

SHADOW - Main Result

Calculation: Worst Case + 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

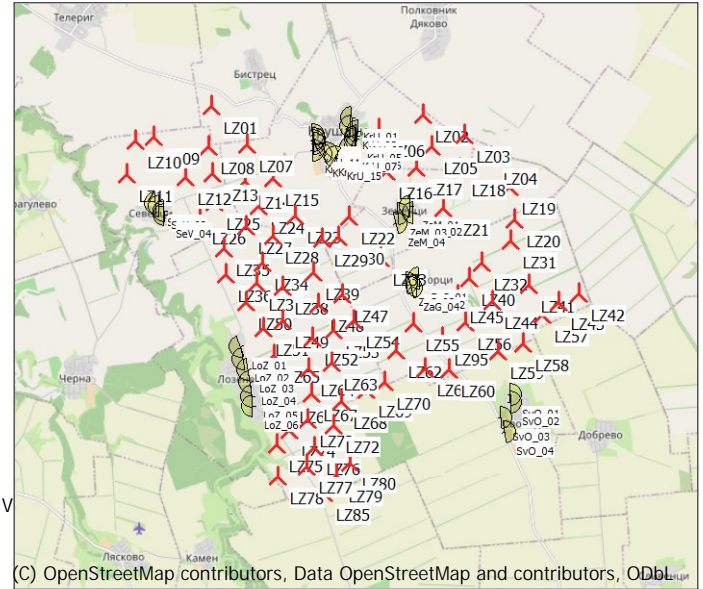
Receptor grid resolution: 1.0 m

Topographic shadow included in calculation

All coordinates are in

Geo [deg]-WGS84

WTGs



Scale 1:200,000
New WTG
Shadow receptor

	Longitude	Latitude	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]
			[m]									
LZ01	27.714866° E	43.824626° N	211.1	VESTAS V172-7.2 7200 172.0 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
LZ16	27.722299° E	43.809164° N	204.5	VESTAS V172-7.2 7200 172.0 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	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 !OI	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-

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SHADOW - Main Result

Calculation: Worst Case + 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]									
LZ35	27.718711° E	43.790803° N	216.3	VESTAS V172-7.2 7200 172.0 !0!	Yes	VESTAS	V172-7.2-7,200	7,200	172.0	200.0	1,901	-
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	43.762458° 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	Degrees from	Slope of	Direction mode	Eye height
						a.g.l.	south cw	window		(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	-96.5	90.0	Fixed direction	2.0
KrU_02	27.760649° E	43.819852° N	182.6	1.0	1.0	1.0	-90.0	90.0	Fixed direction	2.0
KrU_03	27.762709° E	43.818799° N	198.9	1.0	1.0	1.0	-87.1	90.0	Fixed direction	2.0
KrU_04	27.762408° E	43.817715° N	196.2	1.0	1.0	1.0	-91.1	90.0	Fixed direction	2.0
KrU_05	27.762194° E	43.816910° N	193.0	1.0	1.0	1.0	-89.3	90.0	Fixed direction	2.0
KrU_06	27.762022° E	43.815331° N	185.8	1.0	1.0	1.0	-94.2	90.0	Fixed direction	2.0
KrU_07	27.760842° E	43.814866° N	174.9	1.0	1.0	1.0	-65.3	90.0	Fixed direction	2.0
KrU_08	27.748353° E	43.817978° N	206.9	1.0	1.0	1.0	79.3	90.0	Fixed direction	2.0
KrU_09	27.748718° E	43.817034° N	209.4	1.0	1.0	1.0	77.7	90.0	Fixed direction	2.0
KrU_10	27.748353° E	43.816461° N	209.4	1.0	1.0	1.0	-276.3	90.0	Fixed direction	2.0

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SHADOW - Main Result

Calculation: Worst Case + Real Case

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No.	Longitude	Latitude	Z	Width	Height	Elevation	Degrees from	Slope of	Direction mode	Eye height
			[m]	[m]	[m]	a.g.l. [m]	south cw [°]	window [°]		(ZVI) a.g.l. [m]
KrU_11	27.748547° E	43.815609° N	211.2	1.0	1.0	1.0	87.5	90.0	Fixed direction	2.0
KrU_12	27.748332° E	43.814138° N	212.7	1.0	1.0	1.0	89.2	90.0	Fixed direction	2.0
KrU_13	27.750607° E	43.813225° N	211.9	1.0	1.0	1.0	56.5	90.0	Fixed direction	2.0
KrU_14	27.752666° E	43.813534° N	210.5	1.0	1.0	1.0	39.8	90.0	Fixed direction	2.0
KrU_15	27.755413° E	43.812543° N	206.6	1.0	1.0	1.0	-60.9	90.0	Fixed direction	2.0
LoZ_01	27.724214° E	43.767499° N	212.9	1.0	1.0	1.0	-111.8	90.0	Fixed direction	2.0
LoZ_02	27.725072° E	43.764648° N	215.4	1.0	1.0	1.0	-98.1	90.0	Fixed direction	2.0
LoZ_03	27.726874° E	43.762044° N	222.6	1.0	1.0	1.0	-99.0	90.0	Fixed direction	2.0
LoZ_04	27.727604° E	43.759317° N	218.0	1.0	1.0	1.0	-100.3	90.0	Fixed direction	2.0
LoZ_05	27.728291° E	43.755783° N	214.6	1.0	1.0	1.0	-94.1	90.0	Fixed direction	2.0
LoZ_06	27.728376° E	43.753489° N	207.9	1.0	1.0	1.0	-90.4	90.0	Fixed direction	2.0
SeV_01	27.696533° E	43.801580° N	214.0	1.0	1.0	1.0	-92.7	90.0	Fixed direction	2.0
SeV_02	27.697692° E	43.800713° N	212.8	1.0	1.0	1.0	-92.0	90.0	Fixed direction	2.0
SeV_03	27.699108° E	43.799752° N	210.7	1.0	1.0	1.0	-92.6	90.0	Fixed direction	2.0
SeV_04	27.699237° E	43.798761° N	206.3	1.0	1.0	1.0	-91.0	90.0	Fixed direction	2.0
SvO_01	27.813435° E	43.756217° N	186.8	1.0	1.0	1.0	84.6	90.0	Fixed direction	2.0
SvO_02	27.813263° E	43.754233° N	189.1	1.0	1.0	1.0	-274.8	90.0	Fixed direction	2.0
SvO_03	27.809658° E	43.750761° N	211.0	1.0	1.0	1.0	86.6	90.0	Fixed direction	2.0
SvO_04	27.811375° E	43.747289° N	211.8	1.0	1.0	1.0	-277.3	90.0	Fixed direction	2.0
ZaG_01	27.782879° E	43.783674° N	218.2	1.0	1.0	1.0	-94.9	90.0	Fixed direction	2.0
ZaG_02	27.782536° E	43.782001° N	214.4	1.0	1.0	1.0	-83.7	90.0	Fixed direction	2.0
ZaG_03	27.779016° E	43.782683° N	220.0	1.0	1.0	1.0	85.2	90.0	Fixed direction	2.0
ZaG_04	27.780647° E	43.781443° N	218.2	1.0	1.0	1.0	76.5	90.0	Fixed direction	2.0
ZeM_01	27.780390° E	43.800713° N	180.4	1.0	1.0	1.0	-91.1	90.0	Fixed direction	2.0
ZeM_02	27.781205° E	43.799319° N	182.4	1.0	1.0	1.0	-90.0	90.0	Fixed direction	2.0
ZeM_03	27.776055° E	43.799040° N	205.7	1.0	1.0	1.0	-274.9	90.0	Fixed direction	2.0
ZeM_04	27.775497° E	43.796748° N	207.7	1.0	1.0	1.0	74.0	90.0	Fixed direction	2.0

Calculation Results

Shadow receptor

No.	Shadow, worst case		Shadow, expected values	
	Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]
KrU_01	52:02	95	0:52	13:48
KrU_02	48:44	72	0:53	14:58
KrU_03	151:28	180	1:28	46:49
KrU_04	121:06	187	1:07	33:37
KrU_05	76:05	182	0:38	18:35
KrU_06	46:53	108	0:38	10:12
KrU_07	34:55	87	0:36	8:03
KrU_08	8:17	32	0:22	2:05
KrU_09	25:21	76	0:27	4:57
KrU_10	32:06	86	0:30	6:14
KrU_11	41:11	106	0:30	8:10
KrU_12	33:39	91	0:32	7:37
KrU_13	15:50	44	0:29	3:24
KrU_14	12:24	37	0:26	2:42
KrU_15	13:17	37	0:28	3:12
LoZ_01	39:49	99	0:42	10:03
LoZ_02	84:09	184	0:47	22:44
LoZ_03	43:09	115	0:33	10:32
LoZ_04	60:47	146	0:54	15:26
LoZ_05	105:29	225	0:52	27:48
LoZ_06	110:22	221	0:43	30:50
SeV_01	46:42	128	0:33	13:12
SeV_02	34:15	84	0:35	9:32
SeV_03	55:46	137	0:40	15:24
SeV_04	60:23	144	0:41	17:27
SvO_01	23:16	80	0:24	7:48
SvO_02	7:28	33	0:17	2:29
SvO_03	0:00	0	0:00	0:00

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SHADOW - Main Result

Calculation: Worst Case + Real Case

...continued from previous page

No.	Shadow, worst case		Max shadow hours per day [h/day]	Shadow, expected values
	Shadow hours per year [h/year]	Shadow days per year [days/year]		Shadow hours per year [h/year]
SvO_04	0:00	0	0:00	0:00
ZaG_01	65:03	172	0:36	16:20
ZaG_02	76:12	217	0:36	19:46
ZaG_03	24:17	81	0:24	5:10
ZaG_04	18:29	64	0:23	4:15
ZeM_01	35:59	62	0:45	11:13
ZeM_02	69:06	122	0:49	21:33
ZeM_03	25:57	72	0:31	6:45
ZeM_04	30:54	81	0:32	9:04

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

No.	Name	Worst case [h/year]	Expected [h/year]
LZ01	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ02	VESTAS V172-7.2 7200 172.0 !O!	34:04	10:31
LZ03	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ04	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ05	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ06	VESTAS V172-7.2 7200 172.0 !O!	258:52	77:34
LZ07	VESTAS V172-7.2 7200 172.0 !O!	32:00	9:03
LZ08	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ09	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ10	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ11	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ12	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ13	VESTAS V172-7.2 7200 172.0 !O!	17:45	5:32
LZ14	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ15	VESTAS V172-7.2 7200 172.0 !O!	80:43	15:17
LZ16	VESTAS V172-7.2 7200 172.0 !O!	101:36	21:22
LZ17	VESTAS V172-7.2 7200 172.0 !O!	39:59	9:07
LZ18	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ19	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ20	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ21	VESTAS V172-7.2 7200 172.0 !O!	104:01	32:20
LZ22	VESTAS V172-7.2 7200 172.0 !O!	35:59	11:01
LZ23	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ24	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ25	VESTAS V172-7.2 7200 172.0 !O!	51:57	15:44
LZ26	VESTAS V172-7.2 7200 172.0 !O!	68:21	19:01
LZ27	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ28	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ29	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ30	VESTAS V172-7.2 7200 172.0 !O!	20:52	4:47
LZ31	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ32	VESTAS V172-7.2 7200 172.0 !O!	25:17	7:51
LZ33	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ34	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ35	VESTAS V172-7.2 7200 172.0 !O!	18:16	3:57
LZ36	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ37	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ38	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ39	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ40	VESTAS V172-7.2 7200 172.0 !O!	30:42	9:16
LZ41	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ42	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ43	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ44	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ45	VESTAS V172-7.2 7200 172.0 !O!	43:54	11:02
LZ47	VESTAS V172-7.2 7200 172.0 !O!	15:34	4:01
LZ48	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ49	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ50	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00

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SHADOW - Main Result

Calculation: Worst Case + Real Case

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
LZ51	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ52	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ53	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ54	VESTAS V172-7.2 7200 172.0 !O!	26:51	5:19
LZ55	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ56	VESTAS V172-7.2 7200 172.0 !O!	40:32	7:47
LZ57	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ58	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ59	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ60	VESTAS V172-7.2 7200 172.0 !O!	30:44	10:17
LZ61	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ62	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ63	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ64	VESTAS V172-7.2 7200 172.0 !O!	59:31	17:27
LZ65	VESTAS V172-7.2 7200 172.0 !O!	74:44	22:17
LZ66	VESTAS V172-7.2 7200 172.0 !O!	173:43	46:04
LZ67	VESTAS V172-7.2 7200 172.0 !O!	42:30	11:53
LZ68	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ69	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ70	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ72	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ73	VESTAS V172-7.2 7200 172.0 !O!	37:00	8:38
LZ74	VESTAS V172-7.2 7200 172.0 !O!	60:17	12:24
LZ75	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ76	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ77	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ78	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ79	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ80	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ85	VESTAS V172-7.2 7200 172.0 !O!	0:00	0:00
LZ95	VESTAS V172-7.2 7200 172.0 !O!	0:00	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.