

SHADOW - Main Result

Calculation: Real Case

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) [VARNA]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2.61	3.03	3.64	5.32	6.89	7.61	8.86	9.04	7.43	5.21	3.54	2.37

Operational time

N	NNE	ENE	E	ESE	SSE	S	SSW	WSW	W	WNW	NNW	Sum
1,100	811	599	537	466	626	951	657	457	913	862	781	8,760

Monthly aggregation of real case reduction

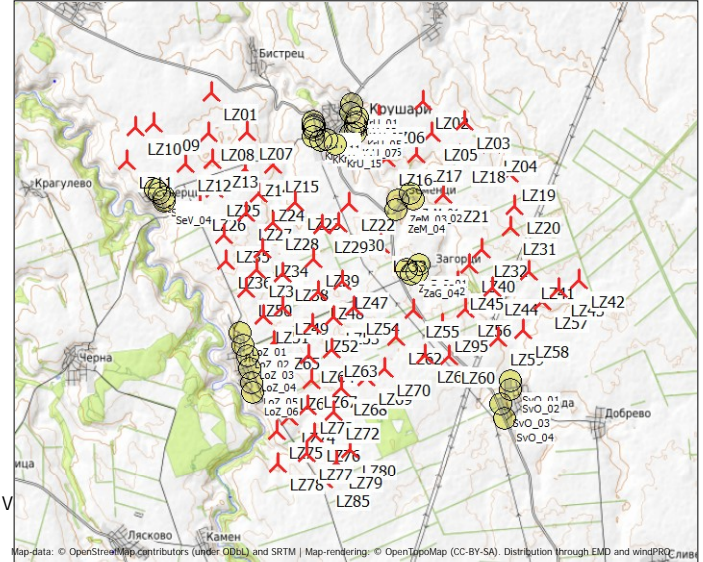
A ZVI (Zones of Visual Influence) calculation is performed before flicker calculation so non visible WTG do not contribute to calculated flicker values. A WTG will be visible if it is visible from any part of the receiver window. The ZVI calculation is based on the following assumptions:

DHM: Project Wizard Elevation Data Grid (EU-DEM: Pan-European DSM - 25m grid - V
Receptor grid resolution: 1.0 m

All coordinates are in

Geo [deg]-WGS84

WTGs



Map data: © OpenStreetMap contributors (under ODbL) and SRTM | Map-rendering: © OpenTopoMap (CC-BY-SA). Distribution through EMD and windPRO, plus

Scale 1:200,000

	Longitude	Latitude	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
LZ01	27.714866° E	43.824626° N	211.1	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ02	27.784451° E	43.822584° N	208.1	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ03	27.797803° E	43.817890° N	207.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ04	27.806632° E	43.812454° N	199.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ05	27.787330° E	43.815272° N	213.0	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ06	27.769493° E	43.819163° N	212.2	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ07	27.726368° E	43.815519° N	208.5	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ08	27.713708° E	43.815324° N	198.4	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ09	27.695726° E	43.817396° N	214.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ10	27.689688° E	43.816464° N	209.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ11	27.686964° E	43.808480° N	210.1	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ12	27.706185° E	43.807863° N	208.5	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ13	27.715232° E	43.808702° N	198.9	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ14	27.725760° E	43.806759° N	212.6	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ15	27.734995° E	43.807452° N	196.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ16	27.772299° E	43.809164° N	204.5	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ17	27.782096° E	43.809881° N	204.6	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ18	27.796294° E	43.809684° N	212.5	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ19	27.813020° E	43.805512° N	213.9	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ20	27.814270° E	43.797849° N	210.0	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ21	27.791097° E	43.800551° N	210.8	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ22	27.760219° E	43.798385° N	214.6	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ23	27.742267° E	43.798574° N	211.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ24	27.730245° E	43.800760° N	203.2	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ25	27.715645° E	43.801930° N	210.8	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ26	27.711038° E	43.798430° N	209.6	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ27	27.725908° E	43.796116° N	216.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ28	27.735055° E	43.794017° N	198.9	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ29	27.751027° E	43.793254° N	199.1	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ30	27.756643° E	43.793736° N	208.4	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ31	27.813133° E	43.792619° N	221.0	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ32	27.803772° E	43.787504° N	219.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ33	27.770259° E	43.788808° N	218.6	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ34	27.731441° E	43.787461° N	210.6	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ35	27.718711° E	43.790803° N	216.3	VESTAS V172-7.2 7200 172.0 !O!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-

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SHADOW - Main Result

Calculation: Real Case

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	Longitude	Latitude	Z	Row data/Description	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.					Calculation distance [m]	RPM [RPM]
			[m]									
LZ36	27.719699° E	43.784739° N	217.3	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ37	27.729330° E	43.782816° N	221.4	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ38	27.737968° E	43.781732° N	211.8	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ39	27.748506° E	43.785186° N	217.8	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ40	27.799537° E	43.783725° N	214.4	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ41	27.819124° E	43.782242° N	213.0	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ42	27.835492° E	43.780164° N	211.2	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ43	27.829164° E	43.778031° N	212.4	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ44	27.807217° E	43.778253° N	212.6	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ45	27.795677° E	43.779791° N	194.8	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ47	27.757537° E	43.779987° N	213.4	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ48	27.749684° E	43.777520° N	212.7	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ49	27.738018° E	43.773719° N	219.6	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ50	27.726033° E	43.777934° N	223.1	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ51	27.731834° E	43.771734° N	220.6	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ52	27.748040° E	43.769709° N	217.9	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ53	27.754774° E	43.771480° N	217.0	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ54	27.761333° E	43.773820° N	216.7	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ55	27.781309° E	43.772985° N	220.4	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ56	27.798274° E	43.773312° N	214.0	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ57	27.823481° E	43.774973° N	205.2	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ58	27.817420° E	43.768469° N	189.9	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ59	27.808989° E	43.766482° N	202.9	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ60	27.792896° E	43.762144° N	226.3	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ61	27.785254° E	43.762374° N	224.7	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ62	27.775571° E	43.766573° N	220.3	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ63	27.754127° E	43.763543° N	221.2	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ64	27.746648° E	43.762456° N	222.2	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ65	27.735415° E	43.765531° N	223.3	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ66	27.739701° E	43.755960° N	223.9	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ67	27.747714° E	43.756410° N	216.5	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ68	27.757231° E	43.754450° N	222.1	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ69	27.765470° E	43.757108° N	225.9	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ70	27.771760° E	43.759237° N	223.2	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ72	27.754796° E	43.748806° N	221.1	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ73	27.746426° E	43.750237° N	212.8	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ74	27.740341° E	43.747759° N	220.3	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ75	27.736523° E	43.744218° N	209.7	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ76	27.748883° E	43.743524° N	222.5	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ77	27.745828° E	43.739066° N	220.1	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ78	27.736530° E	43.736687° N	205.0	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ79	27.755896° E	43.736763° N	229.7	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ80	27.760262° E	43.739966° N	229.7	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ85	27.751708° E	43.732597° N	228.8	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ95	27.790484° E	43.769718° N	224.7	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-

Shadow receptor-Input

No.	Longitude	Latitude	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
			[m]	[m]	[m]	[m]	[°]		[m]
KrU_01	27.761164° E	43.821895° N	195.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_02	27.760649° E	43.819852° N	182.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_03	27.762709° E	43.818799° N	198.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_04	27.762408° E	43.817715° N	196.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_05	27.762194° E	43.816910° N	193.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_06	27.762022° E	43.815331° N	185.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_07	27.760842° E	43.814866° N	174.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_08	27.748353° E	43.817978° N	206.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_09	27.748718° E	43.817034° N	209.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_10	27.748353° E	43.816461° N	209.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_11	27.748547° E	43.815609° N	211.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: Real Case

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No.	Longitude	Latitude	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
			[m]	[m]	[m]	a.g.l.	window		(ZVI) a.g.l.
						[m]	[°]		[m]
KrU_12	27.748332° E	43.814138° N	212.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_13	27.750607° E	43.813225° N	211.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_14	27.752666° E	43.813534° N	210.5	1.0	1.0	1.0	90.0	"Green house mode"	2.0
KrU_15	27.755413° E	43.812543° N	206.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
LoZ_01	27.724214° E	43.767499° N	212.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
LoZ_02	27.725072° E	43.764648° N	215.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
LoZ_03	27.726874° E	43.762044° N	222.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
LoZ_04	27.727604° E	43.759317° N	218.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
LoZ_05	27.728291° E	43.755783° N	214.6	1.0	1.0	1.0	90.0	"Green house mode"	2.0
LoZ_06	27.728376° E	43.753489° N	207.9	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SeV_01	27.696533° E	43.801580° N	214.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SeV_02	27.697692° E	43.800713° N	212.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SeV_03	27.699108° E	43.799752° N	210.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SeV_04	27.699237° E	43.798761° N	206.3	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SvO_01	27.813435° E	43.756217° N	186.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SvO_02	27.813263° E	43.754233° N	189.1	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SvO_03	27.809658° E	43.750761° N	211.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
SvO_04	27.811375° E	43.747289° N	211.8	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZaG_01	27.782879° E	43.783674° N	218.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZaG_02	27.782536° E	43.782001° N	214.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZaG_03	27.779016° E	43.782683° N	220.0	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZaG_04	27.780647° E	43.781443° N	218.2	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZeM_01	27.780390° E	43.800713° N	180.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZeM_02	27.781205° E	43.799319° N	182.4	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZeM_03	27.776055° E	43.799040° N	205.7	1.0	1.0	1.0	90.0	"Green house mode"	2.0
ZeM_04	27.775497° E	43.796748° N	207.7	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]
KrU_01	13:48
KrU_02	14:58
KrU_03	46:49
KrU_04	33:37
KrU_05	18:36
KrU_06	10:12
KrU_07	8:03
KrU_08	4:59
KrU_09	8:07
KrU_10	9:22
KrU_11	11:35
KrU_12	11:40
KrU_13	14:03
KrU_14	13:47
KrU_15	5:14
LoZ_01	10:05
LoZ_02	22:44
LoZ_03	10:32
LoZ_04	15:27
LoZ_05	27:49
LoZ_06	30:51
SeV_01	13:12
SeV_02	9:32
SeV_03	15:24
SeV_04	17:27
SvO_01	7:48
SvO_02	2:29
SvO_03	0:00
SvO_04	0:00

To be continued on next page...

SHADOW - Main Result

Calculation: Real Case

...continued from previous page

Shadow, expected values	
No.	Shadow hours per year [h/year]
ZaG_01	16:20
ZaG_02	19:46
ZaG_03	14:30
ZaG_04	15:54
ZeM_01	13:40
ZeM_02	24:02
ZeM_03	13:09
ZeM_04	18:25

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

No.	Name	Expected [h/year]
LZ01	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ02	VESTAS V172-7.2 7200 172.0 !O!	10:31
LZ03	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ04	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ05	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ06	VESTAS V172-7.2 7200 172.0 !O!	100:19
LZ07	VESTAS V172-7.2 7200 172.0 !O!	9:03
LZ08	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ09	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ10	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ11	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ12	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ13	VESTAS V172-7.2 7200 172.0 !O!	5:32
LZ14	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ15	VESTAS V172-7.2 7200 172.0 !O!	17:20
LZ16	VESTAS V172-7.2 7200 172.0 !O!	22:34
LZ17	VESTAS V172-7.2 7200 172.0 !O!	9:07
LZ18	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ19	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ20	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ21	VESTAS V172-7.2 7200 172.0 !O!	45:53
LZ22	VESTAS V172-7.2 7200 172.0 !O!	13:27
LZ23	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ24	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ25	VESTAS V172-7.2 7200 172.0 !O!	15:44
LZ26	VESTAS V172-7.2 7200 172.0 !O!	19:01
LZ27	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ28	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ29	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ30	VESTAS V172-7.2 7200 172.0 !O!	4:47
LZ31	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ32	VESTAS V172-7.2 7200 172.0 !O!	7:51
LZ33	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ34	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ35	VESTAS V172-7.2 7200 172.0 !O!	3:57
LZ36	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ37	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ38	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ39	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ40	VESTAS V172-7.2 7200 172.0 !O!	11:19
LZ41	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ42	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ43	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ44	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ45	VESTAS V172-7.2 7200 172.0 !O!	14:29
LZ47	VESTAS V172-7.2 7200 172.0 !O!	4:01
LZ48	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ49	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ50	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ51	VESTAS V172-7.2 7200 172.0 !O!	0:00

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SHADOW - Main Result

Calculation: Real Case

...continued from previous page

No.	Name	Expected [h/year]
LZ52	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ53	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ54	VESTAS V172-7.2 7200 172.0 !O!	5:19
LZ55	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ56	VESTAS V172-7.2 7200 172.0 !O!	10:55
LZ57	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ58	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ59	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ60	VESTAS V172-7.2 7200 172.0 !O!	10:17
LZ61	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ62	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ63	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ64	VESTAS V172-7.2 7200 172.0 !O!	17:28
LZ65	VESTAS V172-7.2 7200 172.0 !O!	22:18
LZ66	VESTAS V172-7.2 7200 172.0 !O!	46:05
LZ67	VESTAS V172-7.2 7200 172.0 !O!	11:53
LZ68	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ69	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ70	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ72	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ73	VESTAS V172-7.2 7200 172.0 !O!	8:40
LZ74	VESTAS V172-7.2 7200 172.0 !O!	12:25
LZ75	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ76	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ77	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ78	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ79	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ80	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ85	VESTAS V172-7.2 7200 172.0 !O!	0:00
LZ95	VESTAS V172-7.2 7200 172.0 !O!	0:00

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.