensed user:

VSI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

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Viaceslav / viaceslav.jurkin@corpi.lt

Calculated:

2021-02-28 13:19/3.3.294

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	1051	1314	788	350	8759

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)

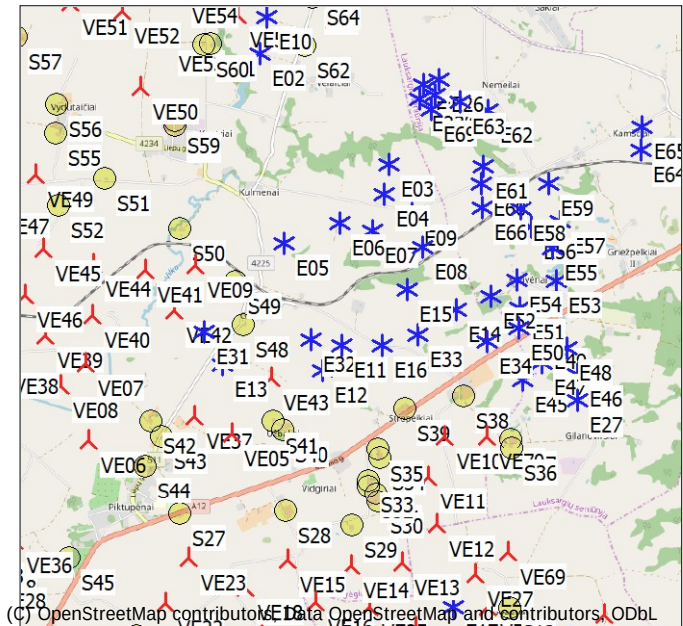
Obstacles not used in calculation

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
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 [RPM]
			[m]									
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	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]									
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	65,0	1487	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000....	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE02	373824	6112010	18,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE03	373821	6111289	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE04	372892	6111037	20,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE05	372880	6115929	15,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE06	370985	6115888	10,8	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE07	370972	6116904	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE08	370632	6116630	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE09	372458	6118163	15,9	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE12	375565	6114639	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE13	375090	6114150	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE14	374414	6114122	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE15	373577	6114225	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE16	373926	6113655	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE17	374149	6113017	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE18	373009	6113867	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE19	373210	6113229	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE20	373365	6112579	16,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE21	372544	6113377	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE22	371941	6113689	10,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE23	372256	6114283	13,1	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE24	372821	6112733	12,1	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE25	374640	6113564	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE26	375245	6113284	14,7	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0

To be continued on next page...

Project:

Pagegiu_VE_20210227_1alt_70VE_SG

Licensed user:

Vsi Pajurio tyrimu ir planavimo institutas

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Calculated:

2021-02-28 13:19/3.3.294

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]
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE37	372389	6116170	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE38	369853	6116976	10,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE39	370446	6117293	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE40	371080	6117545	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE41	372159	6117574	14,1	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE42	373428	6116654	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE43	371115	6118210	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE44	370461	6118443	14,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE45	370198	6117837	12,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE46	369786	6119077	15,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE47	369255	6119509	18,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE48	370381	6119426	17,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE50	371806	6120538	26,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE51	370907	6121685	36,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE52	371600	6121547	37,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE53	372160	6121169	32,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE54	372358	6121800	36,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE55	371822	6122185	39,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE56	372725	6122344	34,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE57	373119	6121462	32,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE58	374134	6122995	36,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE59	373949	6123640	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE60	375033	6123875	41,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE61	374421	6124147	43,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE62	374738	6123275	38,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE63	379772	6111949	33,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE64	377377	6110789	35,4	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE65	375874	6110388	25,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE66	373058	6110763	21,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE67	373934	6112479	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE68	376216	6113524	20,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE69	376506	6114242	26,4	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE70	376265	6115782	38,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0

Shadow receptor-Input

No.	Y	X	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
						a.g.l.	window		(ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S01	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6110378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

Project:

Pagegiu_VE_20210227_1alt_70VE_SG

Licensed user:

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Calculated:

2021-02-28 13:19/3.3.294

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]
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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

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]

S08	52:07
S09	27:47
S10	34:41
S11	45:36
S12	56:33
S13	117:46
S14	44:47
S15	28:19
S16	43:09
S17	51:09
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	46:51
S47	24:30
S48	38:33
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

SHADOW - Main Result

Calculation: Suminis

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)	10:09	3:26
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)	8:36	1:56
E12 ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29	4:37
E13 ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39	6:53
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)	21:42	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)	16:43	2:59
E32 ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05	0:43
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

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [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	31:15
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
VE10	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)	9:43	2:25
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:21	13:00
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)	198:10	60:35
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	158:48	31:47
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:09	12:40
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:32	4:40
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:23	26:41
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:05	17:35
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:20	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

To be continued on next page...

Project:

Pagegiu_VE_20210227_1alt_70VE_SG

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / viaceslav.jurkin@corpi.lt
Calculated:
2021-02-28 13:19/3.3.294

SHADOW - Main Result

Calculation: Suminis

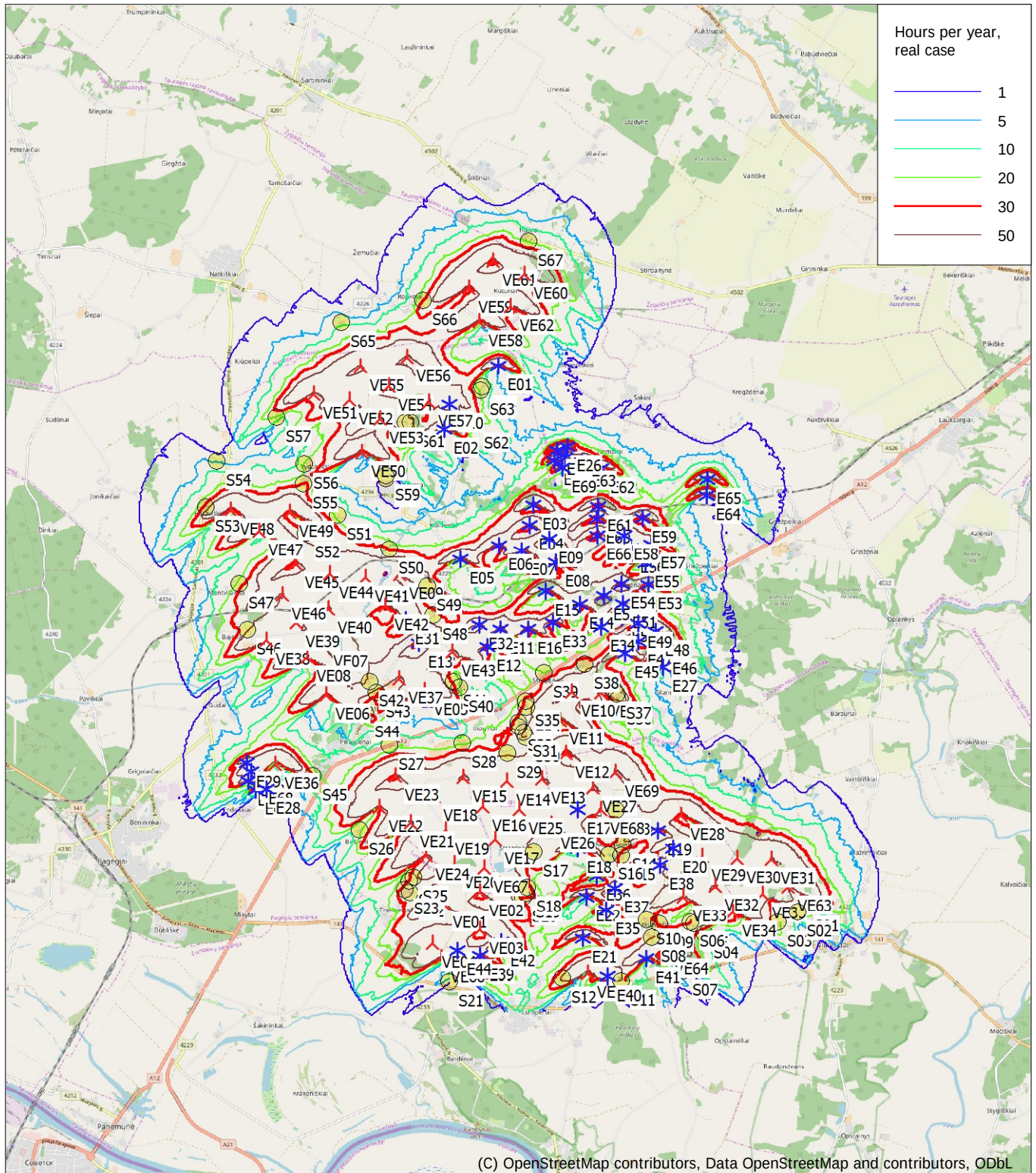
...continued from previous page

No.	Name	Worst case [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)	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.

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, pritaikius priemones (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_1alt_70VE_SG

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipėda
+370 46 398842
Viaceslav / viaceslav.jurkin@corpi.lt
Calculated:
2021-03-02 21:45/3.3.294

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	1051	1314	788	350	8759

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

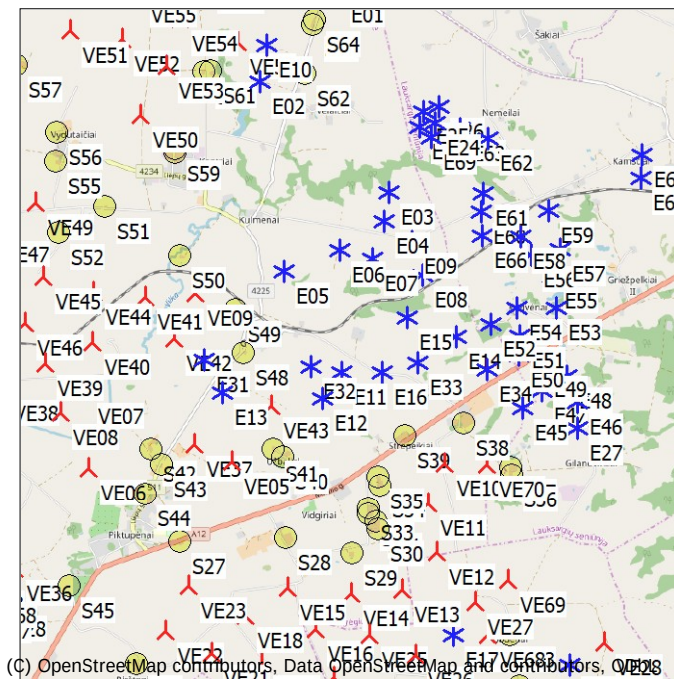
All coordinates are in

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]
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...



(C) OpenStreetMap contributors, Data OpenStreetMap contributors, Imagery Mapbox

Scale 1:100 000

★ New WTG
● Shadow receptor

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]									
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	65,0	1487	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000....	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE02	373824	6112010	18,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE03	373821	6111289	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE04	372892	6111037	20,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE05	372880	6115929	15,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE06	370985	6115888	10,8	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE07	370972	6116904	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE08	370632	6116630	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE09	372458	6118163	15,9	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE12	375565	6114639	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE13	375090	6114150	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE14	374414	6114122	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE15	373577	6114225	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE16	373926	6113655	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE17	374149	6113017	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE18	373009	6113867	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE19	373210	6113229	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE20	373365	6112739	16,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE21	372544	6113377	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE22	371941	6113689	10,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE23	372256	6114283	13,1	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE24	372821	6112733	12,1	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE25	374640	6113564	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE26	375245	6113284	14,7	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0

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Project:

Pagegiu_VE_20210227_1alt_70VE_SG

Licensed user:

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Viaceslav / viaceslav.jurkin@corpi.lt

Calculated:

2021-03-02 21:45/3.3.294

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]
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE37	372389	6116170	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE38	369853	6116976	10,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE39	370446	6117293	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE40	371080	6117545	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE41	371799	6118124	15,4	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE42	372159	6117574	14,1	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE43	373428	6116654	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE44	371115	6118210	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE45	370461	6118443	14,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE46	370198	6117837	12,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE47	369786	6119077	15,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE48	369255	6119509	18,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE49	370381	6119426	17,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE50	371806	6120538	26,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE51	370907	6121685	36,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE52	371600	6121547	37,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE53	372160	6121169	32,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE54	372358	6121800	36,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE55	371822	6122185	39,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE56	372725	6122344	34,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE57	373119	6121462	32,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE58	374134	6122995	36,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE59	373949	6123640	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE60	375033	6123875	41,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE61	374421	6124147	43,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE62	374738	6123275	38,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE63	379772	6111949	33,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE64	377377	6110789	35,4	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE65	375874	6110388	25,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE66	373058	6110763	21,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE67	373934	6112479	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE68	376216	6113524	20,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE69	376506	6114242	26,4	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE70	376265	6115782	38,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	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	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6110378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	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]
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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*	27:44	12:11

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]
S06*	15:28	15:54
S07	3:23	
S08*	14:30	37:30
S09*	25:59	1:56
S10*	26:34	9:22
S11*	22:45	22:39
S12*	2:11	54:22
S13*	21:03	96:52
S14*	29:15	15:36
S15*	24:52	3:26
S16*	26:15	16:56
S17*	27:26	23:30
S18*	16:43	19:56
S19*	26:58	8:33
S20*	26:53	4:08
S21	1:33	
S22*	22:59	12:10
S23*	25:36	8:55
S24*	13:32	20:12
S25*	25:24	16:54
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*	25:48	11:35
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*	17:31	29:26
S47*	14:18	10:32
S48*	27:59	10:47
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

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)	10:09		3:26
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)	8:36		1:56
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29		4:37
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39		6:53
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)	21:42		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)	16:43		2:59
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05		0:43
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

To be continued on next page...

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		31:15
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
VE10	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)	9:43		2:25
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:21		13:00
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)	256:41	116:48	74:48
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)	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)	33:46	43:48	6:32
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)	34:52	49:14	10:33
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)	122:31	48:51	38:28
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)	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)	53:17	144:53	12:02
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	22:11	136:37	1:53
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:09		12:40
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:32		4:40
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:23		26:41
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	31:24	34:41	6:47
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:20		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)	32:57	137:19	3:41
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...

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	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)	268:02	300:06	34:53
VE65	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (497)	32:11	261:50	4:58
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)	180:55	357:05	32:27

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 (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_1alt_70VE_BIG

Licensed user:

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KMTP 206 kab., V. Berbomo g.10

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Calculated:

2021-02-28 10:37/3.3.294

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	1051	1314	788	350	8759

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)

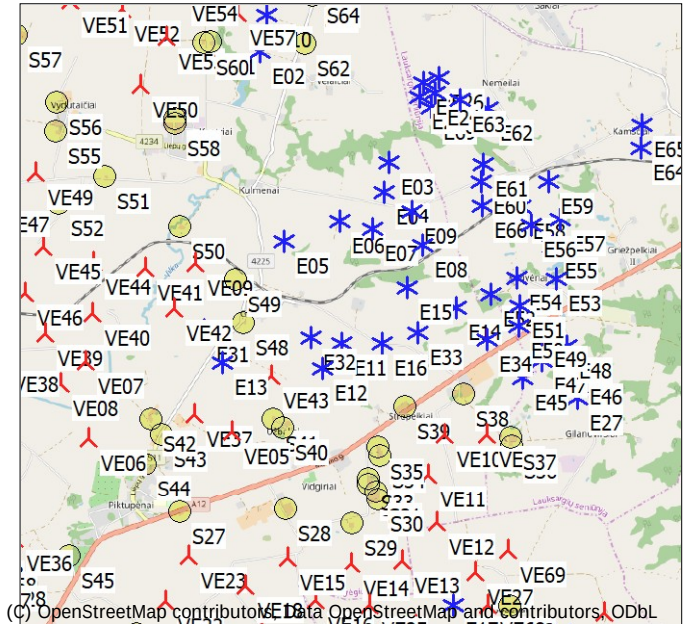
Obstacles not used in calculation

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

● 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 [RPM]
			[m]									
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...

Project:

Pagegiu_VE_20210227_1alt_70VE_BIG

Licensed user:

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Calculated:

2021-02-28 10:37/3.3.294

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]									
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	65,0	1487	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000....	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE02	373824	6112010	18,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE03	373821	6111289	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE04	372892	6111037	20,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE05	372880	6115929	15,2	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE06	370985	6115888	10,8	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE07	370972	6116904	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE08	370632	6116630	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE09	372458	6118163	15,9	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE12	375565	6114639	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE13	375090	6114150	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE14	374414	6114122	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE15	373577	6114225	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE16	373926	6113655	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE17	374149	6113017	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE18	373009	6113867	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE19	373210	6113229	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE20	373365	6112579	16,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE21	372544	6113377	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE22	371941	6113689	10,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE23	372256	6114283	13,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE24	372821	6112733	12,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE25	374640	6113564	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE26	375245	6113284	14,7	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	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]
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE37	372389	6116170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE38	369853	6116976	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE39	370446	6117293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE40	371080	6117545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE41	371799	6118124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE42	372159	6117574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE43	373428	6116654	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE44	371115	6118210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE45	370461	6118443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE46	370198	6117837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE47	369786	6119077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE48	369255	6119509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE49	370381	6119426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE50	371806	6120538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE51	370907	6121685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE52	371600	6121547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE53	372160	6121169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE54	372358	6121800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE55	371822	6122185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE56	372725	6122344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE57	373119	6121462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE58	374134	6122995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE59	373949	6123640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE60	375033	6123875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE61	374421	6124147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE62	374738	6123275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE63	379772	6111949	33,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE64	377377	6110789	35,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE65	375874	6110388	25,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE66	373058	6110763	21,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE67	373934	6112479	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE68	376216	6113524	20,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE69	376506	6114242	26,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE70	376265	6115782	38,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	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	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6110378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	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]
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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

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]

S08	56:49
S09	31:15
S10	36:47
S11	44:04
S12	57:41
S13	117:20
S14	46:09
S15	30:07
S16	46:26
S17	59:14
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	55:37
S47	30:37
S48	44:15
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

SHADOW - Main Result

Calculation: Suminis

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)	10:09 3:26
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)	8:36 1:56
E12 ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29 4:37
E13 ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39 6:53
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)	21:42 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)	16:43 2:59
E32 ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05 0:43
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

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

...continued from previous page

No.	Name	Worst case [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)	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)	12:14	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
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)	215:43	64:43
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	178:30	36:43
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:05	15:09
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:30	6:01
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:25	32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	91:48	22:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:34	29:24
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

To be continued on next page...

Project:

Pagegiu_VE_20210227_1alt_70VE_BIG

Licensed user:

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Viaceslav / viaceslav.jurkin@corpi.lt
Calculated:
2021-02-28 10:37/3.3.294

SHADOW - Main Result

Calculation: Suminis

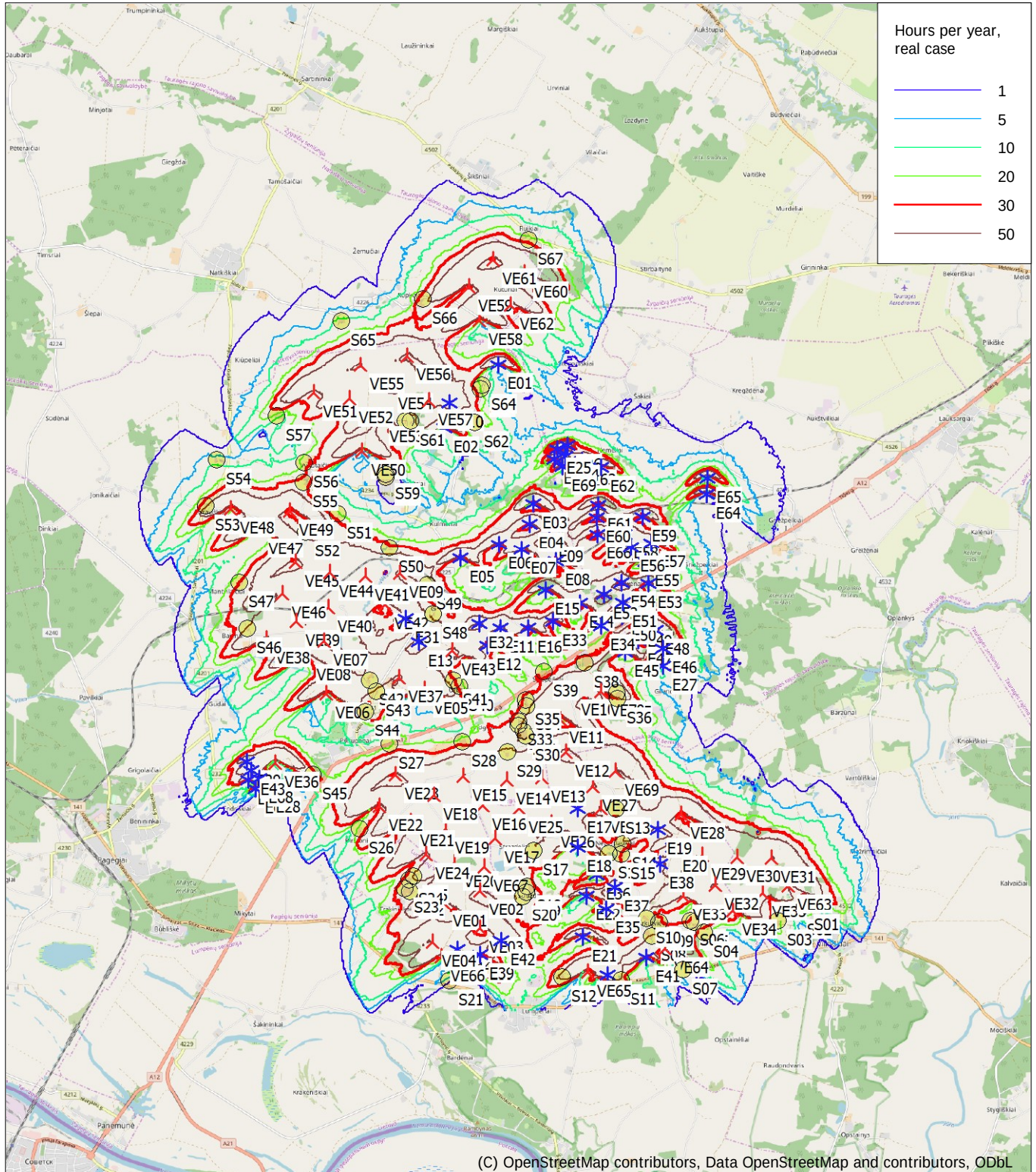
...continued from previous page

No.	Name	Worst case [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)	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

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, pritaikius priemones (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_1alt_70VE_BIG

Licensed user:

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Calculated:

2021-03-02 23:24/3.3.294

SHADOW - Main Result

Calculation: Shutdown 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	1051	1314	788	350	8759

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

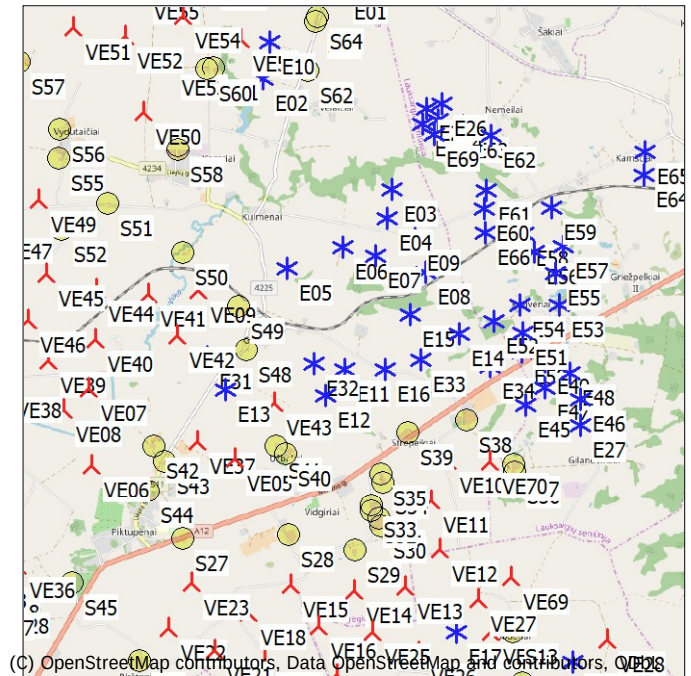
All coordinates are in

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]
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...



Scale 1:100 000
New WTG
Shadow receptor
Existing WTG

Project:

Pagegiu_VE_20210227_1alt_70VE_BIG

Licensed user:

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Calculated:

2021-03-02 23:24/3.3.294

SHADOW - Main Result

Calculation: Shutdown 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]									
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000....	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE02	373824	6112010	18,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE03	373821	6111289	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE04	372892	6111037	20,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE05	372880	6115929	15,2	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE06	370985	6115888	10,8	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE07	370972	6116904	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE08	370632	6116630	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE09	372458	6118163	15,9	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE12	375565	6114639	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE13	375090	6114150	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE14	374414	6114122	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE15	373577	6114225	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE16	373926	6113655	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE17	374149	6113017	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE18	373009	6113867	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE19	373210	6113229	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE20	373365	6112579	16,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE21	372544	6113377	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE22	371941	6113689	10,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE23	372256	6114283	13,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE24	372821	6112733	12,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE25	374640	6113564	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE26	375245	6113284	14,7	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0

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SHADOW - Main Result

Calculation: Shutdown 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]
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE37	372389	6116170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE38	369853	6116976	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE39	370446	6117293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE40	371080	6117545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE41	371799	6118124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE42	372159	6117574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE43	373428	6116654	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE44	371115	6118210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE45	370461	6118443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE46	370198	6117837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE47	369786	6119077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE48	369255	6119509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE49	370381	6119426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE50	371806	6120538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE51	370907	6121685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE52	371600	6121547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE53	372160	6121169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE54	372358	6121800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE55	371822	6122185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE56	372725	6122344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE57	373119	6121462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE58	374134	6122995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE59	373949	6123640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE60	375033	6123875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE61	374421	6124147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE62	374738	6123275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE63	379772	6111949	33,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE64	377377	6110789	35,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE65	375874	6110388	25,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE66	373058	6110763	21,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE67	373934	6112479	12,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE68	376216	6113524	20,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE69	376506	6114242	26,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE70	376265	6115782	38,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	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	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6110378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown 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]
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown suminis

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
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
S12*	2:11	55:30
S13*	23:21	94:09
S14*	29:15	16:57
S15*	19:22	10:49
S16*	26:15	20:11
S17*	28:36	30:27
S18*	22:06	20:38
S19*	22:25	18:17
S20*	22:05	15:57
S21	1:33	
S22*	29:53	10:14
S23*	23:19	17:21
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*	28:34	10:18
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*	22:14	33:28
S47*	28:16	2:55
S48*	20:45	23:51
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*	24:42	47:27
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: Shutdown suminis

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)	10:09		3:26
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)	8:36		1:56
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29		4:37
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39		6:53
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)	21:42		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)	16:43		2:59
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05		0:43
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

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown suminis

...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)	12:14		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)	256:41	116:48	74:48
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)	54:35	151:43	17:26
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)	46:28	58:24	8:47
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)	16:16	67:50	4:13
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)	76:06	139:37	17:31
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	0:00	178:30	0:00
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:05		15:09
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:30		6:01
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	130:45	34:40	21:17
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	50:59	40:49	9:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:34		29:24
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)	22:17	41:08	7:05
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_20210227_1alt_70VE_BIG

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas
KMTP 206 kab., V. Berbomo g.10
LT-92221 Klaipeda
+370 46 398842
Viaceslav / viaceslav.jurkin@corpi.lt
Calculated:
2021-03-02 23:24/3.3.294

SHADOW - Main Result

Calculation: Shutdown suminis

...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)	73:36	91:46	21:20
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

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 (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_2alt_62VE_SG

Licensed user:

VSI Pajūrio tyrimų ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / viaceslav.jurkin@corpi.lt

Calculated:

2021-02-27 22:01/3.3.294

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	1051	1314	788	350	8759

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)

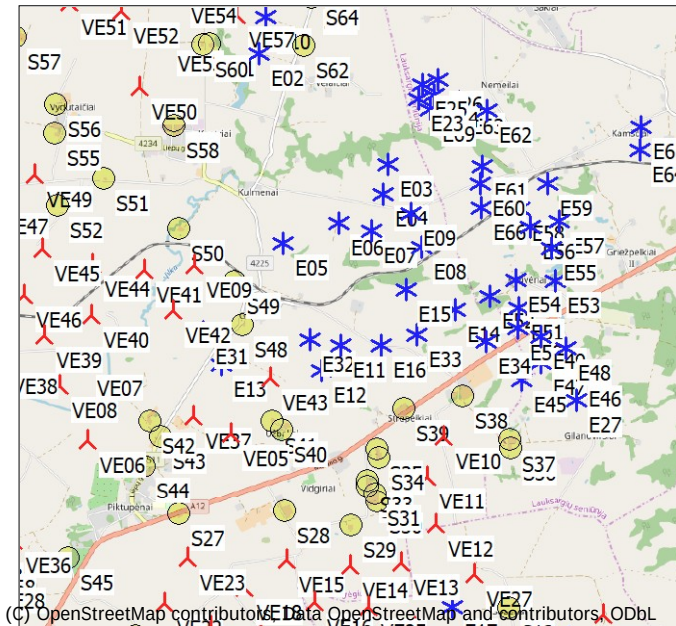
Obstacles not used in calculation

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
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 [RPM]
			[m]									
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	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]									
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2...	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1...	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1...	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2...	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1...	No	ENERCON	E-66/18.70-1800	1800	70,0	65,0	1487	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000...	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300...	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300...	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82...	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300...	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE02	373824	6112010	18,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE03	373821	6111289	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE04	372892	6111037	20,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE05	372880	6115929	15,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE06	370985	6115888	10,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE07	370972	6116904	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE08	370632	6116630	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE09	372458	6118163	15,9	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE12	375565	6114639	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE13	375090	6114150	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE14	374414	6114122	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE15	373577	6114225	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE16	373926	6113655	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE17	374149	6113017	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE18	373009	6113867	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE19	373210	6113229	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE20	373365	6112579	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE21	372544	6113377	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE22	371941	6113689	10,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE23	372256	6114283	13,1	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE24	372821	6112733	12,1	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE25	374640	6113564	12,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE26	375245	6113284	14,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0

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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]
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE37	372389	6116170	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE38	369853	6116976	10,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE39	370446	6117293	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE40	371080	6117545	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE41	371799	6118124	15,4	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE42	372159	6117574	14,1	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE43	373428	6116654	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE44	371115	6118210	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE45	370461	6118443	14,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE46	370198	6117837	12,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE47	369786	6119077	15,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE48	369255	6119509	18,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE49	370381	6119426	17,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE50	371806	6120538	26,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE51	370907	6121685	36,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE52	371600	6121547	37,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE53	372160	6121169	32,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE54	372358	6121800	36,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE55	371822	6122185	39,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE56	372725	6122344	34,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE57	373119	6121462	32,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE58	374134	6122995	36,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE59	373949	6123640	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE60	375033	6123875	41,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE61	374421	6124147	43,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE62	374738	6123275	38,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	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	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6110378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	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: 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]
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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	21:03
S14	44:47

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]

S15	28:19
S16	43:09
S17	35:41
S18	16:43
S19	20:52
S20	26:53
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	46:51
S47	24:30
S48	38:33
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)	10:09	3:26
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)	8:36	1:56
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29	4:37
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39	6:53
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)	21:42	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)	16:43	2:59
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05	0:43
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

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

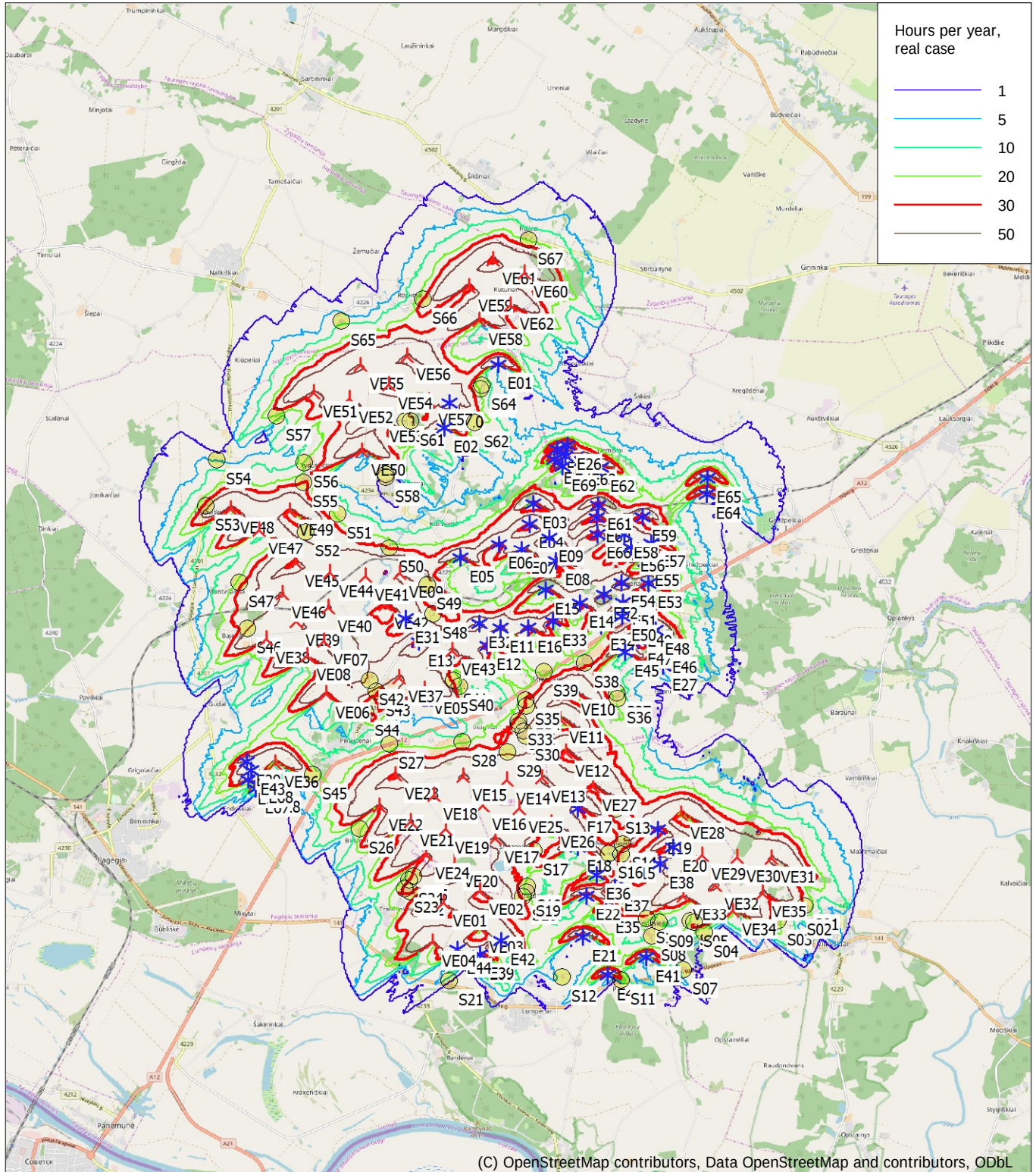
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No.	Name	Worst case [h/year]	Expected [h/year]
VE02	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (434)	121:23	31:15
VE03	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (435)	60:49	9:01
VE04	Siemens Gamesa 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)	9:43	2:25
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:21	13:00
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)	198:10	60:35
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	158:48	31:47
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:09	12:40
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:32	4:40
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:23	26:41
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	66:05	17:35
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:20	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: 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, pritaikius priemones (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_2alt_62VE_SG

Licensed user:

VsĮ Pajūrio tyrimų ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / viaceslav.jurkin@corpi.lt

Calculated:

2021-03-03 00:01/3.3.294

SHADOW - Main Result

Calculation: Shutdown - 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	1051	1314	788	350	8759

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

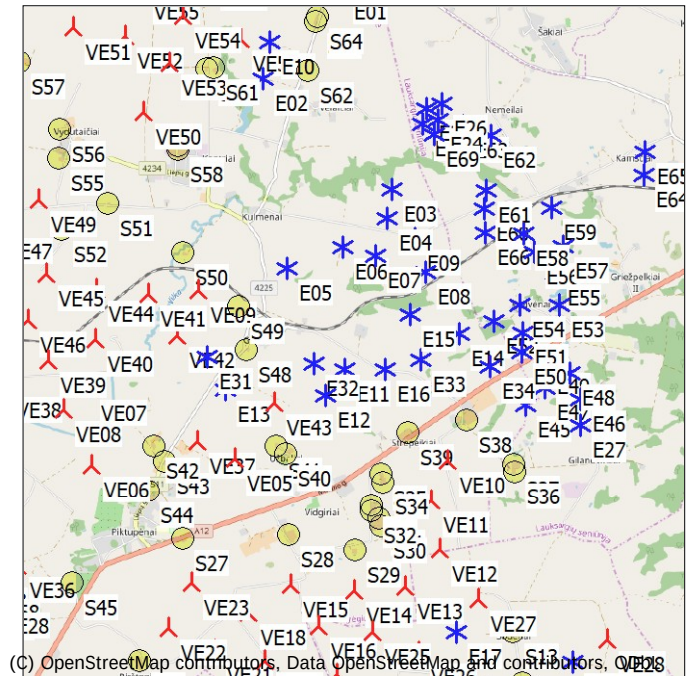
All coordinates are in

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]
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...



Scale 1:100 000
New WTG
Shadow receptor
Existing WTG

SHADOW - Main Result

Calculation: Shutdown - 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]									
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	65,0	1487	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000....	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE02	373824	6112010	18,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE03	373821	6111289	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE04	372892	6111037	20,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE05	372880	6115929	15,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE06	370985	6115888	10,8	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE07	370972	6116904	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE08	370632	6116630	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE09	372458	6118163	15,9	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	115,0	1768	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE12	375565	6114639	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE13	375090	6114150	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE14	374414	6114122	14,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE15	373577	6114225	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE16	373926	6113655	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE17	374149	6113017	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE18	373009	6113867	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE19	373210	6113229	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE20	373365	6112739	16,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE21	372544	6113377	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE22	371941	6113689	10,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE23	372256	6114283	13,1	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE24	372821	6112733	12,1	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE25	374640	6113564	12,0	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE26	375245	6113284	14,7	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown - 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]
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE37	372389	6116170	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE38	369853	6116976	10,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE39	370446	6117293	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE40	371080	6117545	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE41	371799	6118124	15,4	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE42	372159	6117574	14,1	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE43	373428	6116654	14,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE44	371115	6118210	16,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE45	370461	6118443	14,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE46	370198	6117837	12,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE47	369786	6119077	15,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE48	369255	6119509	18,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE49	370381	6119426	17,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE50	371806	6120538	26,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE51	370907	6121685	36,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE52	371600	6121547	37,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE53	372160	6121169	32,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE54	372358	6121800	36,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE55	371822	6121825	39,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE56	372725	6122344	34,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE57	373119	6121462	32,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE58	374134	6122995	36,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE59	373949	6123640	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE60	375033	6123875	41,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE61	374421	6124147	43,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE62	374738	6123275	38,7	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	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	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6110378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	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: Shutdown - 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	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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	

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown - Suminis

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S13	21:03	
S14*	29:15	15:36
S15*	24:52	3:26
S16*	26:15	16:56
S17*	12:03	23:30
S18	16:43	
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*	17:31	29:26
S47	24:30	
S48*	27:59	10:47
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*	25:01	52:55
S61*	25:32	33:34
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

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown - Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
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)	10:09		3:26
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)	8:36		1:56
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29		4:37
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39		6:53
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)	21:42		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)	16:43		2:59
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05		0:43
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

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown - Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
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)	9:43		2:25
VE08	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 115,0 m (TOT: 200,0 m) (440)	46:21		13:00
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)	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)	33:46	43:48	6:32
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)	34:52	49:14	10:33
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)	53:17	144:53	12:00
VE38	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (458)	22:11	136:37	1:53
VE39	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (459)	49:09		12:40
VE40	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (460)	23:32		4:40
VE41	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (461)	143:23		26:41
VE42	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (462)	31:24	34:41	6:47
VE43	Siemens Gamesa SG6.0-170 6200 170.0 !O! hub: 135,0 m (TOT: 220,0 m) (464)	121:20		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)	32:10	62:22	8:50
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

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 (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_2alt_62VE_BIG

Licensed user:

VsĮ Pajūrio tyrimų ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / viaceslav.jurkin@corpi.lt

Calculated:

2021-02-28 10:52/3.3.294

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	1051	1314	788	350	8759

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)

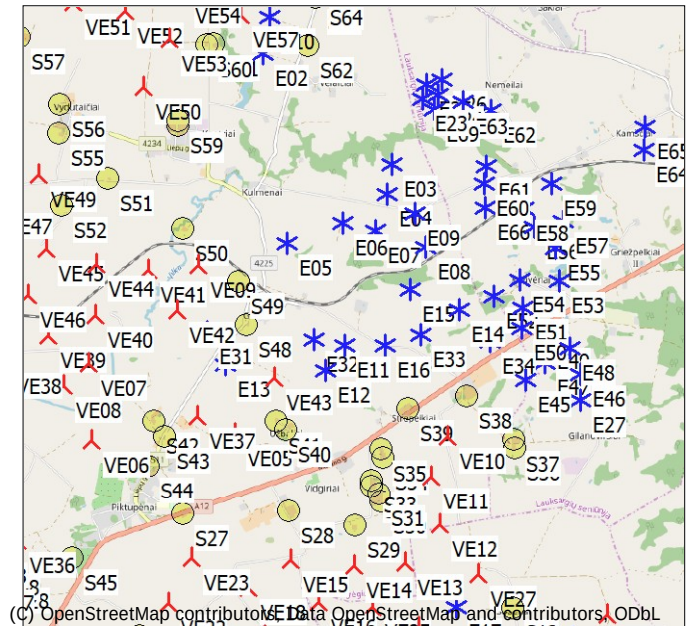
Obstacles not used in calculation

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
Shadow receptor
Existing WTG

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]
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	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]									
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	65,0	1487	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000....	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !...	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE02	373824	6112010	18,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE03	373821	6111289	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE04	372892	6111037	20,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE05	372880	6115929	15,2	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE06	370985	6115888	10,8	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE07	370972	6116904	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE08	370632	6116630	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE09	372458	6118163	15,9	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE12	375565	6114639	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE13	375090	6114150	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE14	374414	6114122	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE15	373577	6114225	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE16	373926	6113655	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE17	374149	6113017	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE18	373009	6113867	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE19	373210	6113229	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE20	373365	6112579	16,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE21	372544	6113377	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE22	371941	6113689	10,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE23	372256	6114283	13,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE24	372821	6112733	12,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE25	374640	6113564	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE26	375245	6113284	14,7	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	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]
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE37	372389	6116170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE38	369853	6116976	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE39	370446	6117293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE40	371080	6117545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE41	371799	6118124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE42	372159	6117574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE43	373428	6116654	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE44	371115	6118210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE45	370461	6118443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE46	370198	6117837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE47	369786	6119077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE48	369255	6119509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE49	370381	6119426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE50	371806	6120538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE51	370907	6121685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE52	371600	6121547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE53	372160	6121169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE54	372358	6121800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE55	371822	6122185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE56	372725	6122344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE57	373119	6121462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE58	374134	6122995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE59	373949	6123640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE60	375033	6123875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE61	374421	6124147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE62	374738	6123275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	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	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6111037	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	17,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S24	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	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: 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]
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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	23:21
S14	46:09

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]

S15	30:07
S16	46:26
S17	42:08
S18	22:06
S19	27:24
S20	36:13
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	55:37
S47	30:37
S48	44:15
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)	10:09	3:26
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)	8:36	1:56
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29	4:37
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39	6:53
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)	21:42	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)	16:43	2:59
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05	0:43
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

To be continued on next page...

SHADOW - Main Result

Calculation: Suminis

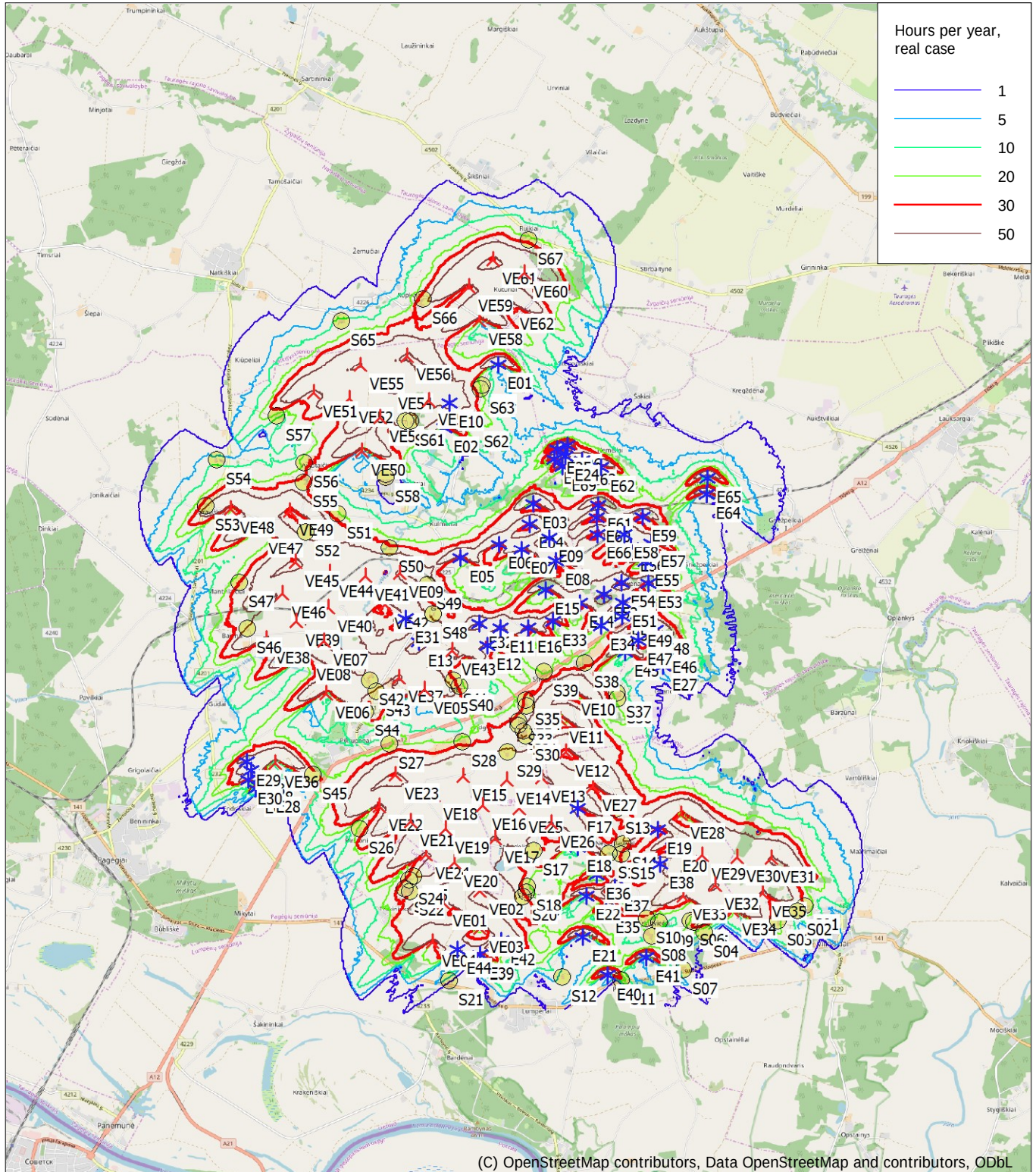
...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
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)	12:14	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
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)	215:43	64:43
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	178:30	36:43
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:05	15:09
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:30	6:01
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	165:25	32:09
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	91:48	22:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:34	29:24
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

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)

4 scenarijus, pritaikius priemones (įvertinant esamas VE)

Project:

Pagegiu_VE_20210227_2alt_62VE_BIG

Licensed user:

VsI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipėda

+370 46 398842

Viaceslav / viaceslav.jurkin@corpi.lt

Calculated:

2021-03-03 00:49/3.3.294

SHADOW - Main Result

Calculation: Shutdown - 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	1051	1314	788	350	8759

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

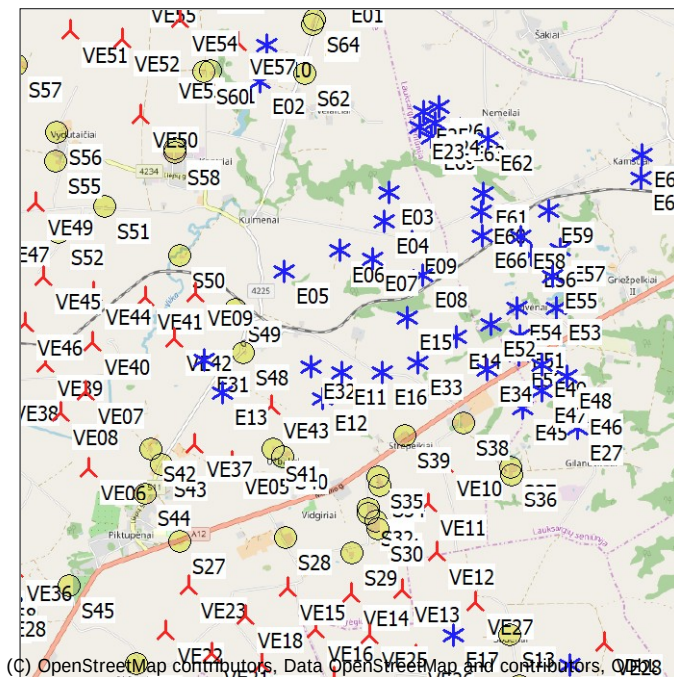
All coordinates are in

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]
E01	374480	6122121	34,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E02	373397	6120939	31,4	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E03	375072	6119433	38,2	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E04	374994	6119036	49,1	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E05	373637	6118422	39,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E06	374386	6118675	47,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E07	374824	6118559	54,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E08	375474	6118324	48,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E09	375353	6118767	51,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E10	373506	6121413	35,5	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E11	374370	6117058	20,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E12	374105	6116735	18,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E13	372789	6116843	14,0	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E14	375913	6117492	40,8	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E15	375265	6117772	27,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E16	374906	6117048	20,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	99,0	2216	14,5
E17	375750	6113538	15,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E18	375735	6112796	19,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E19	377290	6113094	56,3	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E20	377568	6112756	59,7	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E21	375794	6111060	24,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E22	375883	6111850	40,6	ENERCON E-101 3050 1...	Yes	ENERCON	E-101-3050	3050	101,0	135,4	2214	14,5
E23	375500	6120280	34,8	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E24	375699	6120331	37,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E25	375555	6120482	35,5	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E26	375757	6120537	36,2	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	65,0	897	38,0
E27	377473	6116240	62,0	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	44,0	898	38,0
E28	369771	6114116	36,9	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E29	369402	6114626	47,4	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E30	369428	6114264	48,7	ENERCON E-40/5.40 50...	No	ENERCON	E-40/5.40-500	500	40,3	50,0	898	38,0
E31	372556	6117287	14,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E32	373963	6117153	23,1	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E33	375382	6117168	26,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0

To be continued on next page...



Scale 1:100 000
New WTG
Shadow receptor
Existing WTG

Project:

Pagegiu_VE_20210227_2alt_62VE_BIG

Licensed user:

VSI Pajurio tyrimu ir planavimo institutas

KMTP 206 kab., V. Berbomo g.10

LT-92221 Klaipeda

+370 46 398842

Viaceslav / viaceslav.jurkin@corpi.lt

Calculated:

2021-03-03 00:49/3.3.294

SHADOW - Main Result

Calculation: Shutdown - 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]									
E34	376302	6117048	48,2	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E35	376264	6111590	50,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E36	376087	6112259	52,7	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E37	376433	6112015	53,5	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E38	377324	6112439	60,0	ENERCON E-53 800 53....	Yes	ENERCON	E-53-800	800	53,0	73,3	996	29,0
E39	373801	6110771	14,0	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E40	376243	6110314	26,0	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E41	376995	6110633	30,2	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	86,0	1486	22,0
E42	374219	6111035	16,6	ENERCON E-66/20.70 2....	No	ENERCON	E-66/20.70-2000	2000	70,0	86,0	2500	22,0
E43	369490	6114445	51,9	ENERCON E-66/18.70 1....	No	ENERCON	E-66/18.70-1800	1800	70,0	65,0	1487	22,0
E44	373362	6110882	18,9	ENERCON E-70 E4 2000....	No	ENERCON	E-70 E4-2000	2000	71,0	64,0	1644	20,0
E45	376755	6116526	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E46	377477	6116583	62,5	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E47	377021	6116750	71,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E48	377362	6116939	68,3	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E49	377023	6117091	69,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E50	376722	6117222	69,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E51	376738	6117490	66,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E52	376372	6117647	75,6	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E53	377238	6117830	64,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E54	376714	6117861	79,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	78,3	1552	19,5
E55	377202	6118258	62,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E56	376919	6118553	56,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E57	377316	6118611	68,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E58	376795	6118796	47,9	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E59	377171	6119126	43,7	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	98,3	1550	19,5
E60	376281	6119133	42,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E61	376314	6119374	39,4	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E62	376399	6120100	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E63	376033	6120230	38,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E64	378402	6119521	36,0	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E65	378438	6119832	29,1	ENERCON E-82 2000 82....	No	ENERCON	E-82-2000	2000	82,0	108,3	1550	19,5
E66	376288	6118824	40,0	ENERCON E-82 E2 2300....	Yes	ENERCON	E-82 E2-2300	2300	82,0	108,4	1601	18,0
E67	369559	6114099	40,1	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E68	369642	6114293	40,3	GET Danwin 27 225 29....	No	GET	Danwin 27-225	225	29,0	30,0	2500	37,6
E69	375646	6120133	34,0	VESTAS V44 600 44.0 !....	No	VESTAS	V44-600	600	44,0	50,0	772	28,0
VE01	373119	6111805	23,3	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE02	373824	6112010	18,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE03	373821	6111289	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE04	372892	6111037	20,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE05	372880	6115929	15,2	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE06	370985	6115888	10,8	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE07	370972	6116904	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE08	370632	6116630	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE09	372458	6118163	15,9	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE10	375713	6115811	23,5	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE11	375476	6115286	14,5	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE12	375565	6114639	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE13	375090	6114150	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE14	374414	6114122	14,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE15	373577	6114225	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE16	373926	6113655	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE17	374149	6113017	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE18	373009	6113867	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE19	373210	6113229	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE20	373365	6112579	16,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE21	372544	6113377	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE22	371941	6113689	10,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE23	372256	6114283	13,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE24	372821	6112733	12,1	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE25	374640	6113564	12,0	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE26	375245	6113284	14,7	VE model VE 8.0-180 80....	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE27	376067	6113961	20,6	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE28	377759	6113377	75,2	Siemens Gamesa SG6.0....	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown - 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]
VE29	378139	6112573	56,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE30	378812	6112519	47,5	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE31	379472	6112481	33,6	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE32	378375	6112006	55,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE33	377740	6111805	64,8	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE34	378699	6111490	38,0	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE35	379291	6111823	43,2	Siemens Gamesa SG6.0...	Yes	Siemens Gamesa	SG6.0-170-6200	6200	170,0	135,0	1766	14,0
VE36	369964	6114581	30,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE37	372389	6116170	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE38	369853	6116976	10,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE39	370446	6117293	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE40	371080	6117545	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE41	371799	6118124	15,4	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE42	372159	6117574	14,1	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE43	373428	6116654	14,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE44	371115	6118210	16,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE45	370461	6118443	14,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE46	370198	6117837	12,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE47	369786	6119077	15,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE48	369255	6119509	18,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE49	370381	6119426	17,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE50	371806	6120538	26,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE51	370907	6121685	36,2	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE52	371600	6121547	37,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE53	372160	6121169	32,8	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE54	372358	6121800	36,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE55	371822	6122185	39,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE56	372725	6122344	34,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE57	373119	6121462	32,5	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE58	374134	6122995	36,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE59	373949	6123640	38,0	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE60	375033	6123875	41,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE61	374421	6124147	43,6	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	14,0
VE62	374738	6123275	38,7	VE model VE 8.0-180 80...	Yes	VE model	VE 8.0-180-8000	8000	180,0	160,0	1764	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	380092	6111536	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S02	379946	6111445	38,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S03	379557	6111273	48,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S04	378141	6111077	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S05	377953	6111279	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S06	377888	6111312	52,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S07	377708	6110378	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S08	377117	6111027	40,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S09	377267	6111302	45,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S10	377032	6111387	47,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S11	376518	6110210	26,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S12	375381	6110300	35,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S13	376514	6113509	26,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S14	376610	6112841	39,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S15	376587	6112638	45,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S16	376342	6112659	40,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S17	374894	6112750	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S18	374754	6112070	23,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S19	374720	6111963	22,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S20	374660	6111878	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S21	373186	6110284	20,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S22	372479	6112030	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S23	372389	6112092	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: Shutdown - 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	372478	6112270	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S25	372561	6112323	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S26	371544	6113274	16,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S27	372164	6114873	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S28	373568	6114875	17,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S29	374436	6114659	22,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S30	374803	6114963	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S31	374771	6115060	23,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S32	374669	6115178	26,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S33	374678	6115254	26,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S34	374838	6115552	18,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S35	374814	6115662	20,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S36	376589	6115633	38,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S37	376588	6115746	41,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S38	375977	6116338	36,6	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S39	375194	6116193	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S40	373560	6115957	20,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S41	373443	6116067	15,4	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S42	371822	6116121	12,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S43	371952	6115905	14,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S44	371732	6115525	16,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S45	370678	6114327	30,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S46	369504	6117193	14,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	369378	6118065	14,7	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S48	373082	6117365	15,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	372993	6117927	19,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S50	372279	6118658	16,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S51	371299	6119343	18,8	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S52	370675	6119012	18,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S53	368768	6119576	22,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S54	369003	6120451	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S55	370667	6119959	24,5	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S56	370685	6120339	28,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S57	370178	6121252	29,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S58	372250	6120028	24,2	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S59	372257	6120083	24,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S60	372667	6121085	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S61	372750	6121090	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S62	373996	6121022	30,1	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S63	374129	6121657	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S64	374147	6121729	34,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S65	371491	6123063	42,0	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S66	373062	6123424	45,9	1,0	1,0	1,5	90,0	"Green house mode"	2,5
S67	375137	6124504	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	

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SHADOW - Main Result

Calculation: Shutdown - Suminis

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S13	23:21	
S14*	29:15	16:57
S15*	25:38	4:28
S16*	26:15	20:11
S17*	14:29	27:28
S18	22:06	
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*	22:14	33:28
S47*	28:16	2:55
S48*	20:45	23:51
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

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SHADOW - Main Result

Calculation: Shutdown - Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
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)	10:09		3:26
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)	8:36		1:56
E12	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (13)	20:29		4:37
E13	ENERCON E-101 3050 101.0 !-! hub: 99,0 m (TOT: 149,5 m) (14)	56:39		6:53
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)	21:42		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)	16:43		2:59
E32	ENERCON E-53 800 53.0 !-! hub: 73,3 m (TOT: 99,8 m) (33)	3:05		0:43
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

To be continued on next page...

SHADOW - Main Result

Calculation: Shutdown - Suminis

...continued from previous page

No.	Name	Worst case [h/year]	Stopped due to flicker curtailment [h/year]	Expected [h/year]
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)	12:14		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)	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)	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)	46:28	58:24	8:47
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)	34:52	49:14	10:33
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)	76:06	139:37	17:31
VE38	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (458)	0:00	178:30	0:00
VE39	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (459)	57:05		15:09
VE40	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (460)	29:30		6:01
VE41	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (461)	130:45	34:40	21:17
VE42	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (462)	50:59	40:49	9:12
VE43	VE model VE 8.0-180 8000 180.0 !O! hub: 160,0 m (TOT: 250,0 m) (464)	152:34		29:24
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

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.