

9 PRIEDAS

Šešėliavimo sklaidos modeliavimo rezultatai

**Prognozuojamas PŪV šėšėliavimo
vertinimas "1" alternatyva**

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 14:51/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
906 447 217 274 539 598 713 937 1 116 952 723 508 7 930

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
VE01	524 437	6 161 468	58,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE02	523 587	6 161 038	57,5	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE03	524 921	6 160 437	57,9	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE04	523 598	6 159 655	57,4	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE05	522 856	6 158 146	59,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE06	524 195	6 158 877	56,5	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE07	523 686	6 157 187	58,2	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE08	522 386	6 156 529	59,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE09	521 861	6 155 924	61,4	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE10	524 686	6 155 073	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE11	525 488	6 153 069	68,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE12	525 079	6 152 750	68,2	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE13	526 289	6 152 368	68,7	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE14	525 952	6 151 758	65,7	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE15	525 072	6 151 299	67,2	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE16	527 380	6 151 151	73,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE17	525 314	6 150 208	69,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE18	522 960	6 151 095	63,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE19	522 917	6 149 910	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE20	523 618	6 150 399	67,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE21	523 594	6 149 625	69,9	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE22	524 020	6 148 874	70,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE23	525 233	6 148 386	69,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE24	520 802	6 148 948	59,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE25	522 065	6 149 247	59,7	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE26	522 930	6 149 131	66,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE27	522 213	6 148 115	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE28	522 948	6 148 432	67,4	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE29	521 952	6 146 540	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE30	521 386	6 145 952	66,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE31	522 929	6 146 193	69,1	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	

To be continued on next page...

SHADOW - Main Result

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	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S57	537 523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534 191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534 781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537 501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537 726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537 988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539 971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539 912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541 117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0

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Project:

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Calculated:

2024-04-28 14:51/3.6.355

SHADOW - Main Result

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No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S66	541 098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542 445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540 595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540 538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540 620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542 284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541 907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541 615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542 259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540 088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540 042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540 069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540 096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540 444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540 468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540 496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541 481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541 290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541 847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542 437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541 225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541 242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540 980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

No.	per year [h/year]
S01	18:48
S02	21:00
S03	11:30
S04	18:57
S05	18:15
S06	29:52
S07	27:16
S08	27:48
S09	21:32
S10	16:51
S11	42:12
S12	32:45
S13	13:25
S14	0:00
S15	47:02
S16	33:17
S17	21:38
S18	21:18
S19	21:11
S20	20:25
S21	22:25
S22	18:09
S23	9:36
S24	12:18
S25	34:14
S26	13:41
S27	19:06
S28	22:56
S29	13:29
S30	5:11
S31	3:12
S32	4:29
S33	25:32

To be continued on next page...

Project:

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Calculated:

2024-04-28 14:51/3.6.355

SHADOW - Main Result

...continued from previous page

Shadow, expected values

No. Shadow hours

	per year [h/year]
S34	85:55
S35	44:46
S36	18:53
S37	32:37
S38	19:23
S39	28:33
S40	24:57
S41	34:27
S42	8:21
S44	32:06
S45	25:57
S46	10:07
S47	7:41
S48	7:15
S49	0:00
S50	0:00
S51	5:28
S52	4:21
S53	4:02
S54	8:57
S55	11:36
S56	7:12
S57	16:14
S58	4:36
S59	23:52
S60	23:26
S61	22:20
S62	18:21
S63	21:50
S64	22:56
S65	16:51
S66	14:17
S67	24:36
S68	13:52
S69	29:25
S70	18:03
S71	5:05
S72	2:48
S73	8:53
S74	22:04
S75	0:00
S76	0:00
S77	0:00
S78	23:43
S79	16:25
S80	17:57
S81	16:56
S82	13:40
S83	11:04
S84	15:59
S85	40:48
S86	45:14
S87	46:25
S88	27:10

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

No.	Name	Expected [h/year]
VE01	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (1)	40:08
VE02	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (2)	21:53
VE03	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (3)	23:34
VE04	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (4)	15:22

To be continued on next page...

SHADOW - Main Result

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No.	Name	Expected [h/year]
VE05	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (5)	70:46
VE06	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (6)	24:52
VE07	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (7)	10:48
VE08	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (8)	5:50
VE09	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (9)	1:51
VE10	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (10)	0:00
VE11	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (11)	41:32
VE12	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (12)	20:39
VE13	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (13)	63:32
VE14	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (14)	12:52
VE15	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (15)	4:56
VE16	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (96)	46:56
VE17	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (17)	1:46
VE18	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (18)	0:00
VE19	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (19)	6:21
VE20	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (20)	4:37
VE21	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (21)	2:10
VE22	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (22)	2:42
VE23	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (23)	8:26
VE24	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (24)	0:00
VE25	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (25)	0:27
VE26	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (26)	0:00
VE27	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (27)	3:18
VE28	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (28)	20:42
VE29	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (29)	93:52
VE30	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (30)	5:51
VE31	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (31)	14:01
VE32	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (32)	1:28
VE33	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (33)	0:16
VE34	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (34)	6:49
VE35	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (35)	16:13
VE36	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (36)	19:12
VE37	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (37)	36:43
VE38	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (38)	15:06
VE39	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (39)	9:26
VE40	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (40)	1:07
VE41	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (41)	0:00
VE42	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (42)	4:41
VE43	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (43)	0:00
VE44	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (44)	0:00
VE45	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (45)	37:01
VE46	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (46)	35:50
VE47	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (47)	0:00
VE48	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (48)	1:48
VE49	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (49)	11:52
VE50	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (50)	2:00
VE51	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (51)	0:00
VE52	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (52)	25:03
VE53	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (53)	0:00
VE54	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (54)	6:26
VE55	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (55)	0:00
VE56	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (56)	0:00
VE57	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (57)	9:47
VE58	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (58)	4:36
VE59	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (59)	0:00
VE60	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (60)	0:00
VE61	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (61)	24:10
VE62	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (62)	0:00
VE63	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (63)	16:45
VE64	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (64)	10:41
VE65	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (65)	4:10
VE66	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (66)	0:00
VE67	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (67)	0:00
VE68	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (68)	12:10
VE69	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (69)	18:04

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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SHADOW - Main Result

...continued from previous page

No.	Name	Expected [h/year]
VE70	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (70)	14:02
VE71	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (71)	14:14
VE72	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (72)	12:53
VE73	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (73)	5:26
VE74	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (74)	7:08
VE75	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (75)	0:28
VE76	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (76)	14:14
VE77	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (77)	31:19
VE78	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (78)	10:44
VE79	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (79)	3:49
VE80	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (80)	18:54
VE81	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (81)	0:00
VE82	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (82)	25:02
VE83	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (83)	50:22
VE84	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (84)	42:03
VE85	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (85)	7:24
VE86	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (86)	8:53
VE87	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (87)	4:24
VE88	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (88)	17:39
VE89	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (89)	2:44
VE90	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (90)	36:25
VE91	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (91)	62:22
VE92	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (92)	54:37
VE93	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (93)	44:35
VE94	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (94)	58:47

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

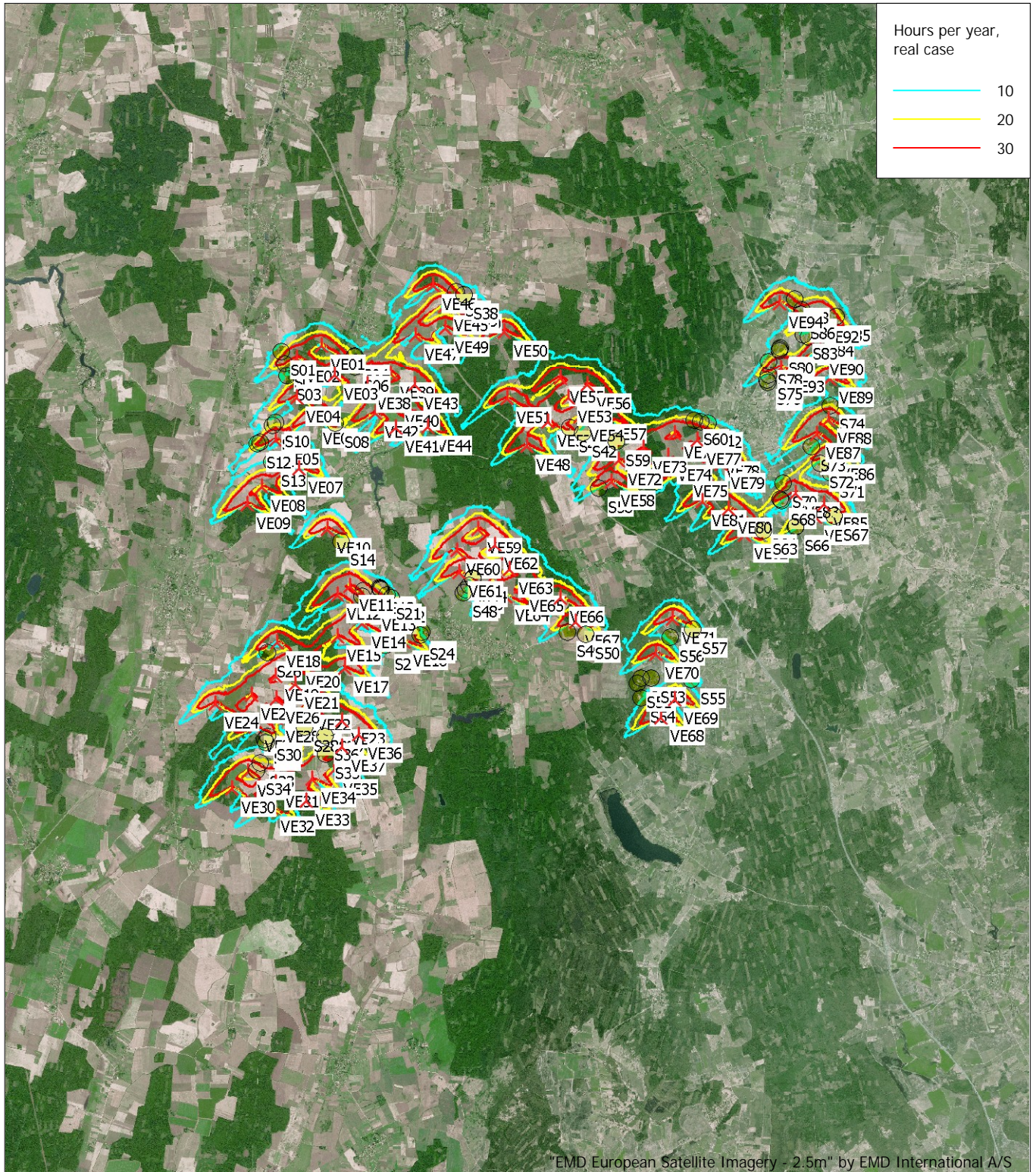
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2024-04-28 14:51/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:200 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 080 North: 6 153 720
 ▲ New WTG 🟡 Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

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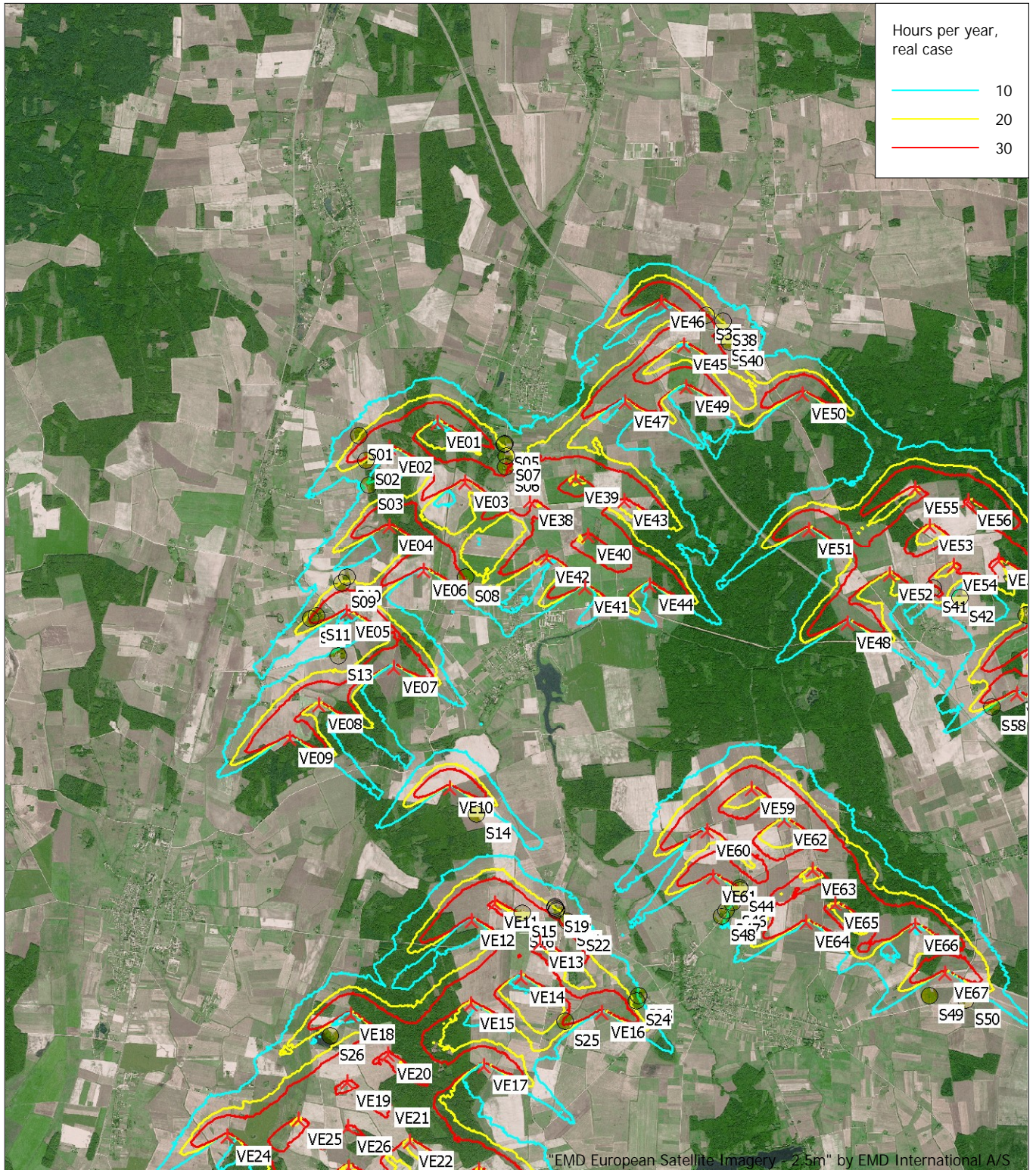
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Calculated:

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SHADOW - Map



0 1 2 3 4 km

Map: windPRO European Satellite Imagery - 2.5m, Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 526 189 North: 6 158 964

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

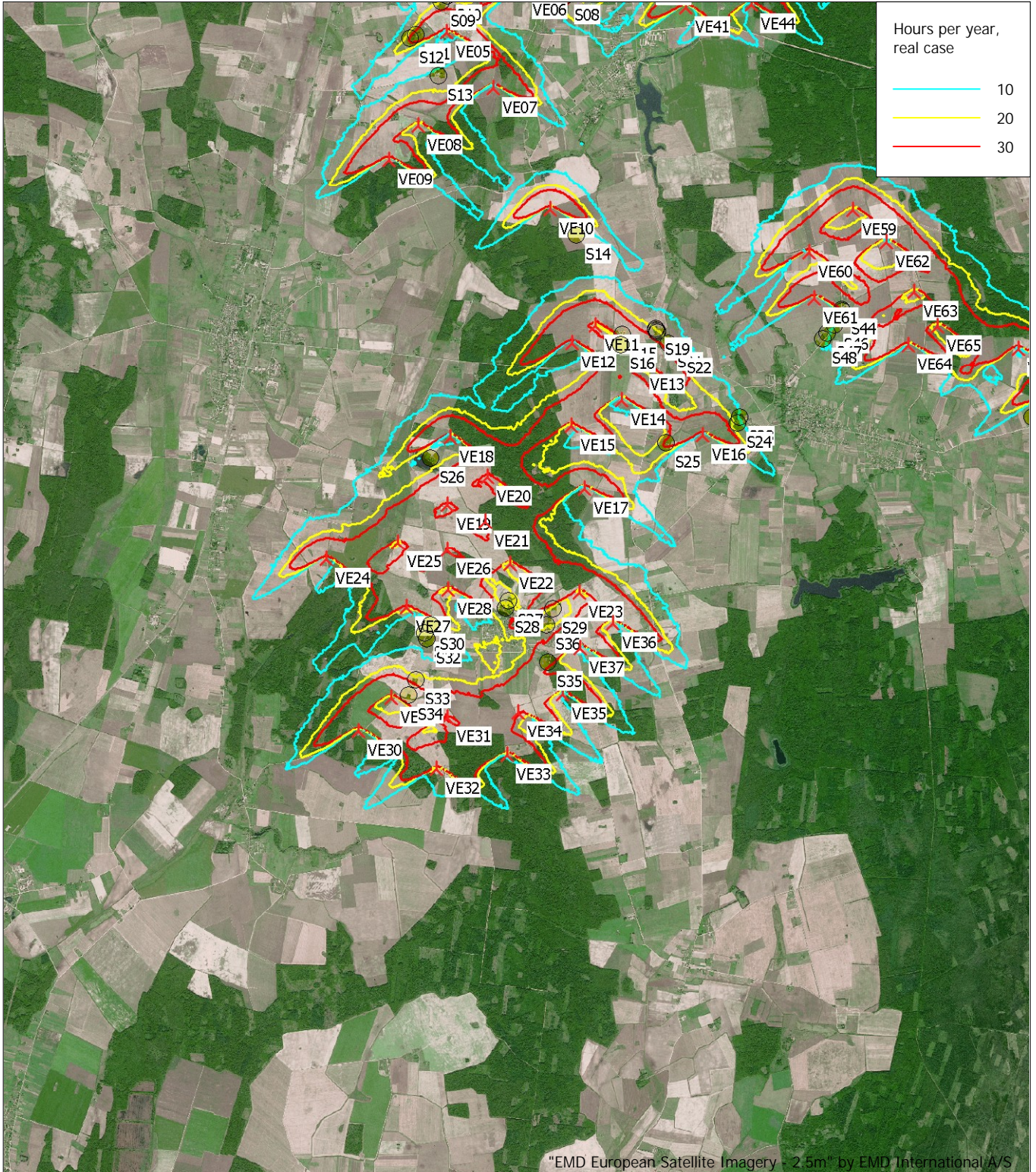
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Calculated:

2024-04-28 14:51/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 524 501 North: 6 148 831
New WTG Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

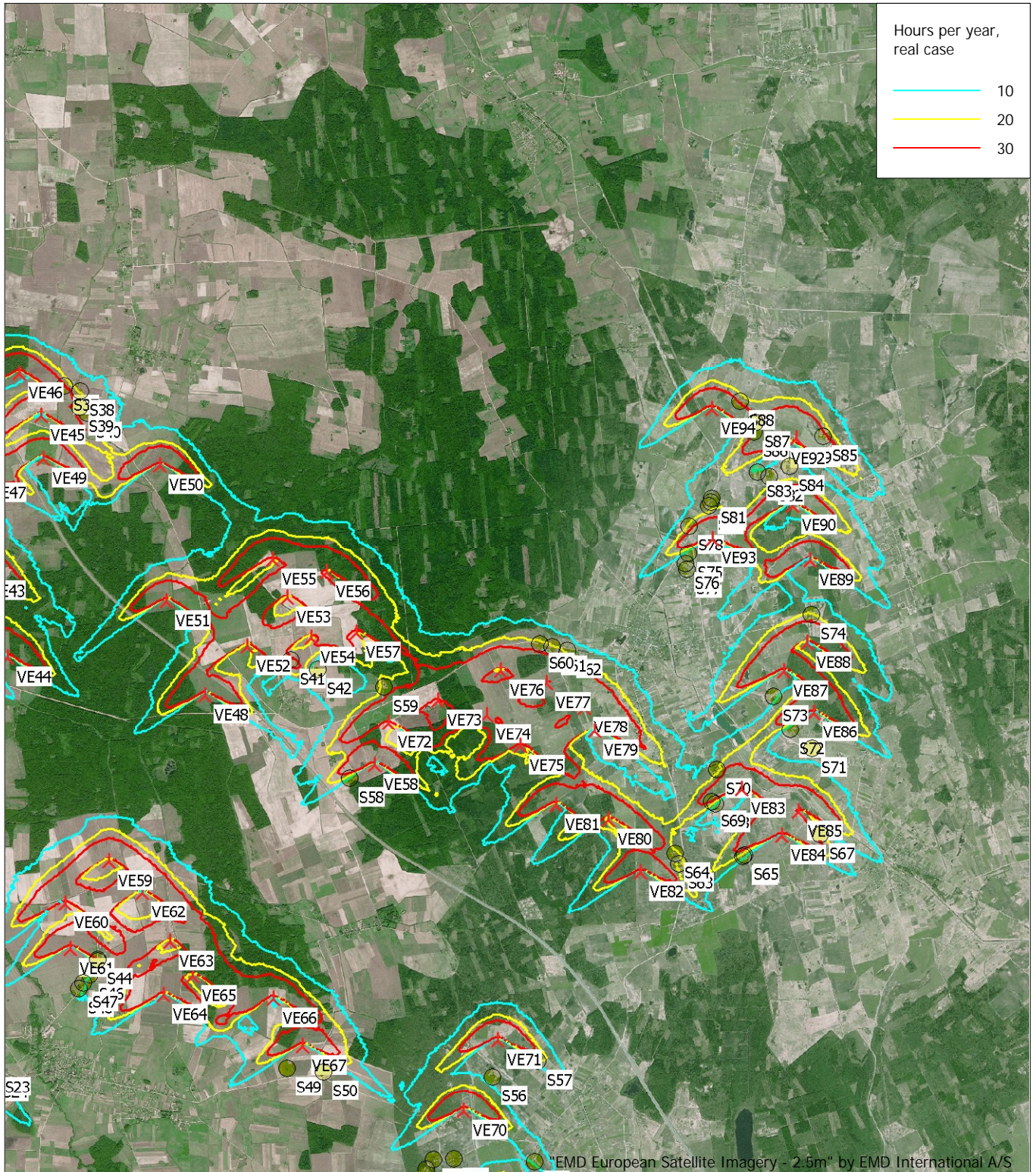
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Calculated:

2024-04-28 14:51/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 537 425 North: 6 160 252

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

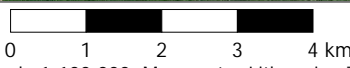
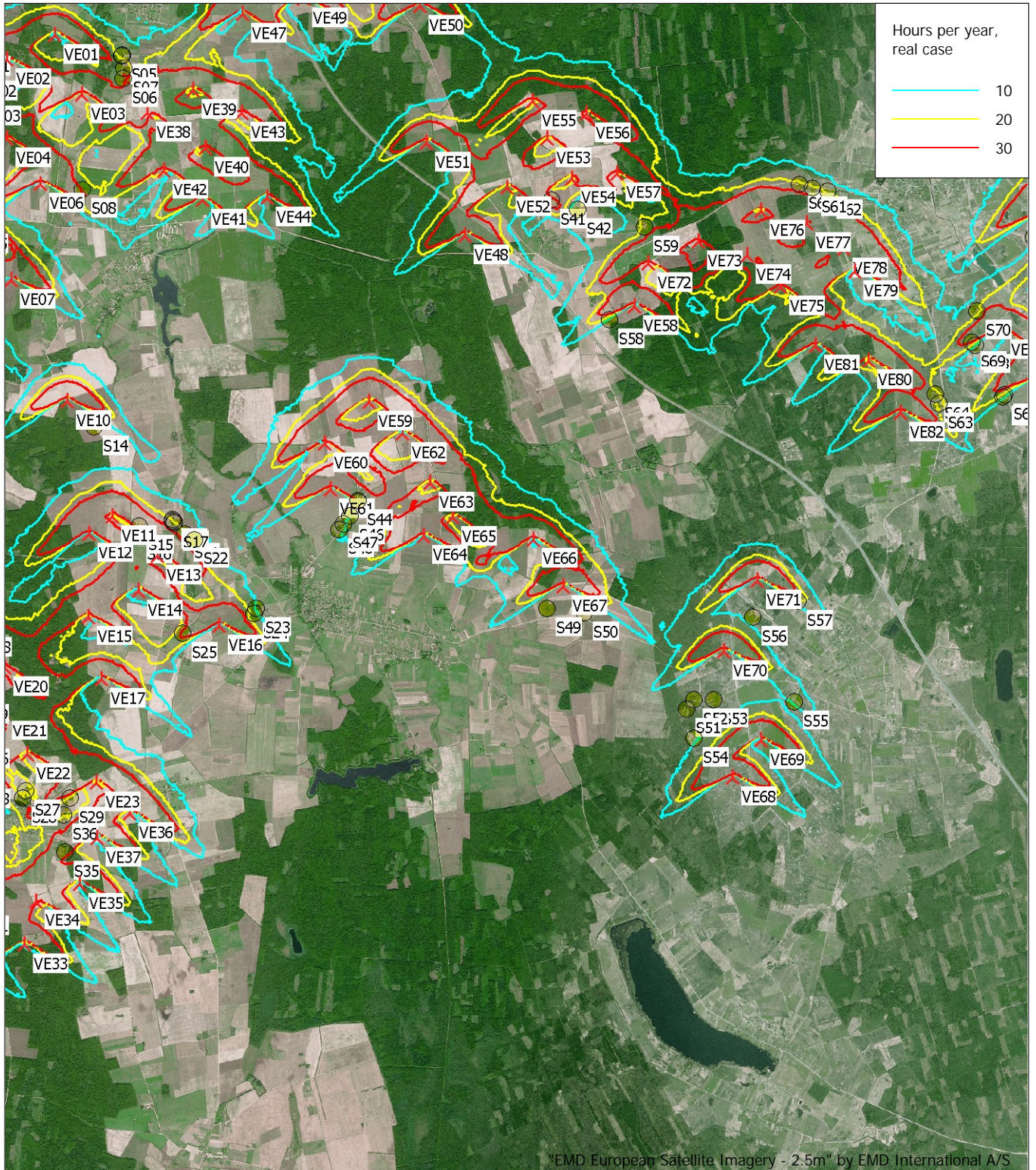
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Calculated:

2024-04-28 14:51/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 928 North: 6 152 210

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-29 09:34/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
906 447 217 274 539 598 713 937 1 116 952 723 508 7 930

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type			Shadow data				
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM
VE01	524 437	6 161 468	58,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE02	523 587	6 161 038	57,5	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE03	524 921	6 160 437	57,9	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE04	523 598	6 159 655	57,4	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE05	522 856	6 158 146	59,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE06	524 195	6 158 877	56,5	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE07	523 686	6 157 187	58,2	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE08	522 386	6 156 529	59,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE09	521 861	6 155 924	61,4	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE10	524 686	6 155 073	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE11	525 488	6 153 069	68,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE12	525 079	6 152 750	68,2	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE13	526 289	6 152 368	68,7	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE14	525 952	6 151 758	65,7	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE15	525 072	6 151 299	67,2	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE16	527 380	6 151 151	73,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE17	525 314	6 150 208	69,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE18	522 960	6 151 095	63,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE19	522 917	6 149 910	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE20	523 618	6 150 399	67,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE21	523 594	6 149 625	69,9	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE22	524 020	6 148 874	70,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE23	525 233	6 148 386	69,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE24	520 802	6 148 948	59,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE25	522 065	6 149 247	59,7	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE26	522 930	6 149 131	66,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE27	522 213	6 148 115	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE28	522 948	6 148 432	67,4	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	
VE29	521 952	6 146 540	65,0	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8	

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SHADOW - Main Result

...continued from previous page

	Y	X	Z	Row data/Description	WTG type			Shadow data				
					Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
VE30	521 386	6 145 952	66,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE31	522 929	6 146 193	69,1	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE32	522 758	6 145 291	69,2	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE33	523 994	6 145 537	71,6	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE34	524 187	6 146 302	68,2	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE35	524 951	6 146 617	69,5	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE36	525 827	6 147 867	72,1	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE37	525 249	6 147 426	72,4	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE38	526 057	6 160 125	60,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE39	526 864	6 160 518	62,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE40	527 075	6 159 515	61,3	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE41	527 040	6 158 603	63,4	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE42	526 353	6 159 129	61,9	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE43	527 707	6 160 134	63,2	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE44	528 175	6 158 654	64,1	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE45	528 738	6 162 866	62,5	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE46	528 344	6 163 606	63,3	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE47	527 713	6 161 856	62,5	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE48	531 650	6 158 017	67,2	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE49	528 777	6 162 117	62,8	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE50	530 829	6 162 011	65,7	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE51	530 956	6 159 645	67,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE52	532 379	6 158 864	67,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE53	533 075	6 159 717	67,4	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE54	533 496	6 159 036	69,6	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE55	532 804	6 160 377	67,8	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE56	533 749	6 160 170	69,3	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE57	534 293	6 159 121	70,6	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE58	534 619	6 156 800	73,4	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE59	529 978	6 155 095	69,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE60	529 213	6 154 349	70,5	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE61	529 312	6 153 557	70,6	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE62	530 563	6 154 546	69,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE63	531 062	6 153 680	69,1	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE64	530 953	6 152 750	72,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE65	531 461	6 153 089	70,7	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE66	532 880	6 152 701	72,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE67	533 407	6 151 879	73,8	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE68	536 417	6 148 559	80,2	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE69	536 896	6 149 201	79,8	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE70	536 236	6 150 773	79,6	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE71	536 814	6 152 007	77,9	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE72	534 850	6 157 546	72,2	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE73	535 728	6 157 950	70,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE74	536 585	6 157 706	72,8	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE75	537 173	6 157 156	73,1	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE76	536 819	6 158 488	73,3	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE77	537 620	6 158 281	74,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE78	538 283	6 157 843	71,5	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE79	538 479	6 157 437	73,7	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE80	538 722	6 155 891	76,6	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE81	537 803	6 156 134	75,4	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE82	539 294	6 154 973	77,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE83	541 058	6 156 438	74,1	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE84	541 770	6 155 632	77,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE85	542 062	6 156 061	77,2	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE86	542 313	6 157 786	77,7	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE87	541 784	6 158 509	79,5	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE88	542 189	6 159 008	78,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE89	542 226	6 160 447	80,7	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE90	541 905	6 161 419	78,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE91	541 952	6 162 586	74,0	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8
VE92	541 712	6 162 572	74,4	NORDEX N175/6.X 6800 175.0 !-...Yes		NORDEX	N175/6.X-6 800	6 800	175,0	179,0	1 893	10,8

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SHADOW - Main Result

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	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
VE93	540 516	6 160 819	74,2	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6	800	6 800	175,0	179,0	1 893	10,8
VE94	540 464	6 163 076	70,9	NORDEX N175/6.X 6800 175.0 !-...Yes	NORDEX	N175/6.X-6	800	6 800	175,0	179,0	1 893	10,8

Shadow receptor-Input

No.	Y	X	Z	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
S01	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

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Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav.
Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-29 09:34/3.6.355

SHADOW - Main Result

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No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.	
			[m]	[m]	[m]	[m]	[°]		[m]	
S57	537	523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534	191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534	781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537	501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537	726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537	988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539	971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539	912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541	117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S66	541	098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542	445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540	595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540	538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540	620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542	284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541	907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541	615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542	259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540	088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540	042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540	069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540	096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540	444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540	468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540	496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541	481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541	290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541	847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542	437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541	225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541	242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540	980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	18:48	
S02	21:00	
S03	11:30	
S04	18:57	
S05	18:15	
S06	29:52	
S07	27:16	
S08	27:48	
S09	21:32	
S10	16:51	
S11*	1:46	40:24
S12*	8:03	24:41
S13	13:25	
S14	0:00	
S15*	19:12	27:40
S16*	29:16	3:50
S17	21:38	
S18	21:18	
S19	21:11	
S20	20:25	
S21*	22:20	0:05
S22	18:09	
S23	9:36	
S24	12:18	

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-29 09:34/3.6.355

SHADOW - Main Result

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S25*	29:49	4:24
S26	13:41	
S27	19:06	
S28	22:56	
S29	13:29	
S30	5:11	
S31	3:12	
S32	4:29	
S33	25:32	
S34*	13:11	72:24
S35*	27:01	17:22
S36	18:53	
S37*	22:37	9:47
S38	19:23	
S39	28:33	
S40	24:57	
S41*	24:39	9:47
S42	8:21	
S44*	29:19	2:44
S45*	23:44	2:11
S46	10:07	
S47	7:41	
S48	7:15	
S49	0:00	
S50	0:00	
S51	5:28	
S52	4:21	
S53	4:02	
S54	8:57	
S55	11:36	
S56	7:12	
S57	16:14	
S58	4:36	
S59	23:52	
S60	23:26	
S61	22:20	
S62	18:21	
S63	21:50	
S64	22:56	
S65	16:51	
S66	14:17	
S67	24:36	
S68	13:52	
S69	29:25	
S70	18:03	
S71	5:05	
S72	2:48	
S73	8:53	
S74	22:04	
S75	0:00	
S76	0:00	
S77	0:00	
S78	23:43	
S79	16:25	
S80	17:57	
S81	16:56	
S82	13:40	
S83	11:04	
S84	15:59	
S85*	15:25	25:16
S86*	26:22	18:50
S87*	23:22	22:53
S88	27:10	

* Receptors where shadow flicker is reduced by curtailment

SHADOW - Main Result

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

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (1)		40:08
VE02	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (2)		21:53
VE03	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (3)		23:34
VE04	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (4)		15:22
VE05	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (5)	148:13	30:35
VE06	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (6)		24:52
VE07	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (7)		10:48
VE08	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (8)		5:50
VE09	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (9)		1:51
VE10	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (10)		0:00
VE11	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (11)	94:10	15:44
VE12	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (12)		20:39
VE13	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (13)		63:32
VE14	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (14)	41:26	9:01
VE15	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (15)	10:38	2:19
VE16	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (96)		46:56
VE17	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (17)	11:10	0:00
VE18	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (18)		0:00
VE19	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (19)		6:21
VE20	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (20)		4:37
VE21	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (21)		2:10
VE22	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (22)		2:42
VE23	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (23)		8:26
VE24	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (24)		0:00
VE25	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (25)		0:27
VE26	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (26)		0:00
VE27	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (27)		3:18
VE28	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (28)		20:42
VE29	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (29)	273:42	21:27
VE30	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (30)		5:51
VE31	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (31)		14:01
VE32	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (32)		1:28
VE33	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (33)		0:16
VE34	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (34)		6:49
VE35	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (35)		16:13
VE36	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (36)		19:12
VE37	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (37)	63:52	19:16
VE38	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (38)		15:06
VE39	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (39)		9:26
VE40	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (40)		1:07
VE41	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (41)		0:00
VE42	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (42)		4:41
VE43	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (43)		0:00
VE44	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (44)		0:00
VE45	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (45)	68:05	27:14
VE46	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (46)		35:50
VE47	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (47)		0:00
VE48	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (48)		1:48
VE49	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (49)		11:52
VE50	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (50)		2:00
VE51	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (51)		0:00
VE52	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (52)		25:03
VE53	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (53)		0:00
VE54	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (54)		6:26
VE55	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (55)		0:00
VE56	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (56)		0:00
VE57	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (57)	35:14	0:00
VE58	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (58)		4:36
VE59	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (59)		0:00
VE60	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (60)		0:00
VE61	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (61)		24:10
VE62	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (62)		0:00
VE63	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (63)		16:45
VE64	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (64)	16:37	7:57
VE65	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (65)		4:10

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-29 09:34/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE66	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (66)		0:00
VE67	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (67)		0:00
VE68	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (68)		12:10
VE69	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (69)		18:04
VE70	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (70)		14:02
VE71	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (71)		14:14
VE72	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (72)		12:53
VE73	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (73)		5:26
VE74	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (74)		7:08
VE75	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (75)		0:28
VE76	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (76)		14:14
VE77	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (77)		31:19
VE78	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (78)		10:44
VE79	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (79)		3:49
VE80	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (80)		18:54
VE81	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (81)		0:00
VE82	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (82)		25:02
VE83	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (83)		50:22
VE84	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (84)		42:03
VE85	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (85)		7:24
VE86	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (86)		8:53
VE87	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (87)		4:24
VE88	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (88)		17:39
VE89	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (89)		2:44
VE90	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (90)		36:25
VE91	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (91)	132:35	27:34
VE92	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (92)	99:46	31:31
VE93	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (93)		44:35
VE94	NORDEX N175/6.X 6800 175.0 !-! hub: 179,0 m (TOT: 266,5 m) (94)	81:55	36:50

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

**Prognozuojamas PŪV šėšėliavimo
vertinimas "2" alternatyva**

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
961 473 230 290 572 633 756 993 1 183 1 009 766 539 8 404

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
VE01	524 437	6 161 468	58,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE02	523 587	6 161 038	57,5	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE03	524 921	6 160 437	57,9	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE04	523 598	6 159 655	57,4	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE05	522 856	6 158 146	59,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE06	524 195	6 158 877	56,5	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE07	523 686	6 157 187	58,2	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE08	522 386	6 156 529	59,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE09	521 861	6 155 924	61,4	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE10	524 686	6 155 073	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE11	525 488	6 153 069	68,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE12	525 079	6 152 750	68,2	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE13	526 289	6 152 368	68,7	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE14	525 952	6 151 758	65,7	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE15	525 072	6 151 299	67,2	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE16	527 380	6 151 151	73,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE17	525 314	6 150 208	69,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE18	522 960	6 151 095	63,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE19	522 917	6 149 910	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE20	523 618	6 150 399	67,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE21	523 594	6 149 625	69,9	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE22	524 020	6 148 874	70,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE23	525 233	6 148 386	69,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE24	520 802	6 148 948	59,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE25	522 065	6 149 240	59,7	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE26	522 930	6 149 131	66,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE27	522 213	6 148 115	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE28	522 948	6 148 432	67,4	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE29	521 952	6 146 540	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE30	521 386	6 145 952	66,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE31	522 929	6 146 193	69,1	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE32	522 758	6 145 291	69,2	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0

To be continued on next page...

SHADOW - Main Result

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	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S57	537 523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534 191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534 781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537 501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537 726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537 988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539 971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539 912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541 117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S66	541 098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542 445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540 595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540 538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540 620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542 284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541 907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541 615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542 259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540 088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540 042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540 069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540 096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540 444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540 468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540 496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541 481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541 290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541 847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542 437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541 225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541 242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540 980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

No.	per year [h/year]
S01	19:14
S02	22:31
S03	11:44
S04	19:15
S05	18:32
S06	30:49
S07	27:52
S08	28:20
S09	22:06
S10	17:05
S11	43:45
S12	33:34
S13	13:40
S14	0:00
S15	49:20
S16	33:52
S17	22:10
S18	21:47
S19	21:39
S20	20:45
S21	22:51
S22	18:33
S23	9:49
S24	12:33
S25	35:32
S26	13:51
S27	19:23
S28	23:10
S29	14:04
S30	5:28
S31	4:48
S32	4:25
S33	26:09

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Main Result

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]
S34	89:47
S35	47:22
S36	19:06
S37	33:01
S38	19:43
S39	29:40
S40	25:45
S41	35:08
S42	8:29
S44	34:09
S45	27:42
S46	10:12
S47	7:44
S48	7:15
S49	0:00
S50	0:00
S51	5:35
S52	4:24
S53	3:57
S54	9:07
S55	12:09
S56	7:23
S57	17:19
S58	5:51
S59	24:37
S60	24:01
S61	22:51
S62	18:38
S63	22:29
S64	23:36
S65	18:02
S66	15:21
S67	25:03
S68	16:46
S69	31:15
S70	18:31
S71	4:56
S72	2:56
S73	9:05
S74	22:42
S75	0:00
S76	0:00
S77	0:00
S78	24:13
S79	16:48
S80	18:24
S81	17:23
S82	13:57
S83	11:15
S84	16:25
S85	40:45
S86	46:48
S87	47:37
S88	27:47

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

No.	Name	Expected [h/year]
VE01	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (1)	41:10
VE02	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (2)	23:37
VE03	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (3)	24:11
VE04	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (4)	15:52

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Name	Expected [h/year]
VE05	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (5)	73:13
VE06	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (6)	25:05
VE07	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (7)	11:00
VE08	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (8)	5:57
VE09	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (9)	1:51
VE10	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (10)	0:00
VE11	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (11)	43:49
VE12	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (12)	21:01
VE13	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (13)	65:31
VE14	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (14)	13:00
VE15	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (15)	4:56
VE16	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (96)	48:34
VE17	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (17)	1:48
VE18	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (18)	0:00
VE19	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (19)	6:28
VE20	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (20)	4:43
VE21	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (21)	2:14
VE22	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (22)	3:02
VE23	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (23)	8:54
VE24	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (24)	0:00
VE25	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (25)	0:19
VE26	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (26)	0:00
VE27	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (27)	3:24
VE28	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (28)	20:51
VE29	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (29)	98:03
VE30	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (30)	6:02
VE31	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (31)	14:13
VE32	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (32)	1:23
VE33	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (33)	0:10
VE34	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (34)	6:59
VE35	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (35)	16:39
VE36	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (36)	19:59
VE37	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (37)	38:40
VE38	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (38)	15:34
VE39	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (39)	9:40
VE40	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (40)	1:08
VE41	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (41)	0:00
VE42	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (42)	4:39
VE43	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (43)	0:00
VE44	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (44)	0:00
VE45	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (45)	37:51
VE46	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (46)	36:56
VE47	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (47)	0:00
VE48	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (48)	1:51
VE49	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (49)	12:11
VE50	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (50)	2:03
VE51	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (51)	0:00
VE52	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (52)	25:48
VE53	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (53)	0:00
VE54	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (54)	6:52
VE55	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (55)	0:00
VE56	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (56)	0:00
VE57	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (57)	9:41
VE58	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (58)	5:51
VE59	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (59)	0:00
VE60	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (60)	0:00
VE61	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (61)	26:14
VE62	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (62)	0:00
VE63	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (63)	16:56
VE64	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (64)	11:00
VE65	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (65)	4:14
VE66	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (66)	0:00
VE67	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (67)	0:00
VE68	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (68)	12:14
VE69	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (69)	18:25

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Name	Expected [h/year]
VE70	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (70)	14:40
VE71	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (71)	15:17
VE72	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (72)	13:08
VE73	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (73)	5:33
VE74	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (74)	7:19
VE75	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (75)	0:22
VE76	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (76)	14:44
VE77	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (77)	32:04
VE78	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (78)	10:53
VE79	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (79)	3:40
VE80	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (80)	20:18
VE81	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (81)	0:00
VE82	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (82)	25:31
VE83	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (83)	53:06
VE84	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (84)	43:35
VE85	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (85)	7:27
VE86	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (86)	9:05
VE87	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (87)	4:29
VE88	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (88)	18:12
VE89	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (89)	2:42
VE90	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (90)	37:04
VE91	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (91)	63:12
VE92	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (92)	55:51
VE93	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (93)	45:38
VE94	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (94)	61:20

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

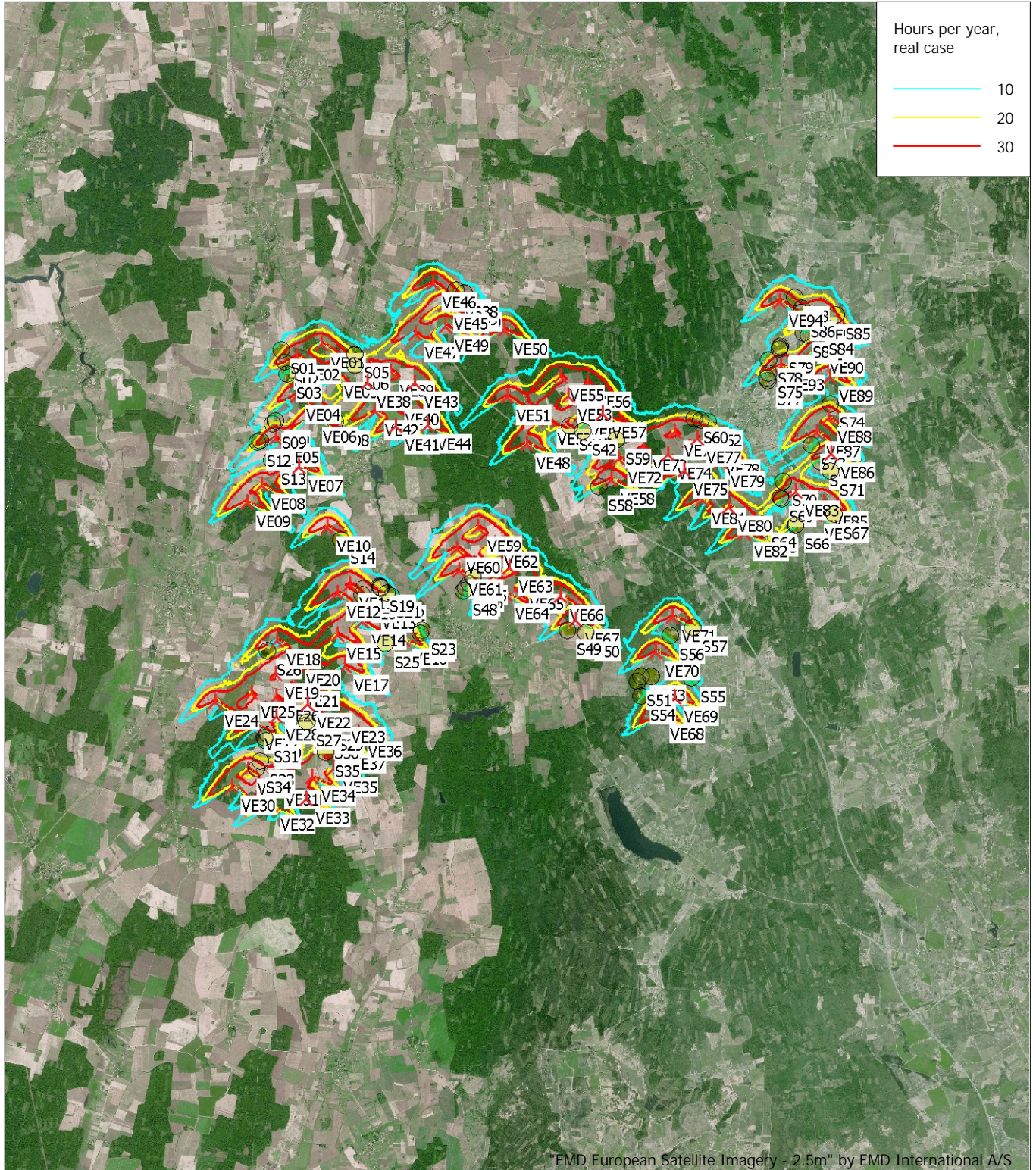
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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:200 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 080 North: 6 153 720

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

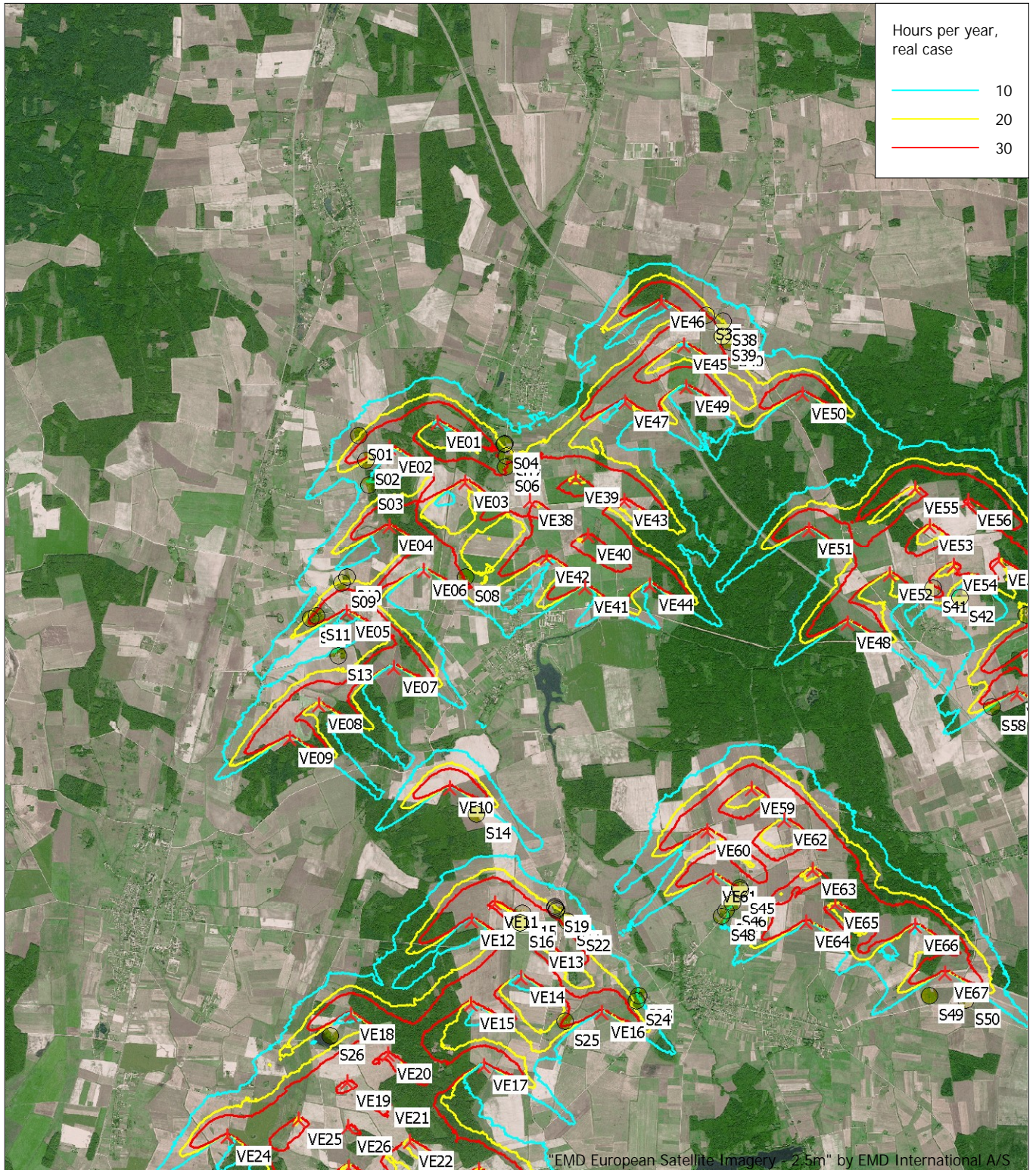
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Calculated:

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SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 526 189 North: 6 158 964

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

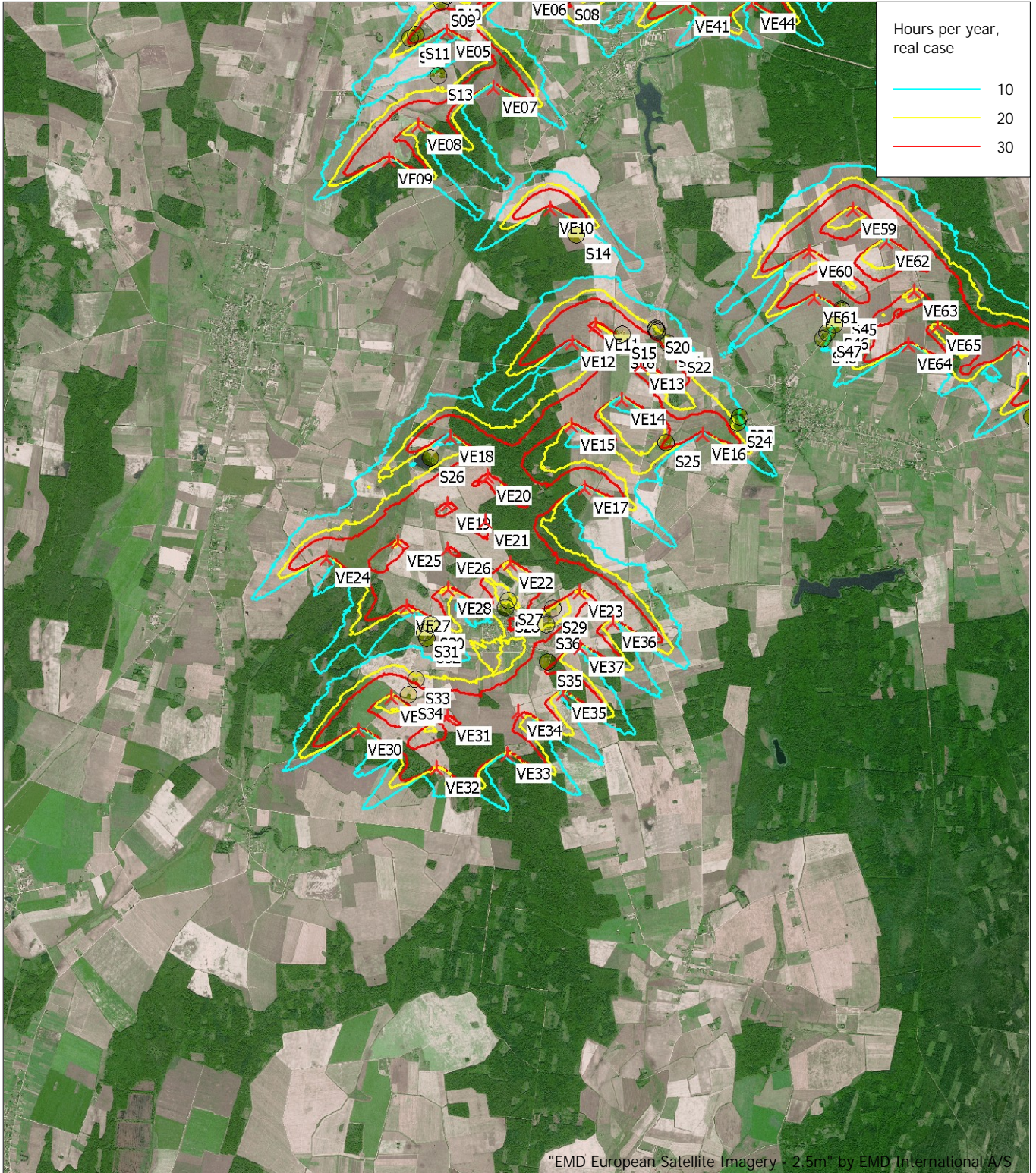
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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 524 501 North: 6 148 831
 ▲ New WTG ● Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

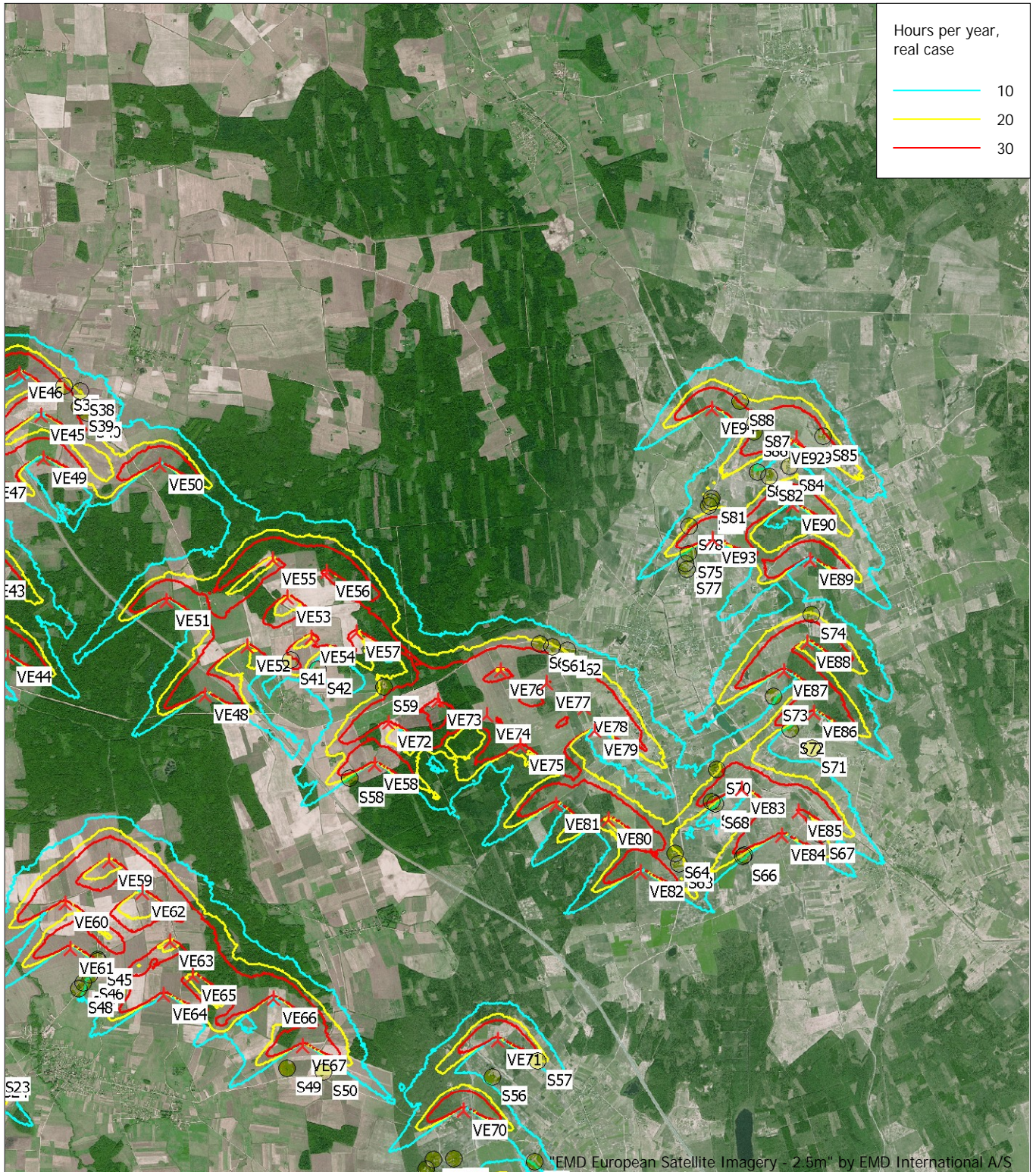
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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 537 425 North: 6 160 252
 ▲ New WTG ● Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

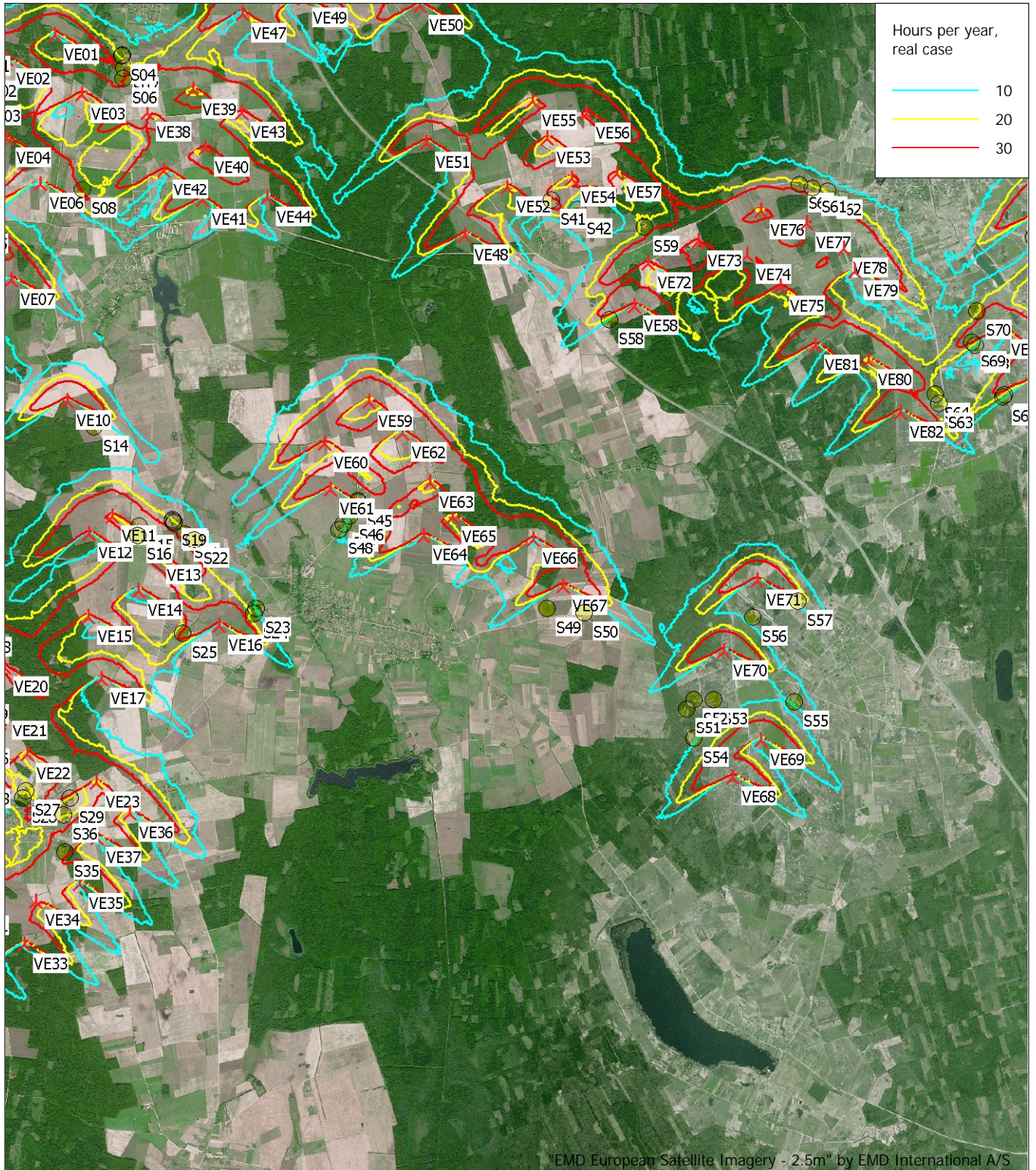
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Calculated:

2024-04-28 15:08/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 928 North: 6 152 210
 ▲ New WTG ● Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 23:26/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
961 473 230 290 572 633 756 993 1 183 1 009 766 539 8 404

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
VE01	524 437	6 161 468	58,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE02	523 587	6 161 038	57,5	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE03	524 921	6 160 437	57,9	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE04	523 598	6 159 655	57,4	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE05	522 856	6 158 146	59,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE06	524 195	6 158 877	56,5	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE07	523 686	6 157 187	58,2	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE08	522 386	6 156 529	59,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE09	521 861	6 155 924	61,4	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE10	524 686	6 155 073	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE11	525 488	6 153 069	68,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE12	525 079	6 152 750	68,2	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE13	526 289	6 152 368	68,7	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE14	525 952	6 151 758	65,7	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE15	525 072	6 151 299	67,2	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE16	527 380	6 151 151	73,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE17	525 314	6 150 208	69,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE18	522 960	6 151 095	63,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE19	522 917	6 149 910	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE20	523 618	6 150 399	67,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE21	523 594	6 149 625	69,9	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE22	524 020	6 148 874	70,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE23	525 233	6 148 386	69,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE24	520 802	6 148 948	59,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE25	522 065	6 149 247	59,7	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE26	522 930	6 149 131	66,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE27	522 213	6 148 115	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE28	522 948	6 148 432	67,4	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE29	521 952	6 146 540	65,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0
VE30	521 386	6 145 952	66,0	VESTAS V172-7.2 7200 172.0 !O!... Yes	Yes	VESTAS	V172-7.2-7 200	7 200	172,0	175,0	1 903	0,0

To be continued on next page...

SHADOW - Main Result

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	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S57	537 523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534 191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534 781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537 501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537 726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537 988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539 971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539 912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541 117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav.
Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 23:26/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S66	541 098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542 445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540 595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540 538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540 620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542 284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541 907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541 615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542 259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540 088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540 042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540 069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540 096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540 444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540 468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540 496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541 481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541 290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541 847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542 437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541 225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541 242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540 980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	19:14	
S02	22:31	
S03	11:44	
S04	19:15	
S05	18:32	
S06*	22:46	8:03
S07	27:52	
S08	28:20	
S09	22:06	
S10	17:05	
S11*	1:49	41:54
S12*	8:20	25:13
S13	13:40	
S14	0:00	
S15*	19:40	29:27
S16*	29:56	3:46
S17	22:10	
S18	21:47	
S19	21:39	
S20	20:45	
S21*	22:45	0:06
S22	18:33	
S23	9:49	
S24	12:33	
S25*	4:28	31:03
S26	13:51	
S27	19:23	
S28	23:10	
S29	14:04	
S30	5:28	
S31	4:48	
S32	4:25	
S33	26:09	

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 23:26/3.6.355

SHADOW - Main Result

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S34*	13:23	76:04
S35*	28:11	18:47
S36	19:06	
S37*	22:47	10:00
S38	19:43	
S39	29:40	
S40	25:45	
S41*	25:27	9:41
S42	8:29	
S44*	28:49	5:19
S45*	23:36	4:05
S46	10:12	
S47	7:44	
S48	7:15	
S49	0:00	
S50	0:00	
S51	5:35	
S52	4:24	
S53	3:57	
S54	9:07	
S55	12:09	
S56	7:23	
S57	17:19	
S58	5:51	
S59	24:37	
S60	24:01	
S61	22:51	
S62	18:38	
S63	22:29	
S64	23:36	
S65	18:02	
S66	15:21	
S67	25:03	
S68*	15:43	1:02
S69*	29:39	1:36
S70	18:31	
S71	4:56	
S72	2:56	
S73	9:05	
S74	22:42	
S75	0:00	
S76	0:00	
S77	0:00	
S78	24:13	
S79	16:48	
S80	18:24	
S81	17:23	
S82	13:57	
S83	11:15	
S84	16:25	
S85*	15:38	25:01
S86*	28:05	18:40
S87*	23:48	23:43
S88	27:47	

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (1)	27:24	33:07
VE02	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (2)		23:37
VE03	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (3)		24:11

To be continued on next page...

SHADOW - Main Result

...continued from previous page

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE04	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (4)		15:52
VE05	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (5)	145:09	31:33
VE06	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (6)		25:05
VE07	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (7)		11:00
VE08	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (8)		5:57
VE09	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (9)		1:51
VE10	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (10)		0:00
VE11	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (11)	95:30	16:05
VE12	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (12)		21:01
VE13	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (13)		65:31
VE14	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (14)	38:37	9:13
VE15	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (15)		4:56
VE16	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (96)	108:15	17:31
VE17	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (17)		1:48
VE18	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (18)		0:00
VE19	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (19)		6:28
VE20	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (20)		4:43
VE21	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (21)		2:14
VE22	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (22)		3:02
VE23	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (23)		8:54
VE24	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (24)		0:00
VE25	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (25)		0:19
VE26	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (26)		0:00
VE27	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (27)		3:24
VE28	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (28)		20:51
VE29	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (29)	271:56	21:58
VE30	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (30)		6:02
VE31	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (31)		14:13
VE32	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (32)		1:23
VE33	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (33)		0:10
VE34	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (34)		6:59
VE35	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (35)		16:39
VE36	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (36)		19:59
VE37	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (37)	65:12	19:47
VE38	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (38)		15:34
VE39	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (39)		9:40
VE40	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (40)		1:08
VE41	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (41)		0:00
VE42	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (42)		4:39
VE43	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (43)		0:00
VE44	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (44)		0:00
VE45	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (45)	66:42	27:51
VE46	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (46)		36:56
VE47	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (47)		0:00
VE48	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (48)		1:51
VE49	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (49)		12:11
VE50	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (50)		2:03
VE51	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (51)		0:00
VE52	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (52)		25:48
VE53	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (53)		0:00
VE54	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (54)		6:52
VE55	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (55)		0:00
VE56	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (56)		0:00
VE57	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (57)	32:49	0:00
VE58	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (58)		5:51
VE59	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (59)		0:00
VE60	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (60)		0:00
VE61	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (61)		26:14
VE62	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (62)		0:00
VE63	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (63)	19:24	11:39
VE64	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (64)		11:00
VE65	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (65)		4:14
VE66	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (66)		0:00
VE67	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (67)		0:00
VE68	VESTAS V172-7.2 7200 172.0 IO! hub: 175,0 m (TOT: 261,0 m) (68)		12:14

To be continued on next page...

Project:

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SHADOW - Main Result

...continued from previous page

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE69	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (69)		18:25
VE70	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (70)		14:40
VE71	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (71)		15:17
VE72	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (72)		13:08
VE73	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (73)		5:33
VE74	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (74)		7:19
VE75	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (75)		0:22
VE76	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (76)		14:44
VE77	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (77)		32:04
VE78	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (78)		10:53
VE79	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (79)		3:40
VE80	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (80)	7:29	18:43
VE81	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (81)		0:00
VE82	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (82)		25:31
VE83	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (83)		53:06
VE84	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (84)		43:35
VE85	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (85)		7:27
VE86	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (86)		9:05
VE87	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (87)		4:29
VE88	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (88)		18:12
VE89	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (89)		2:42
VE90	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (90)	24:49	34:42
VE91	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (91)	125:31	28:27
VE92	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (92)		55:51
VE93	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (93)		45:38
VE94	VESTAS V172-7.2 7200 172.0 !O! hub: 175,0 m (TOT: 261,0 m) (94)	128:25	24:22

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

**Prognozuojamas PŪV šėšėliavimo
vertinimas "3" alternatyva**

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

Licensed user:

UAB ARCHSTUDIJA
Konstitucijos pr. 9-41
LT-09308 Vilnius
+370 862509216

Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
959 473 230 290 571 633 755 992 1 181 1 008 765 538 8 395

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
VE01	524 437	6 161 468	58,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE02	523 587	6 161 038	57,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE03	524 921	6 160 437	57,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE04	523 598	6 159 655	57,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE05	522 856	6 158 146	59,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE06	524 195	6 158 877	56,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE07	523 686	6 157 187	58,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE08	522 386	6 156 529	59,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE09	521 861	6 155 924	61,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE10	524 686	6 155 073	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE11	525 488	6 153 069	68,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE12	525 079	6 152 750	68,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE13	526 289	6 152 368	68,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE14	525 952	6 151 758	65,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE15	525 072	6 151 299	67,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE16	527 380	6 151 151	73,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE17	525 314	6 150 208	69,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE18	522 960	6 151 095	63,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE19	522 917	6 149 910	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE20	523 618	6 150 399	67,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE21	523 594	6 149 625	69,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE22	524 020	6 148 874	70,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE23	525 233	6 148 386	69,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE24	520 802	6 148 948	59,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE25	522 065	6 149 247	59,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE26	522 930	6 149 131	66,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE27	522 213	6 148 115	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE28	522 948	6 148 432	67,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE29	521 952	6 146 540	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE30	521 386	6 145 952	66,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE31	522 929	6 146 193	69,1	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8

To be continued on next page...

SHADOW - Main Result

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
VE32	522 758	6 145 291	69,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE33	523 994	6 145 537	71,6	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE34	524 187	6 146 302	68,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE35	524 951	6 146 617	69,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE36	525 827	6 147 861	72,1	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE37	525 249	6 147 426	72,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE38	526 057	6 160 125	60,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE39	526 864	6 160 134	63,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE40	527 075	6 159 515	61,3	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE41	527 040	6 158 603	63,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE42	526 353	6 159 129	61,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE43	527 707	6 160 134	63,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE44	528 175	6 158 654	64,1	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE45	528 738	6 162 866	62,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE46	528 344	6 163 606	63,3	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE47	527 713	6 161 856	62,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE48	531 650	6 158 017	67,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE49	528 777	6 162 117	62,8	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE50	530 829	6 162 011	65,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE51	530 956	6 159 645	67,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE52	532 379	6 158 864	67,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE53	533 075	6 159 717	67,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE54	533 496	6 159 036	69,6	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE55	532 804	6 160 377	67,8	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE56	533 749	6 160 170	69,3	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE57	534 293	6 159 121	70,6	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE58	534 619	6 156 800	73,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE59	529 978	6 155 095	69,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE60	529 213	6 154 349	70,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE61	529 312	6 153 557	70,6	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE62	530 563	6 154 546	69,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE63	531 062	6 153 680	69,1	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE64	530 953	6 152 750	72,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE65	531 461	6 153 089	70,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE66	532 880	6 152 701	72,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE67	533 407	6 151 879	73,8	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE68	536 417	6 148 559	80,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE69	536 896	6 149 201	79,8	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE70	536 236	6 150 773	79,6	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE71	536 814	6 152 007	77,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE72	534 850	6 157 546	72,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE73	535 728	6 157 950	70,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE74	536 585	6 157 706	72,8	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE75	537 173	6 157 156	73,1	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE76	536 819	6 158 488	73,3	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE77	537 620	6 158 281	74,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE78	538 283	6 157 843	71,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE79	538 479	6 157 437	73,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE80	538 722	6 155 891	76,6	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE81	537 803	6 156 134	75,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE82	539 294	6 154 973	77,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE83	541 058	6 156 438	74,1	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE84	541 770	6 155 632	77,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE85	542 062	6 156 061	77,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE86	542 313	6 157 786	77,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE87	541 784	6 158 509	79,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE88	542 189	6 159 008	78,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE89	542 226	6 160 447	80,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE90	541 905	6 161 419	78,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE91	541 952	6 162 586	74,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE92	541 712	6 162 572	74,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE93	540 516	6 160 819	74,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE94	540 464	6 163 076	70,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8

SHADOW - Main Result

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	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S57	537 523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534 191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534 781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537 501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537 726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537 988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539 971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539 912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541 117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S66	541 098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542 445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540 595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540 538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540 620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542 284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541 907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541 615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542 259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540 088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540 042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540 069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540 096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540 444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540 468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540 496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541 481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541 290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541 847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542 437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541 225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541 242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540 980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

No.	per year [h/year]
S01	18:39
S02	24:51
S03	11:07
S04	19:34
S05	18:48
S06	30:34
S07	27:09
S08	29:09
S09	21:19
S10	16:01
S11	45:32
S12	31:51
S13	12:57
S14	0:00
S15	51:00
S16	32:13
S17	21:27
S18	20:55
S19	20:36
S20	19:43
S21	22:20
S22	17:50
S23	12:49
S24	16:42
S25	34:48
S26	13:03
S27	18:20
S28	23:10
S29	17:48
S30	5:25
S31	4:38
S32	5:31
S33	25:30

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Main Result

...continued from previous page

Shadow, expected values

No. Shadow hours

	per year [h/year]
S34	92:11
S35	50:18
S36	18:00
S37	30:39
S38	19:55
S39	29:36
S40	25:31
S41	34:44
S42	10:02
S44	36:26
S45	30:13
S46	9:45
S47	8:53
S48	8:15
S49	0:00
S50	0:00
S51	5:23
S52	4:04
S53	3:32
S54	8:51
S55	12:22
S56	7:17
S57	18:32
S58	9:46
S59	23:57
S60	23:02
S61	21:47
S62	17:45
S63	22:14
S64	22:45
S65	20:35
S66	16:58
S67	23:55
S68	19:59
S69	33:12
S70	22:27
S71	4:21
S72	3:05
S73	8:53
S74	22:03
S75	5:07
S76	0:00
S77	0:00
S78	23:27
S79	20:11
S80	18:56
S81	17:54
S82	13:29
S83	10:46
S84	15:52
S85	39:16
S86	46:17
S87	45:41
S88	26:53

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

No.	Name	Expected [h/year]
VE01	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (1)	39:09
VE02	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (2)	28:43
VE03	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (3)	23:31
VE04	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (4)	15:31

To be continued on next page...

SHADOW - Main Result

...continued from previous page

No.	Name	Expected [h/year]
VE05	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (5)	71:02
VE06	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (6)	26:06
VE07	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (7)	11:59
VE08	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (8)	5:35
VE09	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (9)	1:39
VE10	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (10)	0:00
VE11	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (11)	45:25
VE12	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (12)	19:47
VE13	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (13)	71:16
VE14	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (14)	12:06
VE15	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (15)	4:32
VE16	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (96)	47:37
VE17	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (17)	1:43
VE18	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (18)	0:00
VE19	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (19)	6:02
VE20	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (20)	4:36
VE21	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (21)	2:16
VE22	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (22)	3:10
VE23	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (23)	12:23
VE24	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (24)	0:00
VE25	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (25)	0:02
VE26	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (26)	0:00
VE27	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (27)	3:09
VE28	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (28)	19:16
VE29	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (29)	98:22
VE30	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (30)	7:34
VE31	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (31)	14:42
VE32	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (32)	1:03
VE33	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (33)	1:03
VE34	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (34)	8:01
VE35	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (35)	15:59
VE36	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (36)	21:10
VE37	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (37)	40:35
VE38	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (38)	15:10
VE39	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (39)	9:25
VE40	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (40)	2:03
VE41	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (41)	0:00
VE42	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (42)	4:13
VE43	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (43)	0:00
VE44	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (44)	0:00
VE45	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (45)	36:54
VE46	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (46)	35:17
VE47	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (47)	0:00
VE48	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (48)	2:49
VE49	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (49)	11:33
VE50	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (50)	3:03
VE51	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (51)	0:00
VE52	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (52)	24:54
VE53	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (53)	0:00
VE54	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (54)	7:09
VE55	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (55)	0:00
VE56	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (56)	0:00
VE57	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (57)	8:55
VE58	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (58)	10:37
VE59	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (59)	0:00
VE60	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (60)	0:00
VE61	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (61)	29:25
VE62	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (62)	0:00
VE63	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (63)	15:57
VE64	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (64)	10:44
VE65	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (65)	6:13
VE66	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (66)	0:00
VE67	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (67)	0:00
VE68	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (68)	11:21
VE69	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (69)	17:59

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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SHADOW - Main Result

...continued from previous page

No.	Name	Expected [h/year]
VE70	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (70)	14:56
VE71	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (71)	16:35
VE72	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (72)	13:15
VE73	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (73)	5:26
VE74	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (74)	7:02
VE75	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (75)	0:09
VE76	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (76)	14:24
VE77	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (77)	30:55
VE78	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (78)	10:05
VE79	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (79)	2:56
VE80	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (80)	20:17
VE81	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (81)	0:00
VE82	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (82)	24:38
VE83	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (83)	55:37
VE84	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (84)	44:02
VE85	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (85)	7:58
VE86	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (86)	13:17
VE87	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (87)	4:11
VE88	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (88)	17:51
VE89	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (89)	4:18
VE90	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (90)	38:00
VE91	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (91)	60:23
VE92	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (92)	54:01
VE93	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (93)	46:13
VE94	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (94)	62:34

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

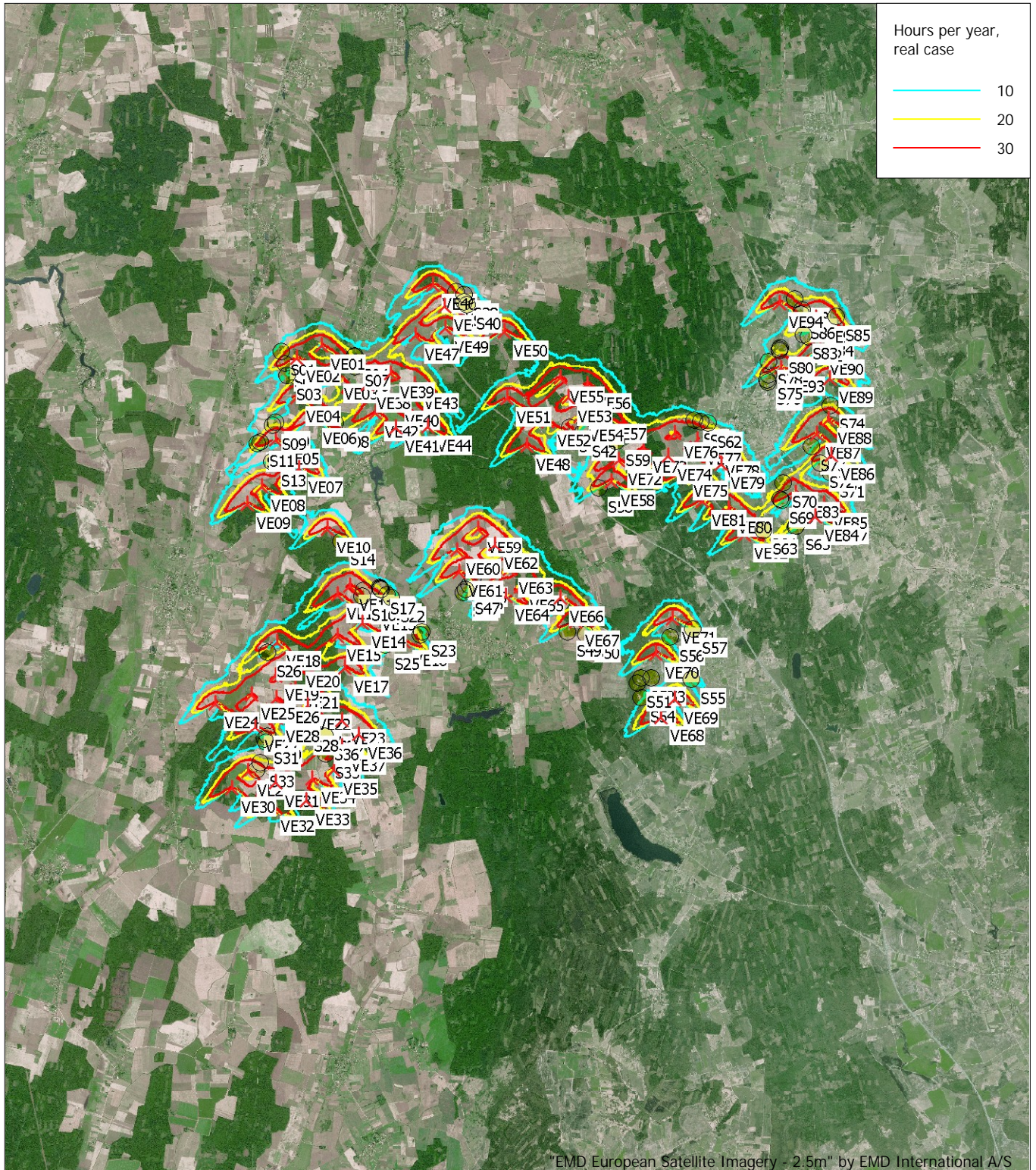
Licensed user:

UAB ARCHSTUDIJA
Konstitucijos pr. 9-41
LT-09308 Vilnius
+370 862509216

Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:200 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 080 North: 6 153 720
 ▲ New WTG ● Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

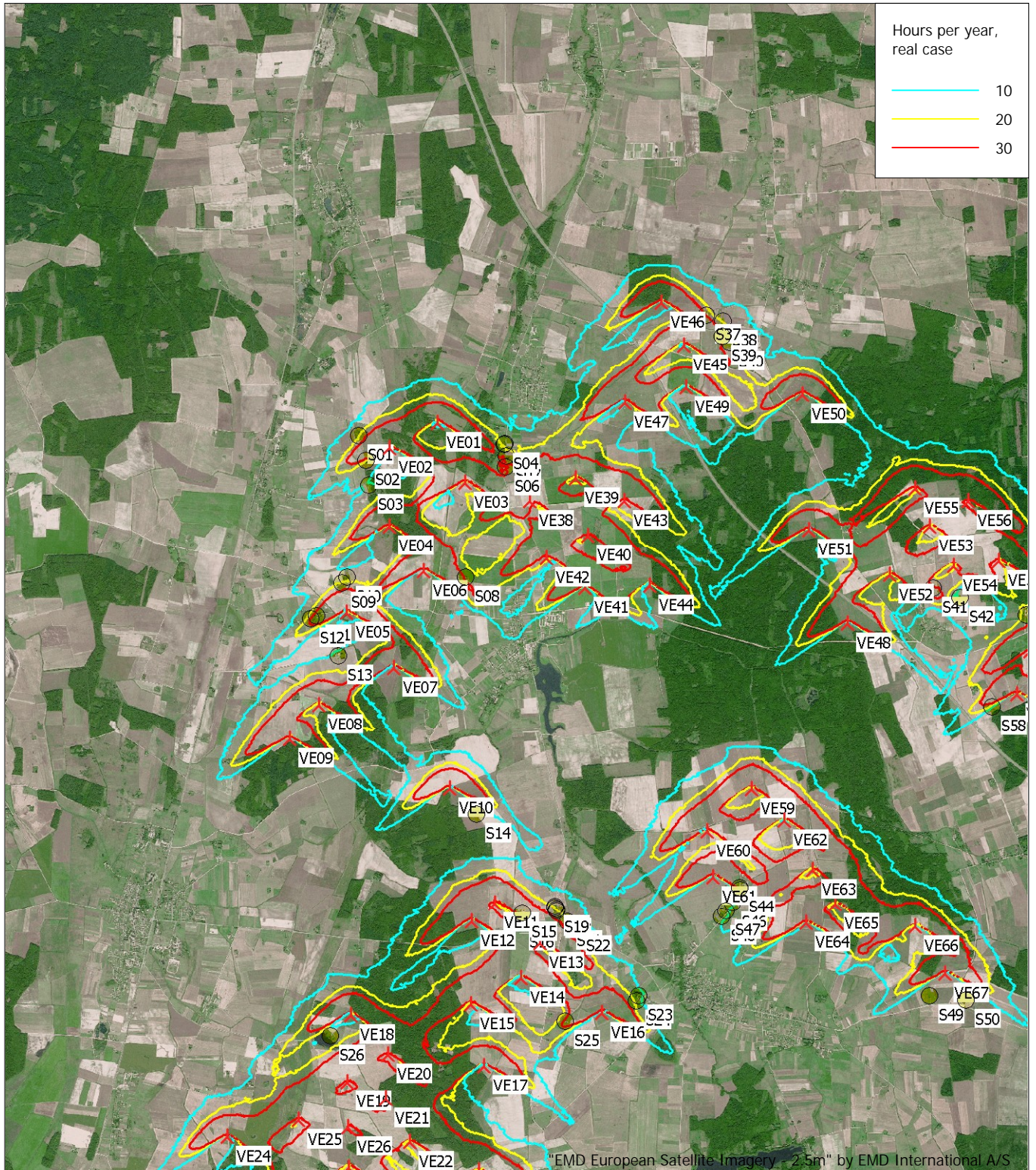
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Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 526 189 North: 6 158 964

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

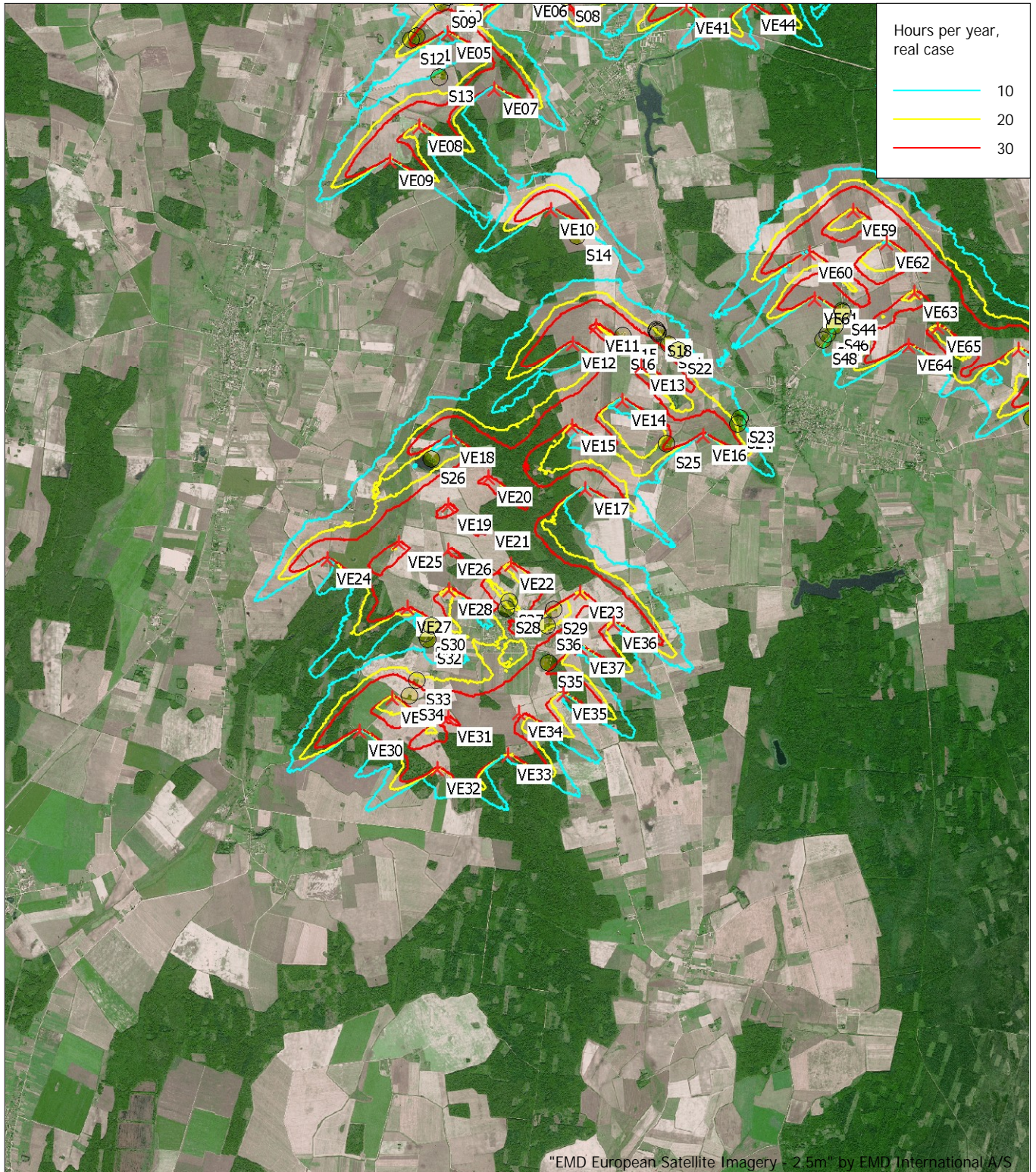
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+370 862509216

Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Map



0 1 2 3 4 km

Map: windPRO European Satellite Imagery - 2.5m, Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 524 501 North: 6 148 831
New WTG Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

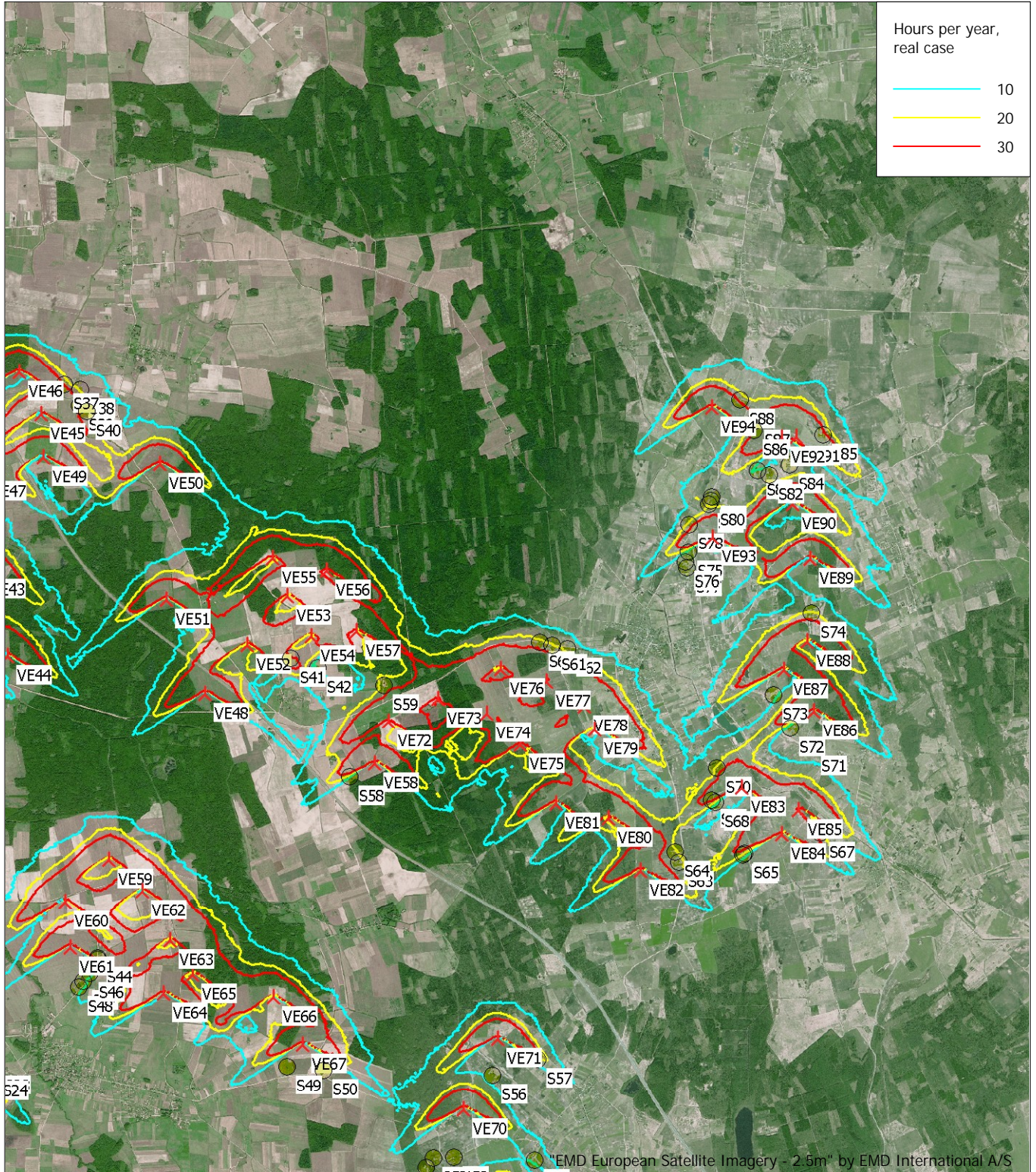
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Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 537 425 North: 6 160 252

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

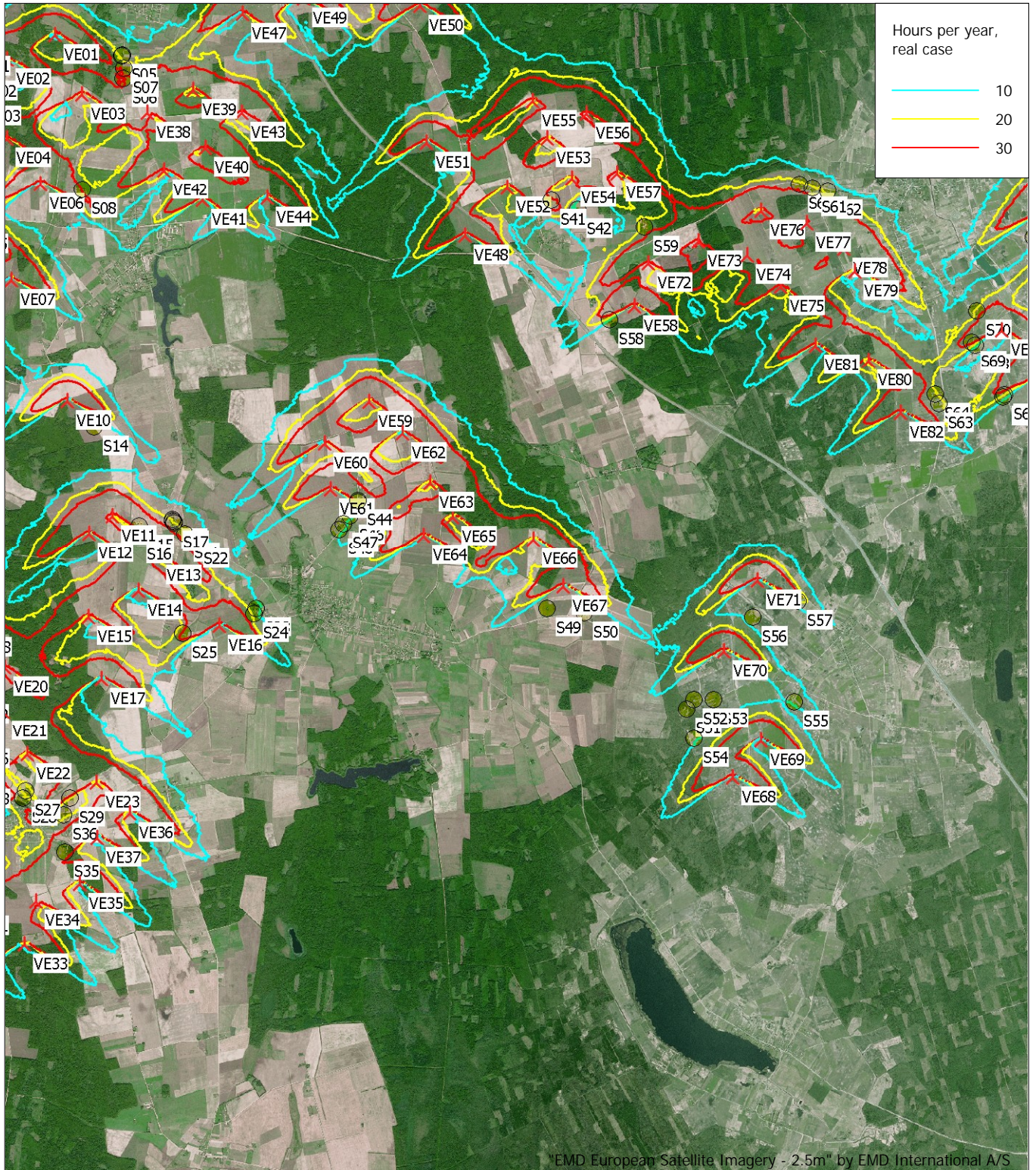
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LT-09308 Vilnius
+370 862509216

Calculated:

2024-04-28 17:49/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 928 North: 6 152 210
 ▲ New WTG ● Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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+370 862509216

Calculated:

2024-04-28 23:20/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
959 473 230 290 571 633 755 992 1 181 1 008 765 538 8 395

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
VE01	524 437	6 161 468	58,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE02	523 587	6 161 038	57,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE03	524 921	6 160 437	57,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE04	523 598	6 159 655	57,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE05	522 856	6 158 146	59,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE06	524 195	6 158 877	56,5	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE07	523 686	6 157 187	58,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE08	522 386	6 156 529	59,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE09	521 861	6 155 924	61,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE10	524 686	6 155 073	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE11	525 488	6 153 069	68,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE12	525 079	6 152 750	68,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE13	526 289	6 152 368	68,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE14	525 952	6 151 758	65,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE15	525 072	6 151 299	67,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE16	527 380	6 151 151	73,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE17	525 314	6 150 208	69,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE18	522 960	6 151 095	63,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE19	522 917	6 149 910	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE20	523 618	6 150 399	67,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE21	523 594	6 149 625	69,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE22	524 020	6 148 874	70,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE23	525 233	6 148 386	69,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE24	520 802	6 148 948	59,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE25	522 065	6 149 247	59,7	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE26	522 930	6 149 131	66,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE27	522 213	6 148 115	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE28	522 948	6 148 432	67,4	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE29	521 952	6 146 540	65,0	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8

To be continued on next page...

SHADOW - Main Result

...continued from previous page

Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
				Valid	Manufact.					Calculation distance [m]	RPM [RPM]
VE30	521 386	6 145 952	66,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE31	522 929	6 146 193	69,1 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE32	522 758	6 145 291	69,2 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE33	523 994	6 145 537	71,6 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE34	524 187	6 146 302	68,2 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE35	524 951	6 146 617	69,5 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE36	525 827	6 147 861	72,1 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE37	525 249	6 147 426	72,4 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE38	526 057	6 160 125	60,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE39	526 864	6 160 518	62,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE40	527 075	6 159 515	61,3 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE41	527 040	6 158 603	63,4 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE42	526 353	6 159 129	61,9 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE43	527 707	6 160 134	63,2 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE44	528 175	6 158 654	64,1 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE45	528 738	6 162 866	62,5 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE46	528 344	6 163 606	63,3 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE47	527 713	6 161 856	62,5 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE48	531 650	6 158 017	67,2 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE49	528 777	6 162 117	62,8 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE50	530 829	6 162 011	65,7 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE51	530 956	6 159 645	67,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE52	532 379	6 158 864	67,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE53	533 075	6 159 717	67,4 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE54	533 496	6 159 036	69,6 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE55	532 804	6 160 377	67,8 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE56	533 749	6 160 170	69,3 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE57	534 293	6 159 121	70,6 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE58	534 619	6 156 800	73,4 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE59	529 978	6 155 095	69,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE60	529 213	6 154 349	70,5 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE61	529 312	6 153 557	70,6 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE62	530 563	6 154 546	69,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE63	531 062	6 153 680	69,1 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE64	530 953	6 152 750	72,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE65	531 461	6 153 089	70,7 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE66	532 880	6 152 701	72,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE67	533 407	6 151 879	73,8 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE68	536 417	6 148 559	80,2 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE69	536 896	6 149 201	79,8 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE70	536 236	6 150 773	79,6 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE71	536 814	6 152 007	77,9 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE72	534 850	6 157 546	72,2 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE73	535 728	6 157 950	70,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE74	536 585	6 157 706	72,8 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE75	537 173	6 157 156	73,1 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE76	536 819	6 158 488	73,3 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE77	537 620	6 158 281	74,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE78	538 283	6 157 843	71,5 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE79	538 479	6 157 437	73,7 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE80	538 722	6 155 891	76,6 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE81	537 803	6 156 134	75,4 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE82	539 294	6 154 973	77,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE83	541 058	6 156 438	74,1 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE84	541 770	6 155 632	77,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE85	542 062	6 156 061	77,2 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE86	542 313	6 157 786	77,7 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE87	541 784	6 158 509	79,5 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE88	542 189	6 159 008	78,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE89	542 226	6 160 447	80,7 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE90	541 905	6 161 419	78,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE91	541 952	6 162 586	74,0 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE92	541 712	6 162 572	74,4 Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav.
Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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2024-04-28 23:20/3.6.355

SHADOW - Main Result

...continued from previous page

	Y	X	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM
VE93	540 516	6 160 819	74,2	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8
VE94	540 464	6 163 076	70,9	Siemens Gamesa SG 6....	Yes	Siemens Gamesa	SG 6.6-170-6 600	6 600	170,0	165,0	2 037	8,8

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]	[m]	[°]		[m]
S01	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

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Project:

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SHADOW - Main Result

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.	
			[m]	[m]	[m]	[m]	[°]		[m]	
S57	537	523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534	191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534	781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537	501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537	726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537	988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539	971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539	912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541	117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S66	541	098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542	445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540	595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540	538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540	620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542	284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541	907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541	615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542	259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540	088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540	042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540	069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540	096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540	444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540	468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540	496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541	481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541	290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541	847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542	437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541	225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541	242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540	980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	18:39	
S02	24:51	
S03	11:07	
S04	19:34	
S05	18:48	
S06*	29:30	1:03
S07*	27:07	0:02
S08	29:09	
S09	21:19	
S10	16:01	
S11*	4:08	41:23
S12*	7:43	24:07
S13	12:57	
S14	0:00	
S15*	19:18	31:26
S16*	28:51	3:13
S17	21:27	
S18	20:55	
S19	20:36	
S20	19:43	
S21*	22:00	0:19
S22*	17:48	0:02
S23	12:49	
S24	16:42	

To be continued on next page...

Project:

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SHADOW - Main Result

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S25*	4:11	30:35
S26	13:03	
S27	18:20	
S28	23:10	
S29	17:48	
S30	5:25	
S31	4:38	
S32	5:31	
S33	25:30	
S34*	14:50	77:02
S35*	29:20	20:33
S36	18:00	
S37*	29:37	0:58
S38	19:55	
S39	29:36	
S40	25:31	
S41*	11:43	22:59
S42*	5:40	4:20
S44*	29:31	6:55
S45*	24:54	5:19
S46	9:45	
S47	8:53	
S48	8:15	
S49	0:00	
S50	0:00	
S51	5:23	
S52	4:04	
S53	3:32	
S54	8:51	
S55	12:22	
S56	7:17	
S57	18:32	
S58	9:46	
S59	23:57	
S60	23:02	
S61	21:47	
S62	17:45	
S63	22:14	
S64	22:45	
S65	20:35	
S66	16:58	
S67	23:55	
S68*	15:46	4:13
S69*	28:18	4:52
S70	22:27	
S71	4:21	
S72	3:05	
S73	8:53	
S74	22:03	
S75	5:07	
S76	0:00	
S77	0:00	
S78	23:27	
S79	20:11	
S80	18:56	
S81	17:54	
S82	13:29	
S83	10:46	
S84	15:52	
S85*	16:04	23:06
S86*	28:47	17:28
S87*	23:17	22:14
S88	26:53	

* Receptors where shadow flicker is reduced by curtailment

SHADOW - Main Result

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

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (1)		39:09
VE02	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (2)		28:43
VE03	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (3)		23:31
VE04	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (4)		15:31
VE05	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (5)	143:49	29:53
VE06	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (6)		26:06
VE07	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (7)		11:59
VE08	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (8)		5:35
VE09	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (9)		1:39
VE10	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (10)		0:00
VE11	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (11)	104:02	15:10
VE12	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (12)		19:47
VE13	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (13)		71:16
VE14	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (14)	33:21	8:52
VE15	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (15)		4:32
VE16	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (96)	106:56	17:01
VE17	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (17)		1:43
VE18	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (18)		0:00
VE19	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (19)		6:02
VE20	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (20)		4:36
VE21	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (21)		2:16
VE22	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (22)		3:10
VE23	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (23)		12:23
VE24	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (24)		0:00
VE25	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (25)		0:02
VE26	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (26)		0:00
VE27	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (27)		3:09
VE28	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (28)		19:16
VE29	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (29)	277:53	21:20
VE30	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (30)		7:34
VE31	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (31)		14:42
VE32	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (32)		1:03
VE33	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (33)		1:03
VE34	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (34)		8:01
VE35	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (35)		15:59
VE36	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (36)		21:10
VE37	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (37)	72:30	19:35
VE38	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (38)		15:10
VE39	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (39)		9:25
VE40	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (40)	9:24	0:59
VE41	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (41)		0:00
VE42	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (42)		4:13
VE43	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (43)		0:00
VE44	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (44)		0:00
VE45	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (45)		36:54
VE46	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (46)		35:17
VE47	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (47)		0:00
VE48	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (48)		2:49
VE49	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (49)	10:53	10:34
VE50	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (50)		3:03
VE51	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (51)		0:00
VE52	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (52)	79:33	1:51
VE53	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (53)		0:00
VE54	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (54)		7:09
VE55	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (55)		0:00
VE56	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (56)		0:00
VE57	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (57)		8:55
VE58	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (58)		10:37
VE59	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (59)		0:00
VE60	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (60)		0:00
VE61	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (61)		29:25
VE62	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (62)		0:00
VE63	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (63)	18:46	10:53
VE64	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (64)		10:44
VE65	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (65)	8:35	4:24

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

Licensed user:

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Calculated:

2024-04-28 23:20/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE66	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (66)		0:00
VE67	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (67)		0:00
VE68	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (68)		11:21
VE69	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (69)		17:59
VE70	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (70)		14:56
VE71	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (71)		16:35
VE72	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (72)		13:15
VE73	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (73)		5:26
VE74	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (74)		7:02
VE75	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (75)		0:09
VE76	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (76)		14:24
VE77	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (77)		30:55
VE78	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (78)		10:05
VE79	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (79)		2:56
VE80	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (80)		20:17
VE81	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (81)		0:00
VE82	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (82)		24:38
VE83	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (83)		55:37
VE84	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (84)	14:24	41:29
VE85	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (85)	10:45	5:38
VE86	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (86)		13:17
VE87	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (87)		4:11
VE88	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (88)		17:51
VE89	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (89)		4:18
VE90	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (90)		38:00
VE91	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (91)	118:54	27:59
VE92	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (92)	94:23	31:27
VE93	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (93)		46:13
VE94	Siemens Gamesa SG 6.6-170 6600 170.0 !O! hub: 165,0 m (TOT: 250,0 m) (94)	75:51	41:05

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

**Prognozuojamas PŪV šėšėliavimo
vertinimas "H" alternatyva**

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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+370 862509216

Calculated:

2024-04-28 15:13/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
904 446 217 273 538 596 711 935 1 113 950 721 507 7 910

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
VE01	524 437	6 161 468	58,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE02	523 587	6 161 038	57,5	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE03	524 921	6 160 437	57,9	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE04	523 598	6 159 655	57,4	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE05	522 856	6 158 146	59,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE06	524 195	6 158 877	56,5	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE07	523 686	6 157 187	58,2	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE08	522 386	6 156 529	59,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE09	521 861	6 155 924	61,4	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE10	524 686	6 155 073	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE11	525 488	6 153 069	68,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE12	525 079	6 152 750	68,2	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE13	526 289	6 152 368	68,7	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE14	525 952	6 151 758	65,7	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE15	525 072	6 151 299	67,2	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE16	527 380	6 151 151	73,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE17	525 314	6 150 208	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE18	522 960	6 151 095	63,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE19	522 917	6 149 910	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE20	523 618	6 150 399	67,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE21	523 594	6 149 625	69,9	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE22	524 020	6 148 874	70,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE23	525 233	6 148 386	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE24	520 802	6 148 948	59,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE25	522 065	6 149 247	59,7	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE26	522 930	6 149 131	66,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE27	522 213	6 148 115	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE28	522 948	6 148 432	67,4	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE29	521 952	6 146 540	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE30	521 386	6 145 952	66,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE31	522 929	6 146 193	69,1	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE32	522 758	6 145 291	69,2	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	

To be continued on next page...

SHADOW - Main Result

...continued from previous page

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
			[m]									
VE33	523 994	6 145 537	71,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE34	524 187	6 146 302	68,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE35	524 951	6 146 617	69,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE36	525 827	6 147 861	72,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE37	525 249	6 147 426	72,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE38	526 057	6 160 125	60,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE39	526 864	6 160 518	62,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE40	527 075	6 159 515	61,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE41	527 040	6 158 603	63,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE42	526 353	6 159 129	61,9	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE43	527 707	6 160 134	63,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE44	528 175	6 158 654	64,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE45	528 738	6 162 866	62,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE46	528 344	6 163 606	63,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE47	527 713	6 161 856	62,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE48	531 650	6 158 017	67,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE49	528 777	6 162 117	62,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE50	530 829	6 162 011	65,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE51	530 956	6 159 645	67,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE52	532 379	6 158 864	67,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE53	533 075	6 159 717	67,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE54	533 496	6 159 036	69,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE55	532 804	6 160 377	67,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE56	533 749	6 160 170	69,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE57	534 293	6 159 121	70,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE58	534 619	6 156 800	73,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE59	529 978	6 155 095	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE60	529 213	6 154 349	70,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE61	529 312	6 153 557	70,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE62	530 563	6 154 546	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE63	531 062	6 153 680	69,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE64	530 953	6 152 750	72,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE65	531 461	6 153 089	70,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE66	532 880	6 152 701	72,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE67	533 407	6 151 879	73,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE68	536 417	6 148 559	80,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE69	536 896	6 149 201	79,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE70	536 236	6 150 773	79,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE71	536 814	6 152 007	77,9	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE72	534 850	6 157 546	72,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE73	535 728	6 157 950	70,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE74	536 585	6 157 706	72,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE75	537 173	6 157 156	73,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE76	536 819	6 158 488	73,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE77	537 620	6 158 281	74,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE78	538 283	6 157 843	71,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE79	538 479	6 157 437	73,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE80	538 722	6 155 891	76,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE81	537 803	6 156 134	75,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE82	539 294	6 154 973	77,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE83	541 058	6 156 438	74,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE84	541 770	6 155 632	77,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE85	542 062	6 156 061	77,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE86	542 313	6 157 786	77,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE87	541 784	6 158 509	79,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE88	542 189	6 159 008	78,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE89	542 226	6 160 447	80,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE90	541 905	6 161 419	78,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE91	541 952	6 162 586	74,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE92	541 712	6 162 572	74,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE93	540 516	6 160 819	74,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE94	540 464	6 163 076	70,9	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0

SHADOW - Main Result

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	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S57	537 523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534 191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534 781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537 501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537 726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537 988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539 971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539 912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541 117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Konstitucijos pr. 9-41
LT-09308 Vilnius
+370 862509216

Calculated:

2024-04-28 15:13/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S66	541 098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542 445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540 595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540 538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540 620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542 284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541 907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541 615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542 259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540 088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540 042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540 069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540 096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540 444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540 468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540 496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541 481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541 290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541 847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542 437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541 225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541 242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540 980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No. Shadow hours

per year
[h/year]

S01	20:50
S02	25:35
S03	11:38
S04	24:06
S05	22:54
S06	38:38
S07	34:43
S08	34:17
S09	22:22
S10	17:02
S11	46:56
S12	36:05
S13	13:39
S14	0:00
S15	53:50
S16	35:35
S17	23:29
S18	22:57
S19	22:42
S20	21:49
S21	24:22
S22	19:39
S23	15:04
S24	19:49
S25	35:50
S26	15:10
S27	22:06
S28	28:26
S29	22:05
S30	11:28
S31	10:33
S32	9:20
S33	27:40

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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LT-09308 Vilnius
+370 862509216

Calculated:

2024-04-28 15:13/3.6.355

SHADOW - Main Result

...continued from previous page

Shadow, expected values

No. Shadow hours

	per year [h/year]
S34	93:56
S35	54:37
S36	23:36
S37	35:25
S38	21:55
S39	31:34
S40	27:24
S41	39:49
S42	11:44
S44	36:47
S45	30:44
S46	10:22
S47	9:29
S48	8:52
S49	0:00
S50	0:00
S51	5:38
S52	4:23
S53	4:01
S54	9:22
S55	12:35
S56	7:40
S57	18:32
S58	9:58
S59	27:16
S60	25:12
S61	23:26
S62	19:38
S63	26:43
S64	27:00
S65	21:38
S66	18:06
S67	25:17
S68	22:52
S69	36:01
S70	27:52
S71	4:51
S72	3:11
S73	9:20
S74	25:31
S75	6:51
S76	4:26
S77	6:48
S78	26:45
S79	21:02
S80	19:41
S81	18:33
S82	14:20
S83	11:21
S84	16:23
S85	42:34
S86	47:48
S87	48:02
S88	28:36

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

No.	Name	Expected [h/year]
VE01	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (1)	41:52
VE02	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (2)	32:40
VE03	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (3)	25:38
VE04	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (4)	17:39

To be continued on next page...

SHADOW - Main Result

...continued from previous page

No.	Name	Expected [h/year]
VE05	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (5)	73:37
VE06	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (6)	29:38
VE07	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (7)	12:42
VE08	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (8)	5:50
VE09	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (9)	1:47
VE10	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (10)	0:00
VE11	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (11)	45:27
VE12	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (12)	20:46
VE13	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (13)	74:35
VE14	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (14)	15:24
VE15	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (15)	7:44
VE16	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (96)	51:28
VE17	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (17)	1:49
VE18	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (18)	0:00
VE19	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (19)	6:20
VE20	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (20)	4:51
VE21	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (21)	2:22
VE22	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (22)	4:28
VE23	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (23)	13:03
VE24	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (24)	7:25
VE25	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (25)	5:53
VE26	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (26)	5:57
VE27	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (27)	4:06
VE28	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (28)	24:16
VE29	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (29)	100:03
VE30	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (30)	8:27
VE31	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (31)	16:26
VE32	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (32)	1:19
VE33	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (33)	2:55
VE34	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (34)	10:30
VE35	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (35)	17:02
VE36	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (36)	21:40
VE37	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (37)	41:14
VE38	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (38)	15:33
VE39	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (39)	9:57
VE40	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (40)	4:37
VE41	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (41)	1:09
VE42	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (42)	4:43
VE43	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (43)	2:42
VE44	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (44)	0:00
VE45	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (45)	38:43
VE46	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (46)	37:04
VE47	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (47)	9:33
VE48	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (48)	3:00
VE49	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (49)	12:07
VE50	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (50)	3:30
VE51	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (51)	1:41
VE52	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (52)	25:57
VE53	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (53)	0:00
VE54	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (54)	7:05
VE55	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (55)	0:00
VE56	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (56)	0:00
VE57	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (57)	9:50
VE58	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (58)	12:18
VE59	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (59)	0:00
VE60	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (60)	0:00
VE61	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (61)	28:58
VE62	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (62)	0:00
VE63	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (63)	16:53
VE64	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (64)	11:08
VE65	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (65)	6:29
VE66	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (66)	0:00
VE67	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (67)	0:00
VE68	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (68)	12:15
VE69	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (69)	19:01

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-28 15:13/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Name	Expected [h/year]
VE70	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (70)	15:21
VE71	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (71)	16:28
VE72	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (72)	13:57
VE73	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (73)	8:28
VE74	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (74)	7:23
VE75	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (75)	0:20
VE76	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (76)	16:24
VE77	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (77)	32:30
VE78	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (78)	10:35
VE79	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (79)	7:34
VE80	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (80)	22:32
VE81	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (81)	3:15
VE82	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (82)	27:21
VE83	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (83)	56:34
VE84	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (84)	45:26
VE85	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (85)	11:58
VE86	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (86)	14:17
VE87	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (87)	5:07
VE88	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (88)	19:16
VE89	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (89)	8:38
VE90	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (90)	45:47
VE91	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (91)	64:18
VE92	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (92)	56:37
VE93	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (93)	51:05
VE94	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (94)	63:30

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

Project:

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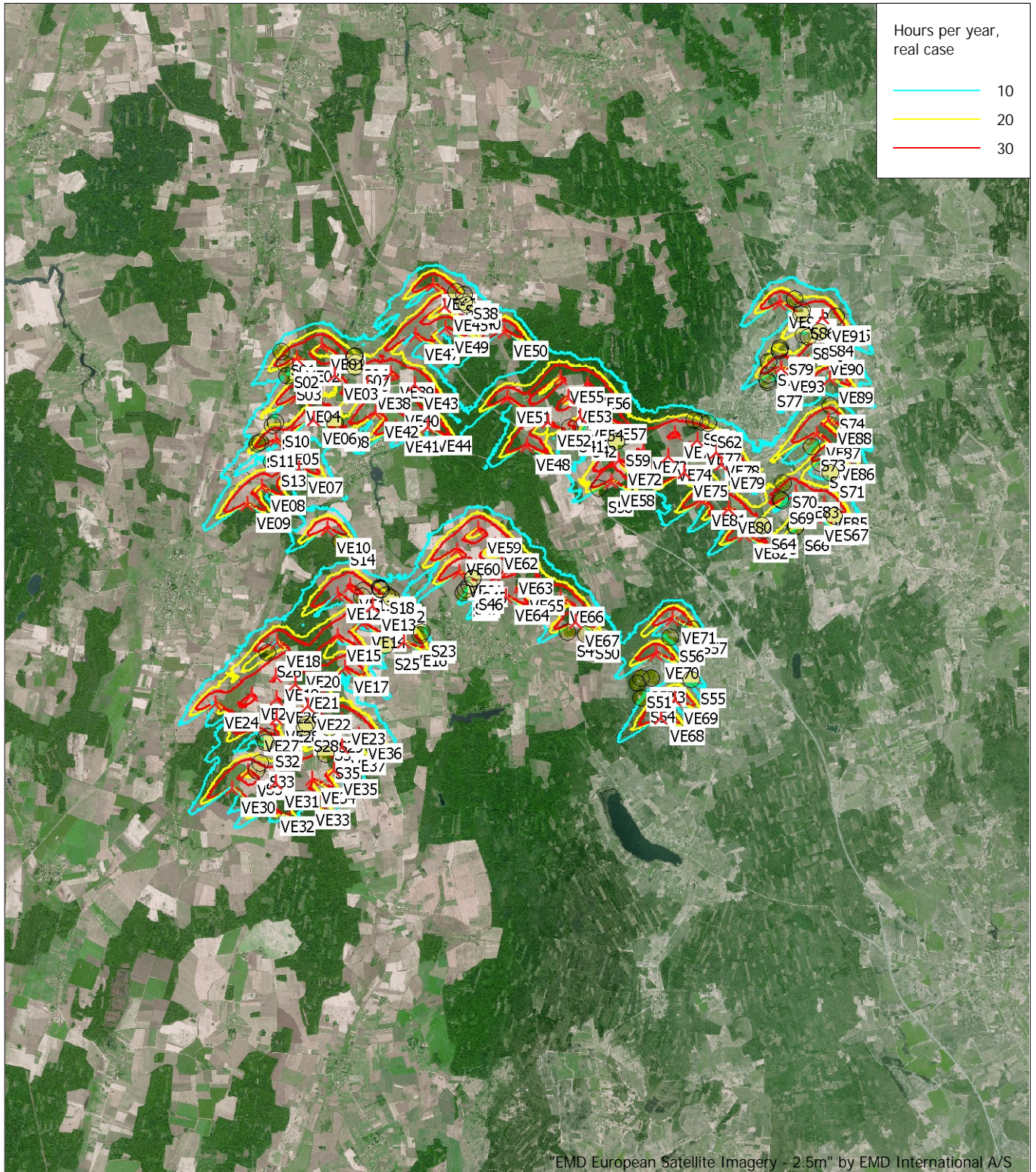
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Calculated:

2024-04-28 15:13/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m, Print scale 1:200 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 080 North: 6 153 720
 ▲ New WTG 🟡 Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

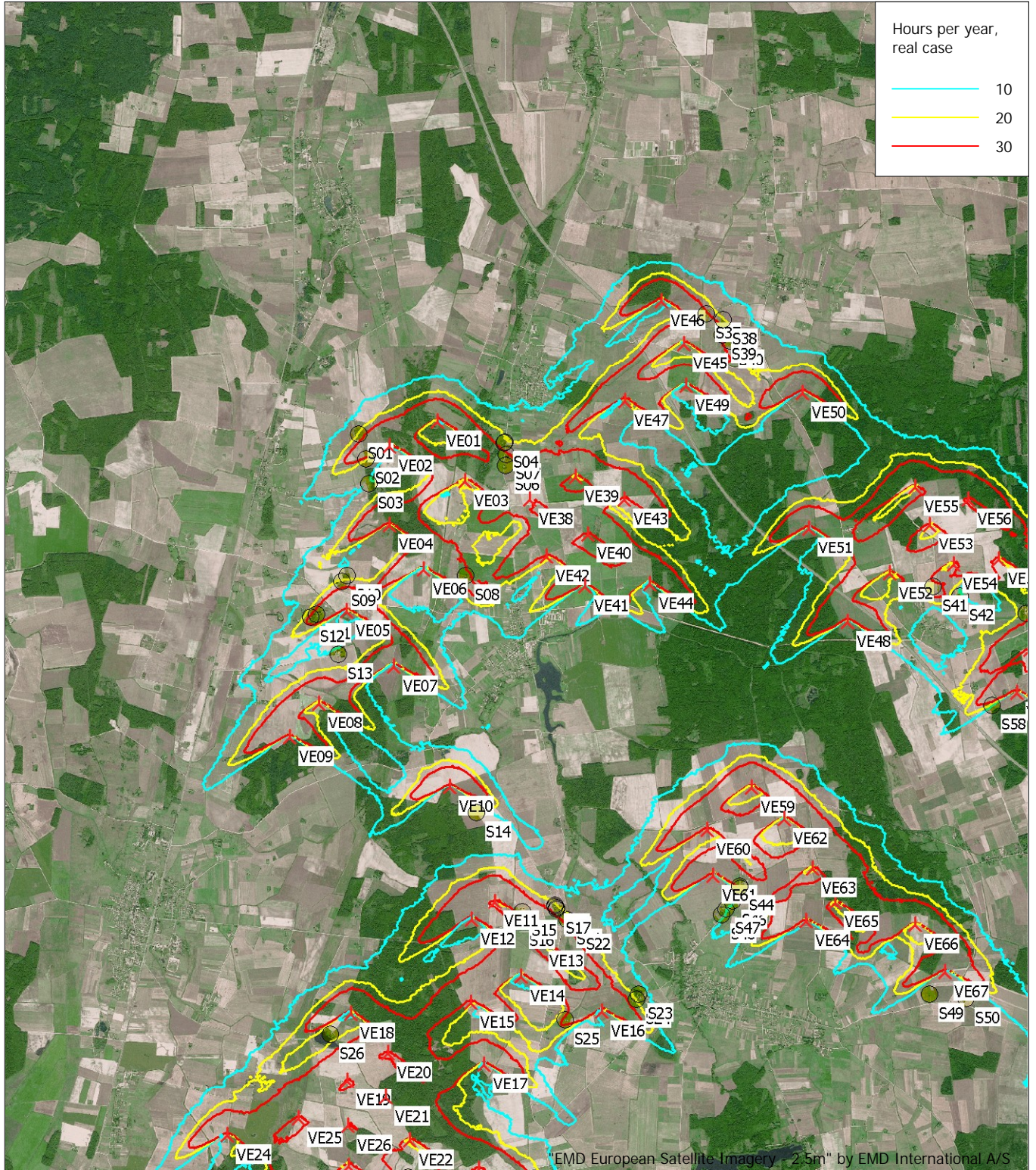
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Calculated:

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SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 526 189 North: 6 158 964

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

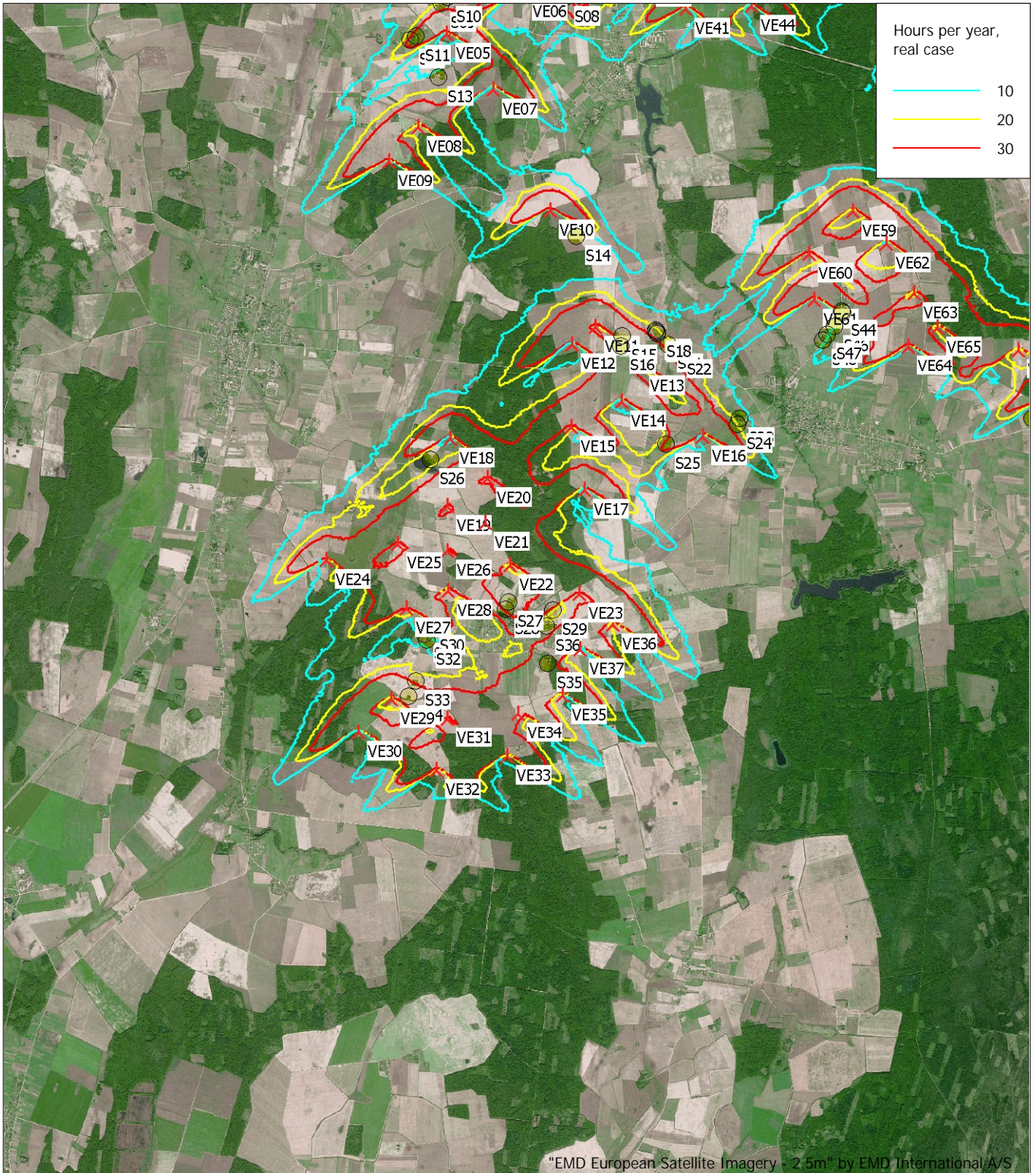
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Calculated:

2024-04-28 15:13/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 524 501 North: 6 148 831
 ▲ New WTG ● Shadow receptor
 Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

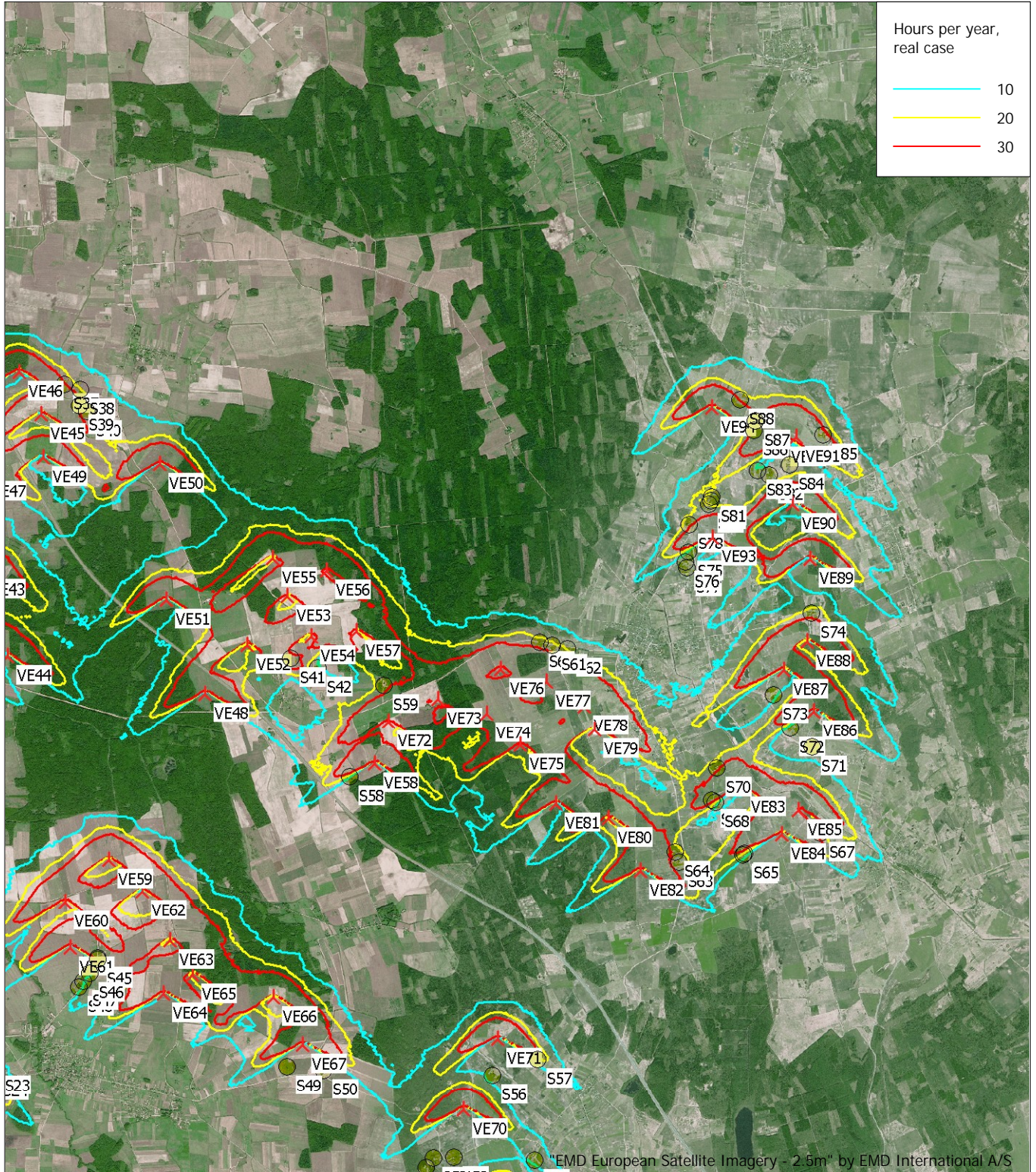
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Calculated:

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SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 537 425 North: 6 160 252
▲ New WTG ● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)
Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

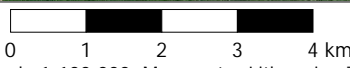
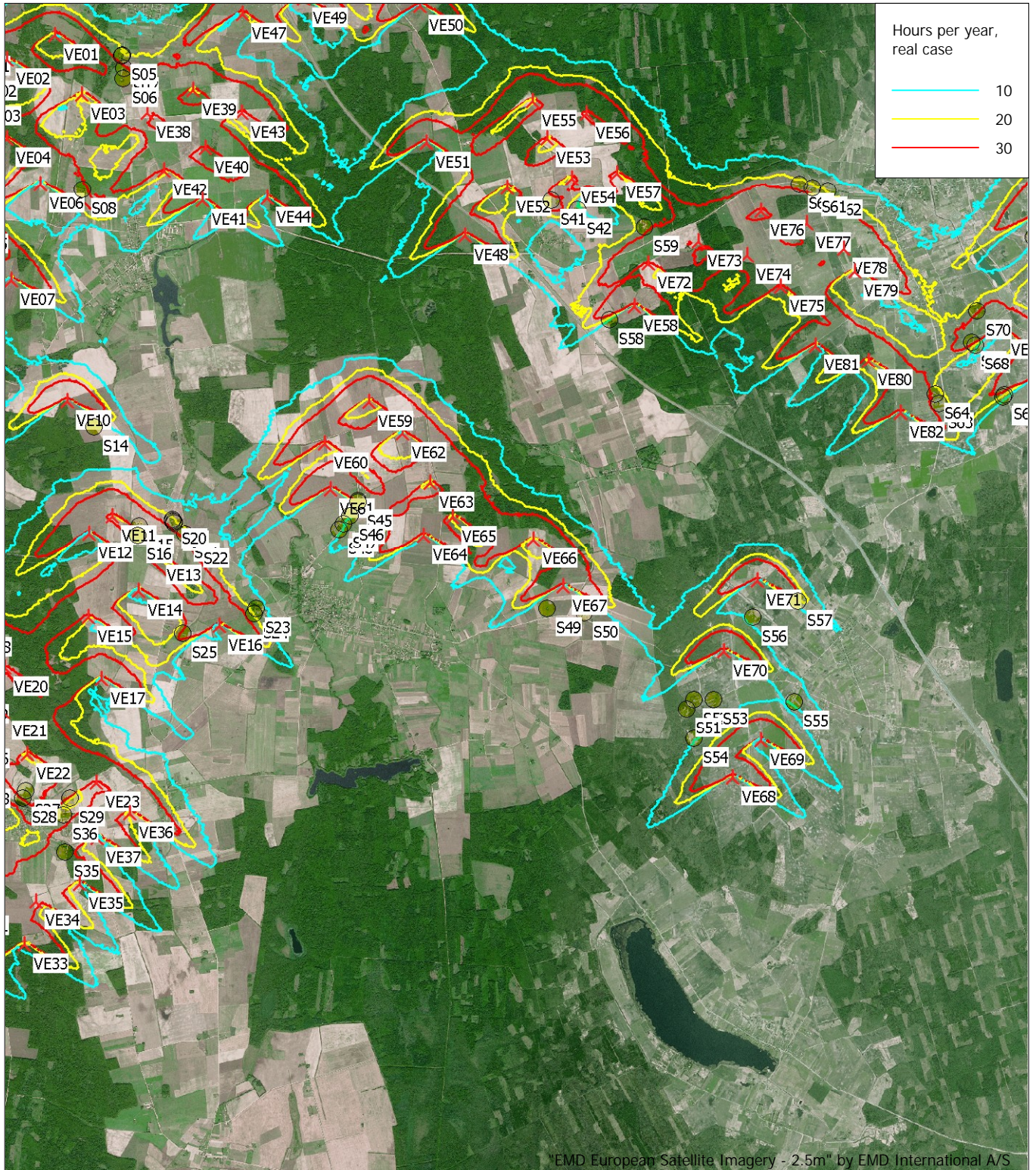
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Calculated:

2024-04-28 15:13/3.6.355

SHADOW - Map



Map: windPRO European Satellite Imagery - 2.5m , Print scale 1:100 000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 532 928 North: 6 152 210

▲ New WTG

● Shadow receptor

Flicker map level: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1,5 m

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-29 10:26/3.6.355

SHADOW - Main Result

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

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

Sunshine probability S (Average daily sunshine hours) [KAUNAS]

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 hours are calculated from WTGs in calculation and wind distribution:

Site data: ATLAS 12 sectors; Radius: 30 500 m (7)

Operational time

N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
904 446 217 273 538 596 711 935 1 113 950 721 507 7 910

Idle start wind speed: Cut in wind speed from power curve

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: Project Wizard Elevation Data Grid (SRTM: Shuttle DTM 1 arc-second)

Receptor grid resolution: 1,0 m

All coordinates are in

Lithuanian TM LKS94-LKS94 (LT)

WTGs

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
			[m]									
VE01	524 437	6 161 468	58,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE02	523 587	6 161 038	57,5	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE03	524 921	6 160 437	57,9	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE04	523 598	6 159 655	57,4	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE05	522 856	6 158 146	59,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE06	524 195	6 158 877	56,5	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE07	523 686	6 157 187	58,2	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE08	522 386	6 156 529	59,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE09	521 861	6 155 924	61,4	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE10	524 686	6 155 073	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE11	525 488	6 153 069	68,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE12	525 079	6 152 750	68,2	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE13	526 289	6 152 368	68,7	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE14	525 952	6 151 758	65,7	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE15	525 072	6 151 299	67,2	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE16	527 380	6 151 151	73,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE17	525 314	6 150 208	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE18	522 960	6 151 095	63,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE19	522 917	6 149 910	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE20	523 618	6 150 399	67,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE21	523 594	6 149 625	69,9	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE22	524 020	6 148 874	70,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE23	525 233	6 148 386	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE24	520 802	6 148 948	59,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE25	522 065	6 149 247	59,7	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE26	522 930	6 149 131	66,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE27	522 213	6 148 115	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE28	522 948	6 148 432	67,4	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE29	521 952	6 146 540	65,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	
VE30	521 386	6 145 952	66,0	Hypotetic 8.0 8000 180.0 !-! hub:... No	Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0	

To be continued on next page...

SHADOW - Main Result

...continued from previous page

	Y	X	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM
			[m]									
VE31	522 929	6 146 193	69,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE32	522 758	6 145 291	69,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE33	523 994	6 145 537	71,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE34	524 187	6 146 302	68,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE35	524 951	6 146 617	69,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE36	525 827	6 147 861	72,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE37	525 249	6 147 426	62,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE38	526 057	6 160 125	60,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE39	526 864	6 160 518	62,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE40	527 075	6 159 515	61,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE41	527 040	6 158 603	63,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE42	526 353	6 159 129	61,9	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE43	527 707	6 160 134	63,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE44	528 175	6 158 654	64,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE45	528 738	6 162 866	62,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE46	528 344	6 163 606	63,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE47	527 713	6 161 856	62,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE48	531 650	6 158 017	67,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE49	528 777	6 162 117	62,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE50	530 829	6 162 011	65,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE51	530 956	6 159 645	67,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE52	532 379	6 158 864	67,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE53	533 075	6 159 717	67,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE54	533 496	6 159 036	69,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE55	532 804	6 160 377	67,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE56	533 749	6 160 170	69,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE57	534 293	6 159 121	70,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE58	534 619	6 156 800	73,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE59	529 978	6 155 095	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE60	529 213	6 154 349	70,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE61	529 312	6 153 557	70,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE62	530 563	6 154 546	69,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE63	531 062	6 153 680	69,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE64	530 953	6 152 750	72,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE65	531 461	6 153 089	70,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE66	532 880	6 152 701	72,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE67	533 407	6 151 879	73,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE68	536 417	6 148 559	80,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE69	536 896	6 149 201	79,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE70	536 236	6 150 773	79,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE71	536 814	6 152 007	77,9	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE72	534 850	6 157 546	72,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE73	535 728	6 157 950	70,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE74	536 585	6 157 706	72,8	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE75	537 173	6 157 156	73,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE76	536 819	6 158 488	73,3	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE77	537 620	6 158 281	74,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE78	538 283	6 157 843	71,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE79	538 479	6 157 437	73,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE80	538 722	6 155 891	76,6	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE81	537 803	6 156 134	75,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE82	539 294	6 154 973	77,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE83	541 058	6 156 438	74,1	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE84	541 770	6 155 632	77,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE85	542 062	6 156 061	77,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE86	542 313	6 157 786	77,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE87	541 784	6 158 509	79,5	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE88	542 189	6 159 008	78,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE89	542 226	6 160 447	80,7	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE90	541 905	6 161 419	78,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE91	541 952	6 162 586	74,0	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE92	541 712	6 162 572	74,4	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE93	540 516	6 160 819	74,2	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0
VE94	540 464	6 163 076	70,9	Hypotetic 8.0 8000 180.0 !-! hub:... No		Hypotetic	8.0-8 000	8 000	180,0	170,0	2 500	0,0

SHADOW - Main Result

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	523 045	6 161 257	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S02	523 178	6 160 827	59,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S03	523 243	6 160 394	60,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S04	525 609	6 161 110	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S05	525 619	6 161 127	64,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S06	525 625	6 160 714	63,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S07	525 648	6 160 901	62,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S08	524 940	6 158 778	61,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S09	522 771	6 158 673	61,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S10	522 871	6 158 772	60,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S11	522 333	6 158 092	60,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S12	522 230	6 158 046	60,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S13	522 728	6 157 394	61,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S14	525 156	6 154 633	67,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S15	525 969	6 152 907	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S16	525 937	6 152 727	68,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S17	526 578	6 152 950	70,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S18	526 570	6 152 971	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S19	526 555	6 152 990	71,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S20	526 543	6 153 020	70,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S21	526 771	6 152 760	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S22	526 938	6 152 663	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S23	528 023	6 151 467	77,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S24	527 986	6 151 365	76,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S25	526 742	6 151 012	72,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S26	522 616	6 150 731	64,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S27	523 999	6 148 242	70,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S28	523 940	6 148 117	69,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S29	524 784	6 148 111	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S30	522 648	6 147 816	69,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S31	522 538	6 147 683	67,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S32	522 571	6 147 575	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S33	522 382	6 146 864	68,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S34	522 258	6 146 598	69,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S35	524 696	6 147 180	70,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S36	524 668	6 147 830	70,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S37	529 145	6 163 394	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S38	529 423	6 163 298	62,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S39	529 415	6 163 034	62,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S40	529 542	6 162 921	63,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S41	533 146	6 158 643	69,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S42	533 613	6 158 482	72,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S44	529 797	6 153 373	71,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S45	529 799	6 153 340	72,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S46	529 662	6 153 103	70,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S47	529 548	6 152 955	72,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S48	529 469	6 152 862	72,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S49	533 131	6 151 505	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S50	533 773	6 151 434	77,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S51	535 586	6 149 753	79,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S52	535 719	6 149 920	77,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S53	536 066	6 149 934	79,8	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S54	535 721	6 149 242	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S55	537 487	6 149 907	82,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S56	536 735	6 151 369	79,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S57	537 523	6 151 651	81,5	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S58	534 191	6 156 569	72,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S59	534 781	6 158 192	73,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S60	537 501	6 158 955	73,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S61	537 726	6 158 902	71,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S62	537 988	6 158 855	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S63	539 971	6 155 136	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S64	539 912	6 155 316	80,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S65	541 117	6 155 308	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav.
Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-29 10:26/3.6.355

SHADOW - Main Result

...continued from previous page

No.	Y	X	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
S66	541 098	6 155 271	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S67	542 445	6 155 660	81,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S68	540 595	6 156 190	73,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S69	540 538	6 156 228	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S70	540 620	6 156 782	78,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S71	542 284	6 157 165	78,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S72	541 907	6 157 491	80,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S73	541 615	6 158 072	78,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S74	542 259	6 159 506	81,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S75	540 088	6 160 554	74,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S76	540 042	6 160 371	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S77	540 069	6 160 277	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S78	540 096	6 161 047	75,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S79	540 444	6 161 405	74,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S80	540 468	6 161 459	75,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S81	540 496	6 161 516	76,2	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S82	541 481	6 161 917	78,6	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S83	541 290	6 161 991	77,3	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S84	541 847	6 162 093	79,1	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S85	542 437	6 162 635	74,0	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S86	541 225	6 162 699	78,4	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S87	541 242	6 162 855	77,9	1,0	1,0	1,0	90,0	"Green house mode"	2,0
S88	540 980	6 163 224	76,7	1,0	1,0	1,0	90,0	"Green house mode"	2,0

Calculation Results

Shadow receptor

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S01	20:50	
S02	25:35	
S03	11:38	
S04	24:06	
S05	22:54	
S06*	29:22	9:13
S07*	28:09	6:34
S08*	27:13	7:04
S09	22:22	
S10	17:02	
S11*	4:25	42:30
S12*	9:58	26:06
S13	13:39	
S14	0:00	
S15*	23:19	30:04
S16*	25:02	10:24
S17	23:29	
S18	22:57	
S19	22:42	
S20	21:49	
S21*	22:37	1:43
S22*	18:41	0:58
S23	15:04	
S24	19:49	
S25*	4:26	31:21
S26	15:10	
S27	22:06	
S28	28:26	
S29	22:05	
S30	11:28	
S31	10:33	
S32	9:20	
S33	27:40	

To be continued on next page...

Project:

UAB Uliunu vejas planuojamos ukines veiklos - vejo elektriniu irengimas Panevezio r. sav. Velzio, Ramygalos, Vadokliu, Raguvos seniunijose - poveikio aplinkai vertinimas

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Calculated:

2024-04-29 10:26/3.6.355

SHADOW - Main Result

...continued from previous page

Shadow, expected values

No.	Shadow hours per year [h/year]	Avoided hours per year [h/year]
S34*	15:53	77:42
S35*	28:27	26:08
S36	23:36	
S37*	24:35	10:37
S38*	21:07	0:46
S39*	24:54	6:24
S40*	25:53	1:30
S41*	29:58	9:50
S42	11:44	
S44*	29:25	7:22
S45*	24:57	5:47
S46	10:22	
S47	9:29	
S48	8:52	
S49	0:00	
S50	0:00	
S51	5:38	
S52	4:23	
S53	4:01	
S54	9:22	
S55	12:35	
S56	7:40	
S57	18:32	
S58	9:58	
S59	27:16	
S60	25:12	
S61	23:26	
S62	19:38	
S63	26:43	
S64	27:00	
S65	21:38	
S66	18:06	
S67	25:17	
S68*	17:08	5:43
S69*	29:09	6:46
S70	27:52	
S71	4:51	
S72	3:11	
S73	9:20	
S74	25:31	
S75	6:51	
S76	4:26	
S77	6:48	
S78	26:45	
S79	21:02	
S80	19:41	
S81	18:33	
S82	14:20	
S83	11:21	
S84	16:23	
S85*	17:07	25:22
S86*	25:43	22:05
S87*	23:24	24:31
S88*	28:26	0:08

* Receptors where shadow flicker is reduced by curtailment

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

No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE01	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (1)		41:52
VE02	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (2)		32:40
VE03	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (3)	84:16	10:01

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SHADOW - Main Result

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No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE04	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (4)	25:34	10:34
VE05	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (5)	156:50	31:21
VE06	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (6)		29:38
VE07	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (7)		12:42
VE08	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (8)		5:50
VE09	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (9)		1:47
VE10	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (10)		0:00
VE11	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (11)	109:36	15:25
VE12	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (12)	42:27	10:21
VE13	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (13)		74:35
VE14	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (14)		15:24
VE15	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (15)		7:44
VE16	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (96)	116:24	20:07
VE17	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (17)		1:49
VE18	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (18)		0:00
VE19	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (19)		6:20
VE20	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (20)		4:51
VE21	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (21)		2:22
VE22	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (22)		4:28
VE23	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (23)		13:03
VE24	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (24)		7:25
VE25	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (25)		5:53
VE26	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (26)		5:57
VE27	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (27)		4:06
VE28	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (28)		24:16
VE29	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (29)	297:26	22:21
VE30	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (30)		8:27
VE31	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (31)		16:26
VE32	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (32)		1:19
VE33	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (33)		2:55
VE34	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (34)	58:18	4:51
VE35	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (35)		17:02
VE36	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (36)		21:40
VE37	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (37)	76:14	20:25
VE38	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (38)		15:33
VE39	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (39)		9:57
VE40	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (40)		4:37
VE41	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (41)		1:09
VE42	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (42)		4:43
VE43	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (43)		2:42
VE44	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (44)		0:00
VE45	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (45)	75:21	28:20
VE46	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (46)		37:04
VE47	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (47)		9:33
VE48	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (48)		3:00
VE49	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (49)	49:13	7:20
VE50	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (50)	11:40	1:57
VE51	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (51)		1:41
VE52	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (52)		25:57
VE53	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (53)		0:00
VE54	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (54)		7:05
VE55	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (55)		0:00
VE56	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (56)		0:00
VE57	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (57)	35:25	0:00
VE58	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (58)		12:18
VE59	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (59)		0:00
VE60	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (60)		0:00
VE61	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (61)		28:58
VE62	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (62)		0:00
VE63	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (63)	21:08	11:27
VE64	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (64)		11:08
VE65	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (65)	9:42	4:33
VE66	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (66)		0:00
VE67	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (67)		0:00
VE68	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (68)		12:15

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SHADOW - Main Result

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No.	Name	Stopped due to flicker curtailment [h/year]	Expected [h/year]
VE69	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (69)		19:01
VE70	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (70)		15:21
VE71	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (71)		16:28
VE72	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (72)		13:57
VE73	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (73)		8:28
VE74	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (74)		7:23
VE75	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (75)		0:20
VE76	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (76)		16:24
VE77	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (77)		32:30
VE78	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (78)		10:35
VE79	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (79)	9:10	4:58
VE80	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (80)		22:32
VE81	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (81)		3:15
VE82	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (82)	14:32	25:52
VE83	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (83)		56:34
VE84	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (84)	16:03	42:45
VE85	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (85)		11:58
VE86	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (86)		14:17
VE87	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (87)		5:07
VE88	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (88)		19:16
VE89	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (89)		8:38
VE90	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (90)	25:29	43:30
VE91	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (91)	136:49	28:57
VE92	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (92)	105:53	32:28
VE93	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (93)		51:05
VE94	Hypotetic 8.0 8000 180.0 !-! hub: 170,0 m (TOT: 260,0 m) (94)	85:07	40:50

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.

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.