

Project:
Valga

Licensed user:
Lemma OÜ
Värvi 5 - A308
EE-10621 Tallinn
+3725059914
Piret Toonpere / piret@lemma.ee
Calculated:
12.10.2024 16:52/4.0.552

SHADOW - Main Result

Calculation: Varjutus_realcase_09102024

Assumptions for shadow calculations

Maximum distance for influence

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

Please look in WTG table

Minimum sun height over horizon for influence

3 °

Day step for calculation

1 days

Time step for calculation

1 minutes

Sunshine probability S (Average daily sunshine hours) []

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0,94	2,18	4,42	6,50	8,78	8,70	8,90	7,65	5,00	2,42	0,90	0,55

Operational time

N	NE	E	SE	S	SW	W	NW	Sum
670	1 025	670	828	1 143	1 577	1 262	710	7 885

Monthly aggregation of real case reduction

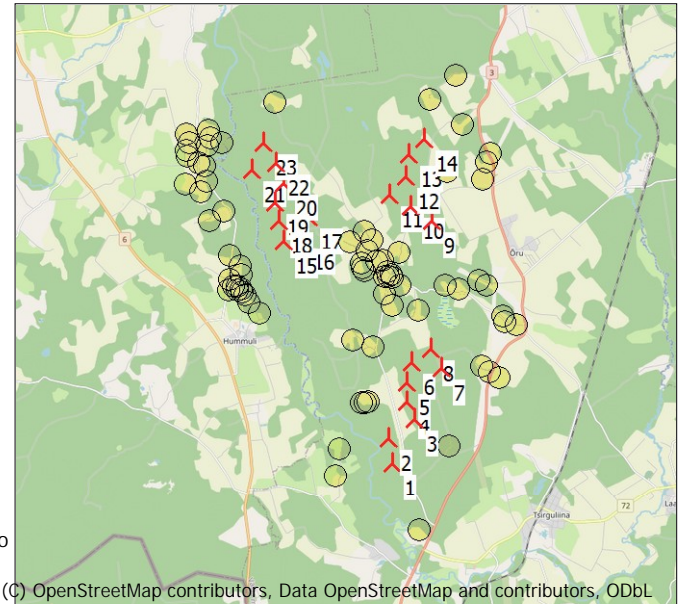
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

Height contours used: Height Contours: CONTOURLINE_ONLINEDATA_0.wpo

Receptor grid resolution: 1,0 m

All coordinates are in

Estonian Lambert L-EST97-EST97 (EE)



WTGs

				WTG type						Shadow data	
East	North	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Calculation distance [m]	RPM [RPM]
[m]											
1	625 987	6 416 983	50,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
2	625 831	6 417 651	42,5 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
3	626 515	6 418 180	60,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
4	626 299	6 418 624	60,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
5	626 289	6 419 118	60,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
6	626 401	6 419 674	62,9 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
7	627 184	6 419 541	60,5 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
8	626 895	6 420 031	64,2 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
9	626 806	6 423 433	62,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
10	626 531	6 423 672	79,3 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180 7200	7 200	180,0	180,0	1 783	-
11	625 664	6 424 076	70,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
12	626 090	6 424 573	70,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
13	626 145	6 425 181	73,1 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
14	626 533	6 425 672	79,3 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
15	622 899	6 422 762	61,4 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
16	623 378	6 422 894	68,1 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
17	623 566	6 423 417	69,9 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
18	622 751	6 423 299	60,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
19	622 624	6 423 784	60,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
20	622 850	6 424 291	60,0 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
21	622 013	6 424 610	50,8 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
22	622 639	6 424 810	57,8 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-
23	622 271	6 425 362	58,7 Teoreetiline V180 7200 180.0 !O! ... Yes	Yes	Teoreetiline	V180-7 200	7 200	180,0	180,0	1 783	-

Shadow receptor-Input

No.	East	North	Z	Upper left	Upper right	Lower left	Lower right	Top elevation	Bottom elevation	Width	Height	Elevation	Degrees from south	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
	East	North		East	North	East	North	a.g.l.	a.g.l.	[m]	[m]	[m]	[°]	[°]		[m]
[m]																
Aalte	625 063	6 422 042	70,0							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Aia	621 718	6 421 535	58,6							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Aia	620 615	6 424 751	50,0							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Aialste	620 671	6 424 015	48,3							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Aude	620 867	6 425 443	50,9							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Eeriku-Peetri	625 281	6 418 577	50,1							2,0	3,0	1,0	90,0	90,0	"Green house mode"	4,0
Elbra	620 270	6 424 924	53,0							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Haavatare	620 920	6 423 249	50,2							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Halliku	620 810	6 424 306	40,0							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0
Jaanimäe	625 121	6 422 579	70,0							1,0	1,0	1,0	90,0	90,0	"Green house mode"	2,0

To be continued on next page...

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SHADOW - Main Result

Calculation: Varjutus_realcase_09102024

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No.		East	North	Z	Upper left		Upper right		Lower left		Lower right		Top elevation a.g.l.	Bottom elevation a.g.l.	Width	Height	Elevation a.g.l.	Degrees from south cw [°]	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	East	North	East	North	East	North	East	North	[m]	[m]	[m]	[m]	[m]	[°]	[°]		[m]
	Jõemetsa	621 194	6 425 316	40.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kajaja	626 749	6 415 207	57.2											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kajaja-Vidriku	625 355	6 420 041	62.1											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kalda	625 250	6 422 874	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kannistu	628 338	6 421 778	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kastre	621 463	6 422 343	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kiilatsi	627 587	6 421 643	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Koidiku	628 313	6 425 272	80.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Koidu	620 322	6 425 282	54.2											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kooba	622 545	6 426 422	52.1											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Koolimaakoha	626 022	6 421 703	62.6											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kure	627 171	6 424 740	72.5											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kuusiku	624 664	6 422 795	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kääriku-Vidriku	625 194	6 418 562	50.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Kunka, Perve	625 814	6 421 898	64.1											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Laanemetsa	625 024	6 422 114	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Lepa, Pihla, Lehise	628 791	6 420 966	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Liiva	621 597	6 421 515	55.9											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Liivamae	621 721	6 421 442	56.5											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Lohu, Aedniku, Laksi	621 783	6 421 856	67.6											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Metsaare	621 910	6 421 297	57.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Metsniku	625 541	6 422 345	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Mustajärve	626 513	6 421 043	68.3											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Männimetsa	624 993	6 422 246	70.0	624 993	6 422 246	624 994	6 422 246	624 993*	6 422 246*	624 994	6 422 246	2.0	1.0	1,0	1,0	1,0	0.0*	90,0	"Green house mode"	2,0
	Mõisa	620 743	6 424 706	46.7											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Naadi	627 465	6 417 475	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Niilbi	621 302	6 423 513	47.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Nurme	628 259	6 419 609	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Orava-Kikka	628 229	6 425 043	80.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Parmu-Jaani	628 472	6 419 479	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Penno	621 775	6 422 073	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Pihlaka	621 818	6 421 463	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Pustse-Kotteri	626 644	6 426 625	90.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Partle-Vidriku, Pärduku	625 822	6 421 153	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Raudsepa	628 126	6 424 563	74.9											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Sepa	625 673	6 422 031	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Silla	621 486	6 421 429	57.9											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Sillaste	620 245	6 425 523	54.5											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Simmerga	621 514	6 421 703	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Singa-Ado	624 563	6 417 289	50.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Soo-otsa, Pärna	629 141	6 420 730	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Soosaare	625 641	6 421 437	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Tamme	620 812	6 425 238	50.4											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Tasa-Männiku	627 348	6 427 293	90.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Tedre	620 265	6 424 188	50.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Tiigi tn 6, Tiigi tn 8	622 322	6 420 849	42.4											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Tuulepealse	622 044	6 421 100	50.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Udumae	620 825	6 425 627	50.5											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Uibo	621 840	6 421 375	59.4											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Uiblioti	628 730	6 419 321	59.7											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Une-Mati	625 023	6 423 093	63.2											2,0	3,0	1,0		90,0	"Green house mode"	4,0
	Unikula puhkeala, Kirpu, Sakala	625 709	6 421 906	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Uue-Vidriku	625 107	6 418 558	48.6											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Uulitse	624 819	6 420 187	61.9											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Vabriku	628 121	6 421 875	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Valli	625 393	6 422 313	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Vanamõisa	625 786	6 421 981	63.4											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Varnu	627 538	6 426 009	83.2											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Vintsi	627 206	6 421 733	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Vaike-Make	625 993	6 422 541	64.6											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Valja, Ulevälja, Vaike-Marimõisa	628 841	6 420 808	60.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Vondi	624 462	6 416 602	52.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Õisu, Õhtupaikese	625 607	6 421 901	70.0											1,0	1,0	1,0		90,0	"Green house mode"	2,0
	Õnne	620 252	6 425 084	53.8											1,0	1,0	1,0		90,0	"Green house mode"	2,0

*) Fields typed

Calculation Results

Shadow receptor

No.	Shadow, worst case			Shadow, expected values	
	Shadow hours	Shadow days	Max shadow	Shadow hours	
	per year [h/year]	per year [days/year]	hours per day [h/day]	per year [h/year]	
Aalte	0:00	0	0:00	0:00	
Aia	0:00	0	0:00	0:00	
Alla	26:41	77	0:30	6:26	
Allaste	21:18	56	0:30	6:05	
Aude	31:12	80	0:30	5:07	
Eeriku-Peetri	168:12	286	0:52	29:29	
Elbra	8:55	30	0:24	1:42	
Haavatare	0:00	0	0:00	0:00	
Halliku	23:28	52	0:34	6:31	
Jaanimäe	33:23	113	0:25	8:37	
Jõemetsa	66:07	139	0:39	11:53	
Kajaja	0:00	0	0:00	0:00	
Kajaja-Vidriku	83:55	196	0:37	10:09	
Kalda	26:41	55	0:50	7:00	
Kannistu	0:00	0	0:00	0:00	
Kastre	42:11	108	0:29	12:15	
Kiilatsi	22:32	60	0:26	1:22	

To be continued on next page...

SHADOW - Main Result

Calculation: Varjutus_realcase_09102024

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No.	Shadow, worst case			Shadow, expected values	
	Shadow hours	Shadow days	Max shadow	Shadow hours	
	per year [h/year]	per year [days/year]	hours per day [h/day]	per year [h/year]	
Koidiku	0:00	0	0:00	0:00	
Koidu	0:00	0	0:00	0:00	
Kooba	60:33	86	0:57	3:56	
Koolimaakoha	0:00	0	0:00	0:00	
Kure	138:35	288	0:40	24:48	
Kuusiku	65:18	139	0:36	16:31	
Kääriku-Vidriku	149:08	288	0:48	27:05	
Kunka, Perve	0:00	0	0:00	0:00	
Laanemetsa	0:00	0	0:00	0:00	
Lepa, Pihla, Lehise	0:00	0	0:00	0:00	
Liiva	0:00	0	0:00	0:00	
Liivamäe	0:00	0	0:00	0:00	
Lohu, Aedniku, Laksi	19:50	50	0:29	5:57	
Metsaääre	0:00	0	0:00	0:00	
Metsniku	15:23	47	0:25	4:37	
Mustajärve	82:10	86	1:21	4:53	
Männimetsa	14:40	46	0:25	3:40	
Mõisa	33:11	89	0:33	8:14	
Naadi	32:05	99	0:27	7:22	
Nilbi	57:54	160	0:32	13:44	
Nurme	45:53	102	0:38	11:15	
Orava-Kikka	12:04	39	0:24	2:56	
Parmu-Jaani	33:47	89	0:33	8:20	
Penno	40:03	80	0:34	11:46	
Pihlaka	0:00	0	0:00	0:00	
Pustse-Kotteri	70:54	76	1:12	4:29	
Partle-Vidriku, Pärniku	38:33	100	0:28	2:32	
Raudsepa	11:19	37	0:25	1:23	
Sepa	0:00	0	0:00	0:00	
Silla	0:00	0	0:00	0:00	
Sillaste	0:00	0	0:00	0:00	
Simmerga	23:01	61	0:26	6:55	
Singa-Ado	34:07	86	0:33	8:16	
Soo-otsa, Pärna	0:00	0	0:00	0:00	
Soosaare	0:00	0	0:00	0:00	
Tamme	30:33	79	0:31	5:42	
Tasa-Männiku	0:00	0	0:00	0:00	
Tedre	0:00	0	0:00	0:00	
Tiigi tn 6, Tiigi tn 8	0:00	0	0:00	0:00	
Tuulepealse	0:00	0	0:00	0:00	
Udumäe	28:04	78	0:28	4:06	
Uibo	0:00	0	0:00	0:00	
Ulbioti	13:20	39	0:27	3:20	
Une-Mati	65:30	165	0:32	17:40	
Uniküla puhkeala, Kirpu, Sakala	0:00	0	0:00	0:00	
Uue-Vidriku	111:56	251	0:37	23:23	
Uulitse	10:27	32	0:25	1:35	
Vabriku	0:00	0	0:00	0:00	
Valli	0:00	0	0:00	0:00	
Vanamõisa	0:00	0	0:00	0:00	
Varnu	35:01	75	0:39	6:02	
Vintsi	9:14	34	0:21	0:30	
Väike-Make	0:00	0	0:00	0:00	
Välja, Ülevälja, Väike-Marimõisa	0:00	0	0:00	0:00	
Võndi	37:44	104	0:27	10:57	
Õisu, Õhtupäikese	0:00	0	0:00	0:00	
Õnne	0:00	0	0:00	0:00	

SHADOW - Main Result

Calculation: Varjutus_realcase_09102024

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

No.	Name	Worst case [h/year]	Expected [h/year]
1	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (1)	69:24	10:05
2	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (2)	142:29	22:03
3	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (4)	31:52	6:20
4	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (5)	58:56	9:43
5	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (6)	82:44	19:13
6	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (7)	79:07	9:55
7	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (3)	73:22	13:41
8	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (8)	139:16	15:25
9	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (19)	70:08	11:38
10	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (12)	59:53	13:56
11	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (11)	10:49	1:45
12	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (10)	23:51	5:24
13	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (9)	88:19	16:21
14	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (21)	83:04	10:26
15	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (20)	99:19	27:07
16	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (22)	54:16	13:18
17	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (15)	69:48	17:54
18	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (16)	39:17	10:29
19	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (17)	18:37	5:03
20	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (18)	16:24	4:46
21	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (13)	132:13	25:36
22	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (14)	21:38	2:23
23	Teoreetiline V180 7200 180.0 !O! hub: 180,0 m (TOT: 270,0 m) (23)	130:40	22:59

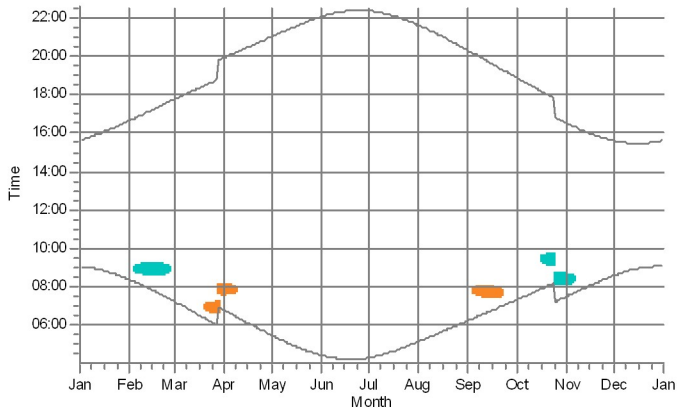
Total times in Receptor wise and WTG wise tables can differ, as a WTG can lead to flicker at 2 or more receptors simultaneously and/or receptors may receive flicker from 2 or more WTGs simultaneously.

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.

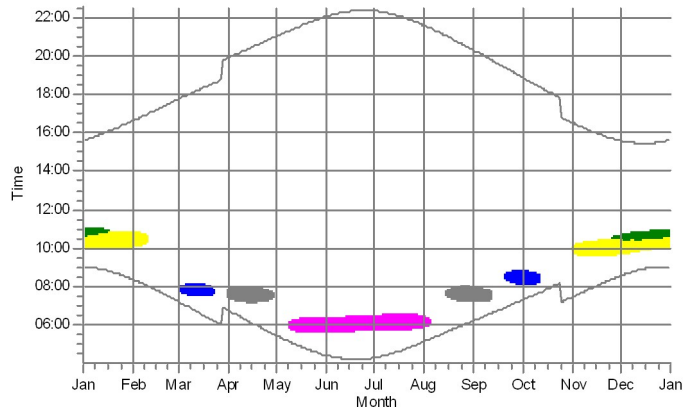
SHADOW - Calendar, graphical

Calculation: Varjutus_realcase_09102024

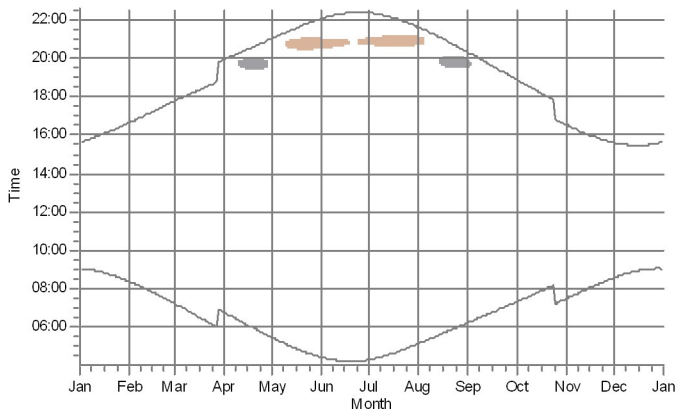
Aude: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (69)



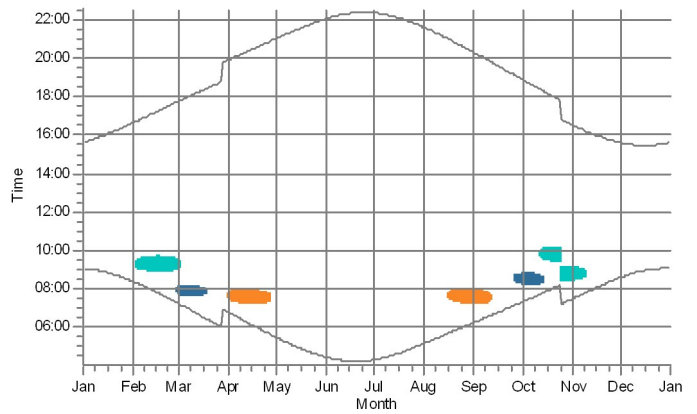
Eeriku-Peetri: Shadow Receptor: 2,0 × 3,0 Azimuth: 0,0° Slope: 90,0° (76)



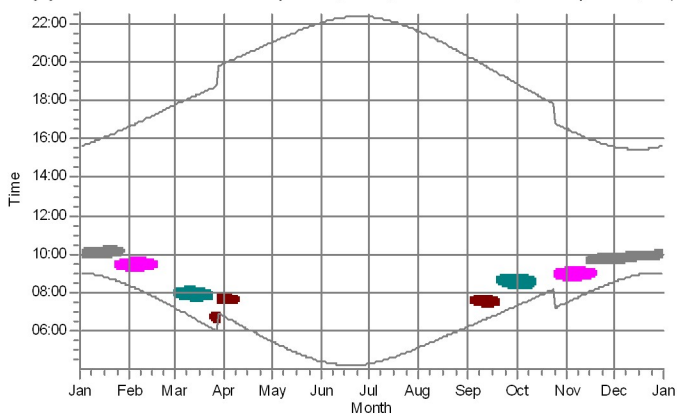
Jaanimäe: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (41)



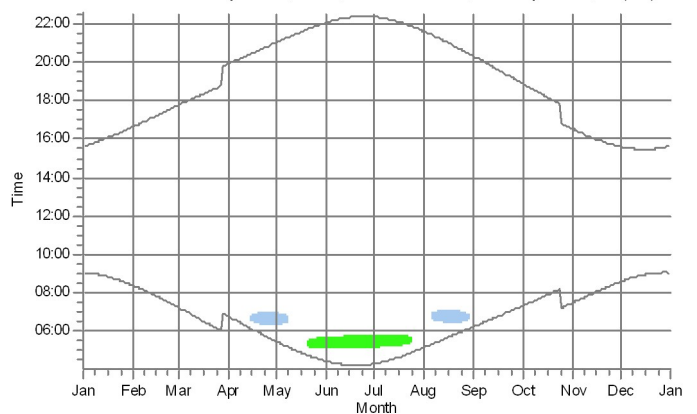
Jõemetsa: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (68)



Kajaja-Vidriku: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (2)



Kastre: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (56)



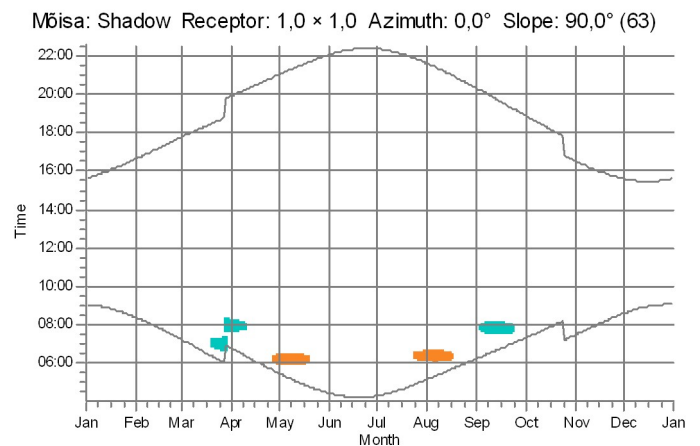
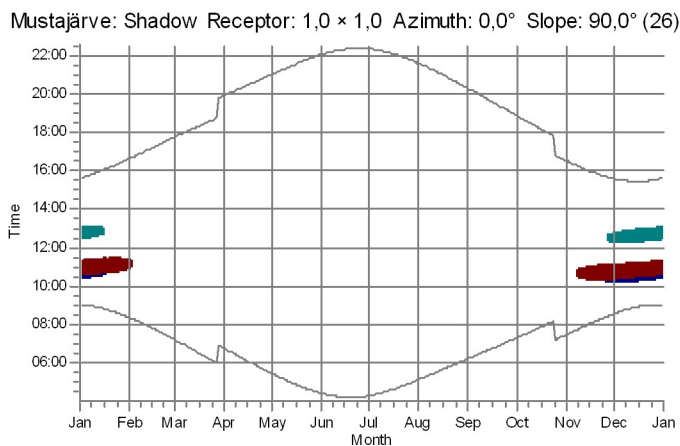
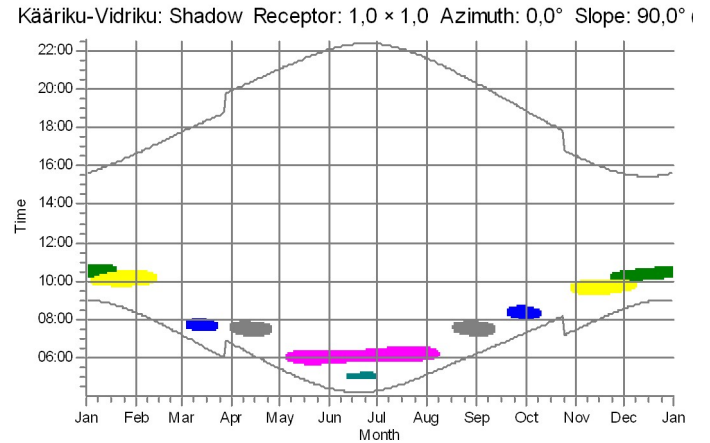
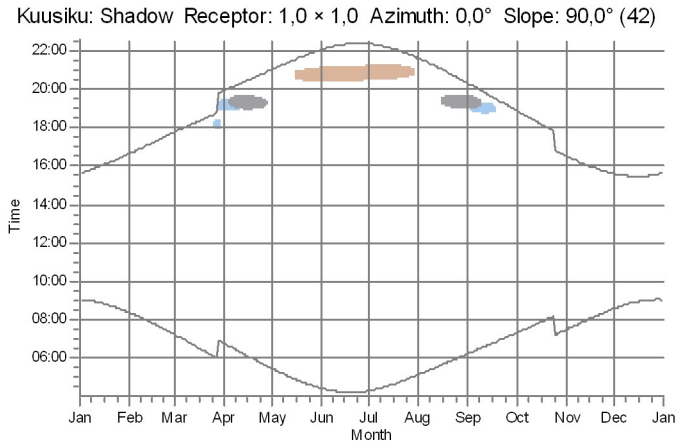
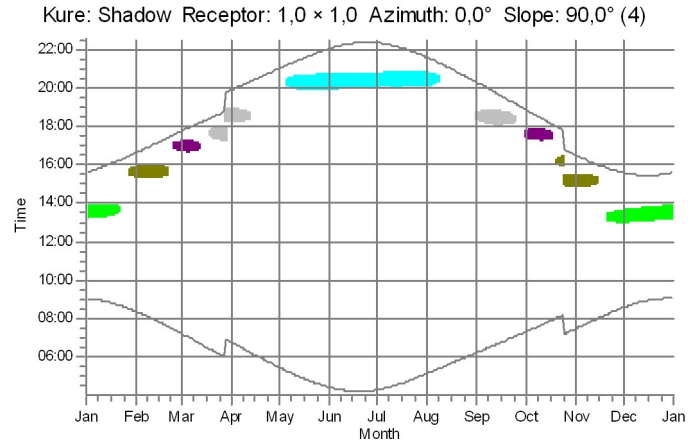
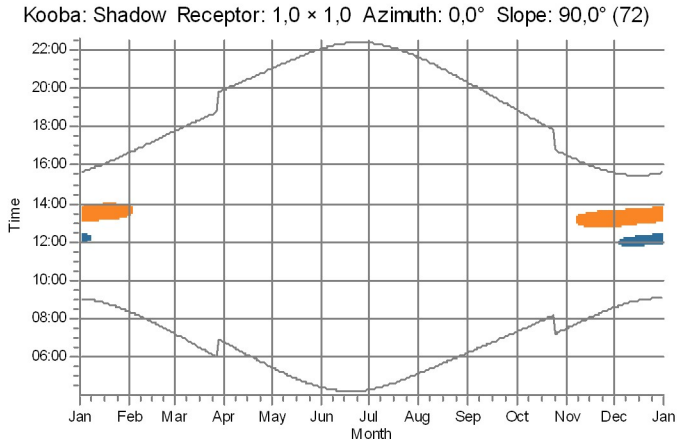
WTGs

- 1: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (1)
- 2: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (2)
- 3: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (4)
- 4: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (5)
- 5: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (6)
- 6: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (7)
- 8: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (8)

- 15: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (20)
- 16: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (22)
- 17: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (15)
- 18: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (16)
- 21: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (13)
- 22: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (14)
- 23: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (23)

SHADOW - Calendar, graphical

Calculation: Varjutus_realcase_09102024



WTGs

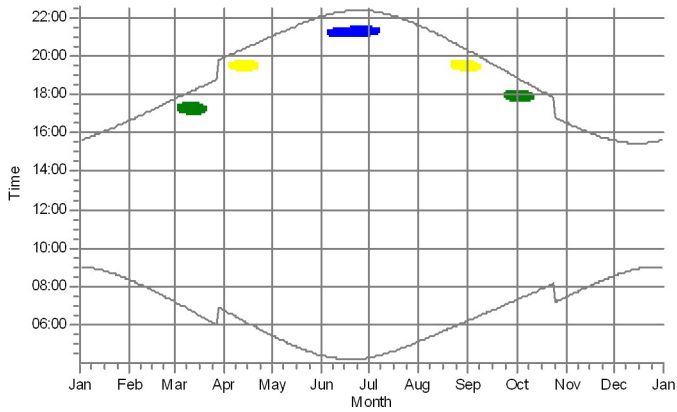
- 1: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (1)
- 2: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (2)
- 3: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (4)
- 4: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (5)
- 5: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (6)
- 6: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (7)
- 7: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (3)
- 8: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (8)
- 9: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (19)
- 10: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (12)

- 11: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (11)
- 12: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (10)
- 13: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (9)
- 15: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (20)
- 16: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (22)
- 17: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (15)
- 21: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (13)
- 22: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (14)
- 23: Teoreetiline V180 7200 180.0 IOI hub: 180.0 m (TOT: 270.0 m) (23)

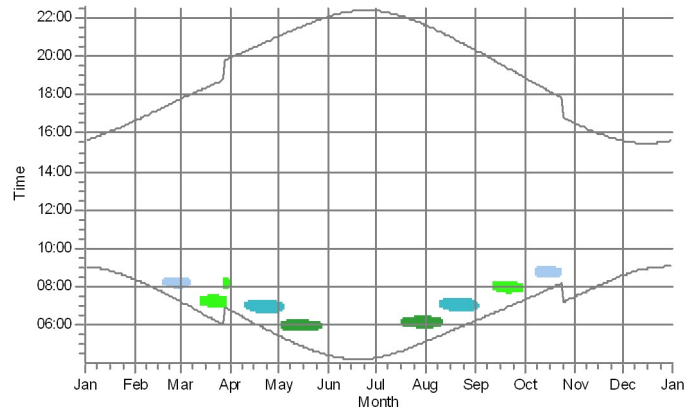
SHADOW - Calendar, graphical

Calculation: Varjutus_realcase_09102024

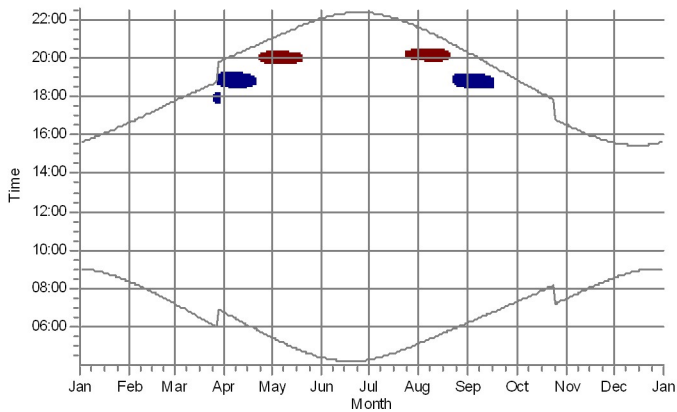
Naadi: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (18)



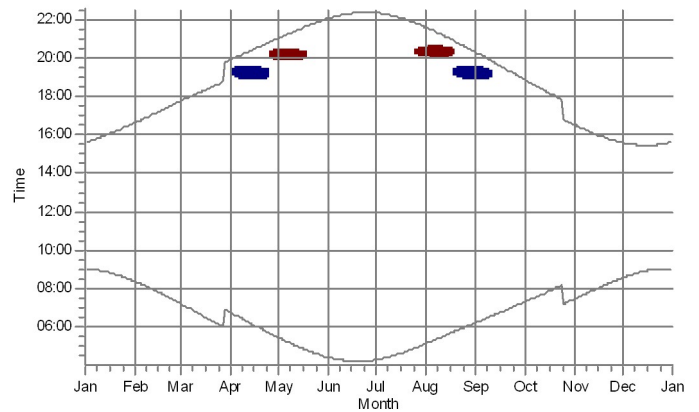
Nilbi: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (57)



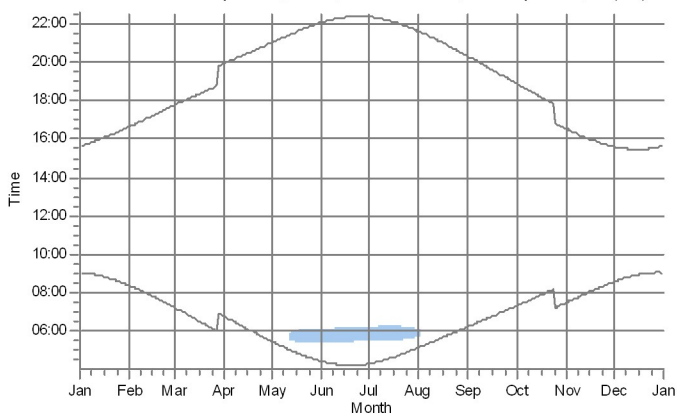
Nurme: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (15)



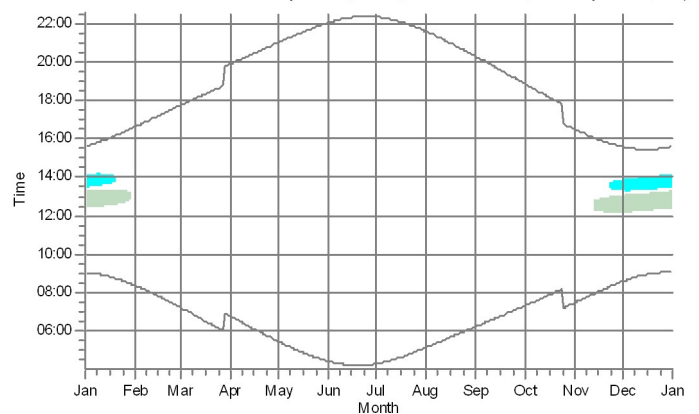
Parmu-Jaani: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (16)



Penno: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (55)



Pustse-Kotteri: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (17)



WTGs

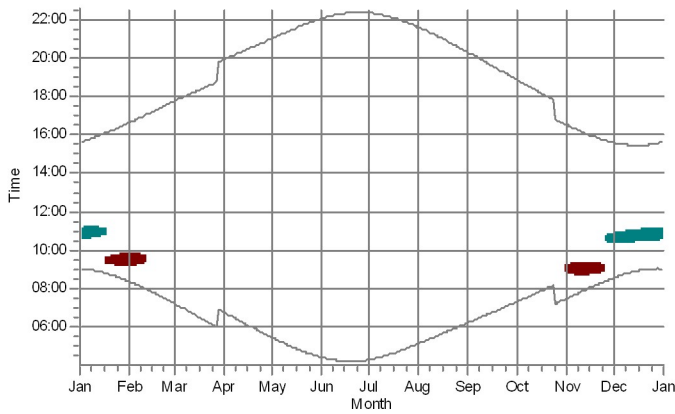
- 1: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (1)
- 2: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (2)
- 3: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (4)
- 7: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (3)
- 8: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (8)
- 13: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (9)

- 14: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (21)
- 15: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (20)
- 18: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (16)
- 19: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (17)
- 20: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (18)

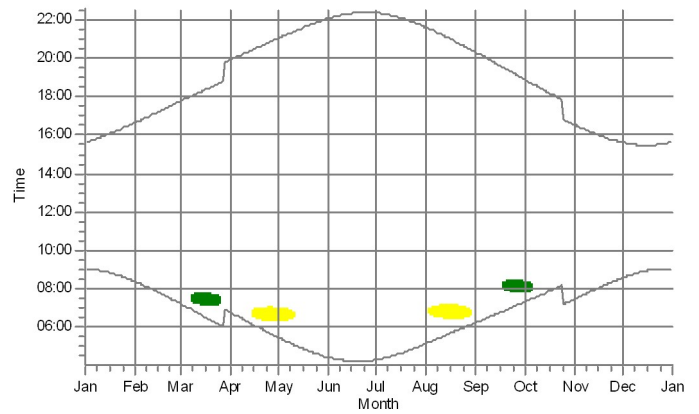
SHADOW - Calendar, graphical

Calculation: Varjutus_realcase_09102024

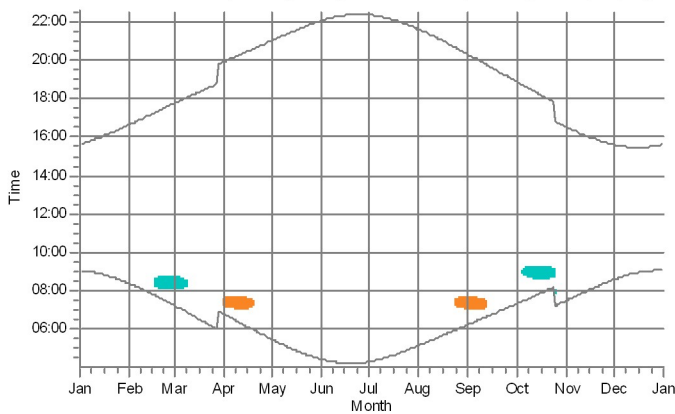
Pärtle-Vidriku, Pärniku: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)



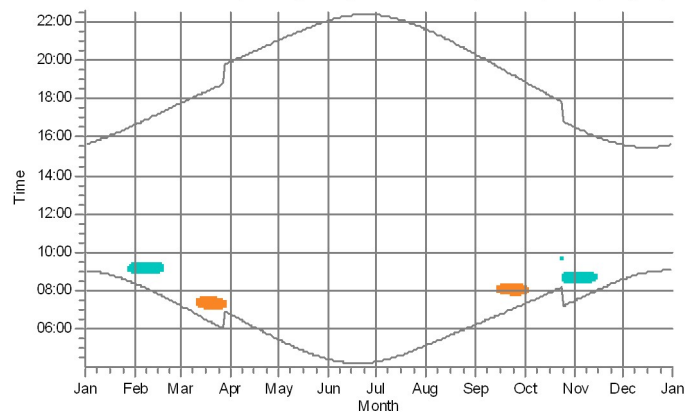
Singa-Ado: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (21)



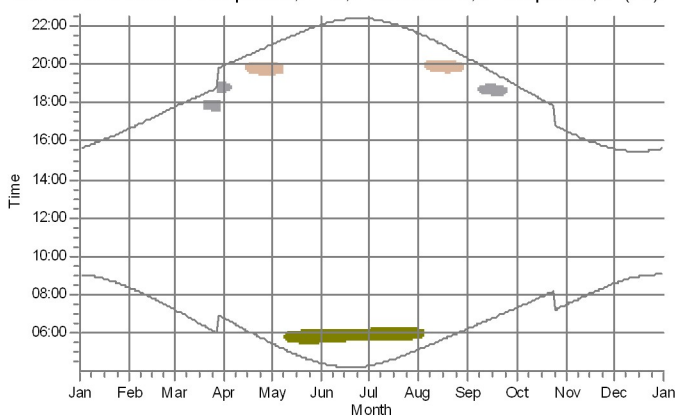
Tamme: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (67)



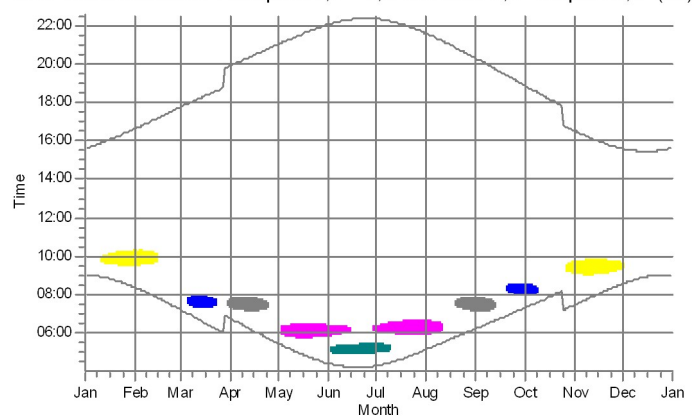
Udumäe: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (71)



Uue-Mati: Shadow Receptor: 2,0 × 3,0 Azimuth: 0,0° Slope: 90,0° (75)



Uue-Vidriku: Shadow Receptor: 1,0 × 1,0 Azimuth: 0,0° Slope: 90,0° (22)



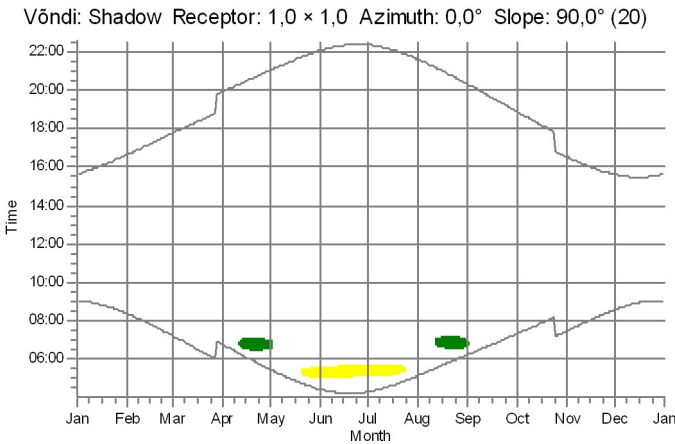
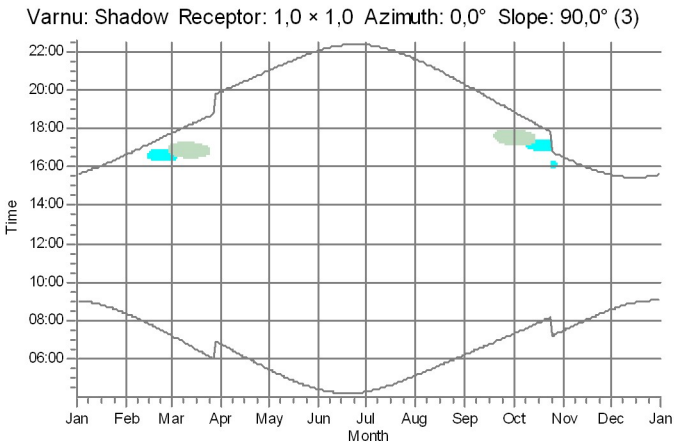
WTGs

- 1: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (1)
- 2: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (2)
- 3: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (4)
- 4: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (5)
- 5: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (6)
- 6: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (7)

- 8: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (8)
- 10: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (12)
- 16: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (22)
- 17: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (15)
- 21: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (13)
- 23: Teoreetiline V180 7200 180.0 IOI hub: 180,0 m (TOT: 270,0 m) (23)

SHADOW - Calendar, graphical

Calculation: Varjutus_realcase_09102024



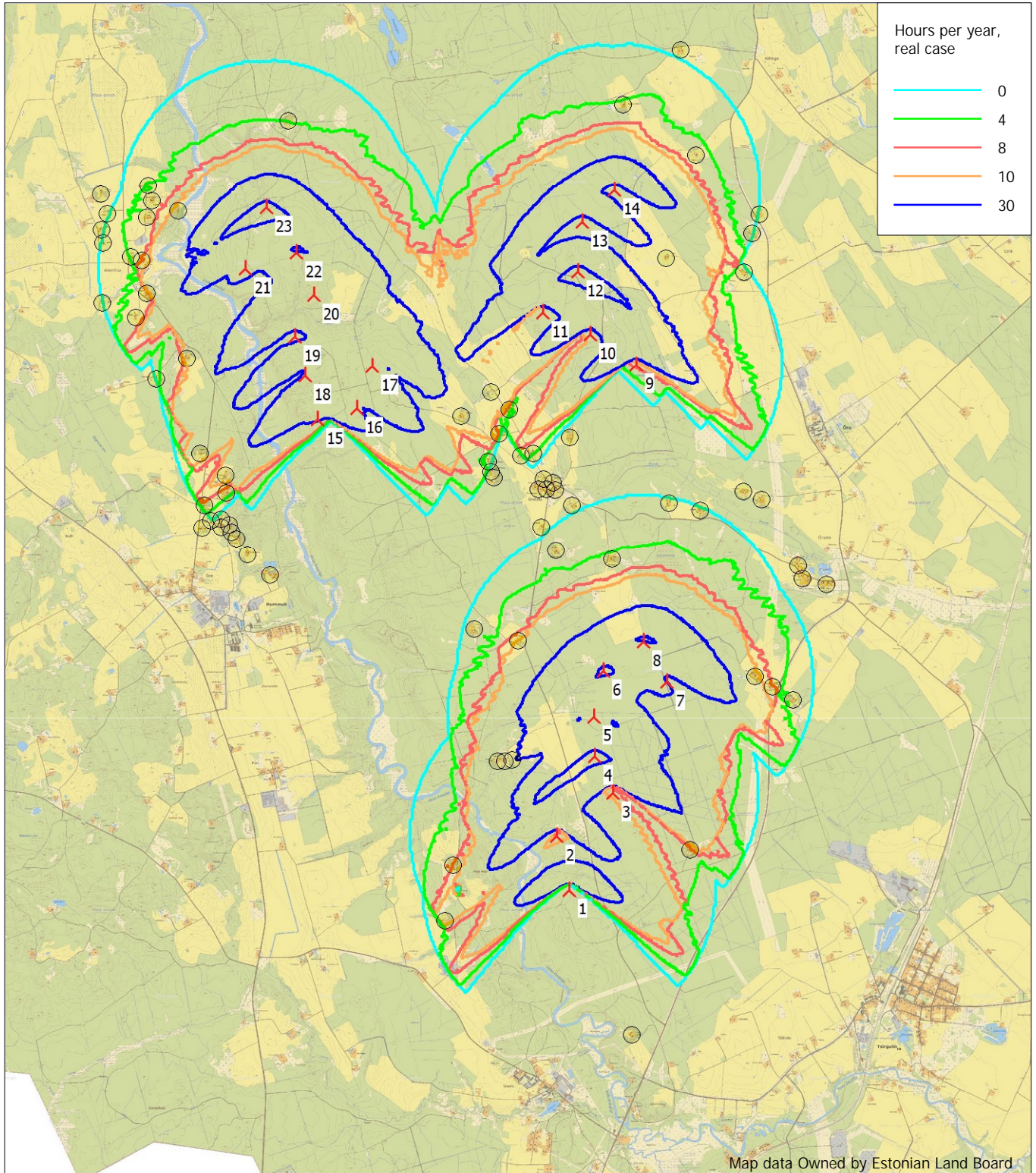
WTGs

- 1: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (1)
2: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (2)

- 13: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (9)
14: Teoreetiline V180 7200 180,0 IOI hub: 180,0 m (TOT: 270,0 m) (21)

SHADOW - Map

Calculation: Varjutus_realcase_09102024



Map: Estonian Land Board Basemaps / Maa-ameti aluskaardid, Print scale 1:70 000, Map center Estonian Lambert L-EST97-EST97 (EE) East: 625 640 North: 6 421 000
 ▲ New WTG ● Shadow receptor
 Flicker map level: Height Contours: CONTOURLINE_ONLINEDATA_0.wpo (1)
 Time step: 3 minutes, Day step: 7 days, Map resolution: 20 m, Visibility resolution: 10 m, Eye height: 1,5 m