



White Hill Wind Farm

Environmental Impact Assessment Report

Annex 12.3: Cumulative Shadow Flicker Assessment

White Hill Wind Limited

Galetech Energy Services

Clondargan, Stradone, Co. Cavan Ireland

Telephone +353 49 555 5050

www.galetechenergy.com



SHADOW - Main Result

Calculation: Shadow Flicker Predictions - Cumulative
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) [KILKENNY]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.68 2.20 3.08 4.72 5.31 4.94 4.67 4.36 3.78 2.74 2.15 1.32

Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
488 328 382 361 416 595 910 1,221 1,099 1,176 996 788 8,760

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: Elevation Grid Data Object: WhiteHills Wind Farm (Shadow Flicker)
Obstacles used in calculation
Receptor grid resolution: 1.0 m

All coordinates are in
Irish ITM-IRENET95 (IE), geocentric, GRS80

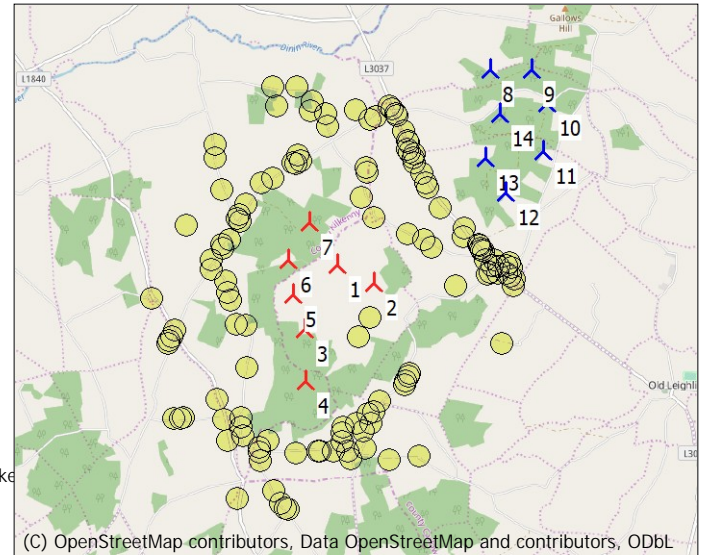
WTGs

WTG ID	Easting	Northing	Z [m]	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]
1	661,462	667,051	250.1	T01	Yes	VESTAS	V162-7,200	7,200	162.0	104.0	2,041	12.1
2	661,941	666,818	258.1	T02	Yes	VESTAS	V162-7,200	7,200	162.0	104.0	2,041	12.1
3	661,032	666,188	267.6	T03	Yes	VESTAS	V162-7,200	7,200	162.0	104.0	2,041	12.1
4	661,051	665,506	275.9	T04	Yes	VESTAS	V162-7,200	7,200	162.0	104.0	2,041	12.1
5	660,870	666,656	254.7	T05	Yes	VESTAS	V162-7,200	7,200	162.0	104.0	2,041	12.1
6	660,802	667,111	240.5	T06	Yes	VESTAS	V162-7,200	7,200	162.0	104.0	2,041	12.1
7	661,078	667,603	239.2	T07	Yes	VESTAS	V162-7,200	7,200	162.0	104.0	2,041	12.1
8	663,438	669,656	251.3	Seskin T01	Yes	Siemens Gamesa	SG 6.0-155-6,600	6,600	155.0	102.5	2,007	9.3
9	664,001	669,665	268.9	Seskin T02	Yes	Siemens Gamesa	SG 6.0-155-6,600	6,600	155.0	102.5	2,007	9.3
10	664,196	669,230	259.8	Seskin T03	Yes	Siemens Gamesa	SG 6.0-155-6,600	6,600	155.0	102.5	2,007	9.3
11	664,169	668,587	255.9	Seskin T04	Yes	Siemens Gamesa	SG 6.0-155-6,600	6,600	155.0	102.5	2,007	9.3
12	663,674	668,034	253.8	Seskin T05	Yes	Siemens Gamesa	SG 6.0-155-6,600	6,600	155.0	102.5	2,007	9.3
13	663,395	668,491	243.0	Seskin T06	Yes	Siemens Gamesa	SG 6.0-155-6,600	6,600	155.0	102.5	2,007	9.3
14	663,582	669,086	251.7	Seskin T07	Yes	Siemens Gamesa	SG 6.0-155-6,600	6,600	155.0	102.5	2,007	9.3

Shadow receptor-Input

No.	Name	Easting	Northing	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
A	H1	661,892	666,369	281.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
B	H2	661,749	666,113	294.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
C	H3	660,256	666,246	261.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
D	H4	660,590	668,185	259.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
E	H5	661,760	667,947	217.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
F	H6	662,379	667,470	250.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
G	H7	661,927	667,686	216.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
H	H8	661,561	664,900	305.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
I	H9	660,890	668,373	252.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
J	H10	660,276	665,680	267.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
K	H11	660,155	667,612	267.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
L	H12	660,849	668,397	253.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
M	H13	660,014	667,368	267.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
N	H14	660,046	666,559	267.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
O	H15	660,951	668,423	246.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
P	H16	660,433	668,127	266.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
Q	H17	661,545	664,831	307.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0

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SHADOW - Main Result

Calculation: Shadow Flicker Predictions - Cumulative

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No.	Name	Easting	Northing	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
				[m]	[m]	[m]	a.g.l.	window		(ZVI) a.g.l.
							[m]	[°]		[m]
R	H18	660,123	666,247	262.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
S	H19	660,005	666,660	269.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
T	H20	661,732	664,964	309.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
U	H21	659,941	667,251	266.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
V	H22	660,236	667,831	269.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
W	H23	660,114	667,649	270.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
X	H24	659,981	666,812	269.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
Y	H25	662,597	667,403	261.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
Z	H26	660,143	667,700	269.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AA	H27	662,692	667,301	265.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AB	H28	659,926	667,303	266.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AC	H29	660,909	668,494	247.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AD	H30	660,563	664,717	273.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AE	H31	661,256	664,591	297.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AF	H32	661,893	665,079	308.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AG	H33	661,222	664,577	295.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AH	H34	661,551	664,702	311.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AI	H35	660,940	664,553	286.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AJ	H36	660,195	665,011	271.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AK	H37	661,962	665,119	304.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AL	H38	661,433	664,581	307.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AM	H39	661,825	664,859	312.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AN	H40	662,034	665,253	297.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AO	H41	659,784	667,090	267.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AP	H42	661,834	668,286	201.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AQ	H43	661,929	664,966	311.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AR	H44	659,776	666,969	265.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AS	H45	660,211	664,889	271.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AT	H46	661,831	668,343	200.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AU	H47	660,446	664,619	266.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AV	H48	661,627	664,584	312.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AW	H49	663,029	666,798	270.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AX	H50	661,625	664,579	312.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AY	H51	660,231	664,775	270.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
AZ	H52	660,447	664,553	266.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BA	H53	661,850	664,632	311.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BB	H54	659,977	664,987	263.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BC	H55	661,672	664,484	309.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BD	H56	659,878	665,256	256.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BE	H57	660,474	664,444	265.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BF	H58	659,916	668,025	274.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BG	H59	662,431	665,630	287.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BH	H60	660,034	664,712	264.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BI	H61	661,315	668,880	231.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BJ	H62	662,362	665,477	291.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BK	H63	662,416	665,583	288.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BL	H64	662,806	667,827	262.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BM	H65	662,381	665,528	289.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BN	H66	663,126	667,451	268.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BO	H67	663,129	667,556	264.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BP	H68	659,453	667,554	250.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BQ	H69	662,644	668,087	254.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BR	H70	661,276	669,054	239.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BS	H71	663,325	667,345	271.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BT	H72	663,330	667,335	271.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BU	H73	662,615	668,141	252.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BV	H74	661,076	669,089	245.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BW	H75	663,363	667,295	272.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BX	H76	663,440	666,951	278.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BY	H77	663,374	667,280	273.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
BZ	H78	659,818	668,444	259.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CA	H79	663,423	667,148	278.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CB	H80	663,398	667,254	274.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CC	H81	660,647	664,037	265.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CD	H82	662,182	664,482	307.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0

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SHADOW - Main Result

Calculation: Shadow Flicker Predictions - Cumulative

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No.	Name	Easting	Northing	Z	Width	Height	Elevation	Slope of	Direction mode	Eye height
				[m]	[m]	[m]	a.g.l.	window		(ZVI) a.g.l.
							[m]	[°]		[m]
CE	H83	663,481	666,973	279.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CF	H84	662,559	668,274	247.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CG	H85	661,870	668,983	198.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CH	H86	663,516	667,064	279.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CI	H87	661,668	669,099	206.1	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CJ	H88	662,462	668,423	243.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CK	H89	661,093	669,213	246.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CL	H90	660,618	669,149	253.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CM	H91	659,822	668,627	259.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CN	H92	662,364	668,591	234.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CO	H93	662,444	668,478	240.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CP	H94	662,394	668,552	235.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CQ	H95	659,320	666,161	229.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CR	H96	663,538	667,148	280.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CS	H97	663,578	666,967	282.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CT	H98	661,933	669,017	191.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CU	H99	660,750	663,877	265.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CV	H100	663,589	667,055	282.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CW	H101	662,465	668,534	233.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CX	H102	659,442	665,001	277.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CY	H103	662,383	668,680	228.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
CZ	H104	662,369	668,713	226.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DA	H105	659,269	666,067	230.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DB	H106	660,807	663,812	264.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DC	H107	660,840	663,793	264.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DD	H108	659,398	664,990	280.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DE	H109	662,306	668,832	219.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DF	H110	659,237	666,022	234.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DG	H111	663,694	666,963	281.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DH	H112	663,696	667,074	282.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DI	H113	659,223	665,987	237.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DJ	H114	660,890	669,399	248.8	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DK	H115	662,573	664,535	306.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DL	H116	660,169	663,928	245.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DM	H117	659,315	664,995	280.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DN	H118	663,753	666,934	278.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DO	H119	663,743	667,105	282.0	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DP	H120	662,223	669,030	201.2	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DQ	H121	663,767	667,051	280.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DR	H122	662,216	669,063	198.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DS	H123	662,148	669,121	194.7	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DT	H124	660,574	669,391	249.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DU	H125	663,806	666,895	273.4	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DV	H126	662,119	669,157	192.9	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DW	H127	658,998	666,578	214.5	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DX	H128	663,656	666,045	244.3	2.5	2.5	0.5	90.0	"Green house mode"	3.0
DY	H129	663,794	666,808	269.6	2.5	2.5	0.5	90.0	"Green house mode"	3.0

Calculation Results

Shadow receptor

No.	Name	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]
A	H1	82:11	235	0:43	13:36
B	H2	100:47	220	0:52	18:08
C	H3	118:58	257	0:48	20:50
D	H4	70:56	89	1:00	8:53
E	H5	102:39	218	0:53	15:31
F	H6	126:06	240	1:09	19:06
G	H7	172:26	275	1:18	26:41
H	H8	0:00	0	0:00	0:00
I	H9	0:00	0	0:00	0:00
J	H10	67:46	128	0:48	12:15

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow Flicker Predictions - Cumulative

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No.	Name	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]
K	H11	83:58	186	0:48	12:31
L	H12	0:00	0	0:00	0:00
M	H13	84:24	197	0:52	12:50
N	H14	101:43	253	0:46	17:29
O	H15	0:00	0	0:00	0:00
P	H16	54:35	111	0:47	7:22
Q	H17	0:00	0	0:00	0:00
R	H18	112:02	228	0:51	20:35
S	H19	120:08	276	0:49	21:07
T	H20	4:24	35	0:11	0:48
U	H21	73:12	214	0:42	11:43
V	H22	70:28	151	0:44	9:36
W	H23	72:14	178	0:44	10:37
X	H24	102:02	291	0:43	18:02
Y	H25	100:14	257	0:52	16:56
Z	H26	71:41	171	0:45	10:24
AA	H27	59:03	179	0:44	9:57
AB	H28	70:29	202	0:42	11:00
AC	H29	0:00	0	0:00	0:00
AD	H30	0:00	0	0:00	0:00
AE	H31	0:00	0	0:00	0:00
AF	H32	45:51	96	0:40	8:46
AG	H33	0:00	0	0:00	0:00
AH	H34	0:00	0	0:00	0:00
AI	H35	0:00	0	0:00	0:00
AJ	H36	46:40	84	0:42	9:08
AK	H37	29:30	74	0:38	5:47
AL	H38	0:00	0	0:00	0:00
AM	H39	0:01	1	0:01	0:00
AN	H40	20:38	54	0:37	4:02
AO	H41	48:21	169	0:34	8:23
AP	H42	58:01	114	0:43	8:01
AQ	H43	29:02	74	0:34	5:28
AR	H44	62:45	212	0:34	10:37
AS	H45	15:36	51	0:26	2:58
AT	H46	55:51	106	0:41	7:32
AU	H47	0:00	0	0:00	0:00
AV	H48	0:00	0	0:00	0:00
AW	H49	20:36	55	0:34	4:05
AX	H50	0:00	0	0:00	0:00
AY	H51	0:00	0	0:00	0:00
AZ	H52	0:00	0	0:00	0:00
BA	H53	0:00	0	0:00	0:00
BB	H54	31:52	86	0:34	6:23
BC	H55	0:00	0	0:00	0:00
BD	H56	18:57	68	0:32	3:47
BE	H57	0:00	0	0:00	0:00
BF	H58	33:56	118	0:29	4:27
BG	H59	23:50	118	0:25	4:28
BH	H60	4:59	34	0:13	0:56
BI	H61	0:00	0	0:00	0:00
BJ	H62	20:48	84	0:26	4:04
BK	H63	21:24	111	0:25	4:02
BL	H64	77:07	223	0:41	13:05
BM	H65	19:39	98	0:26	3:48
BN	H66	13:34	57	0:27	2:09
BO	H67	14:04	67	0:27	2:13
BP	H68	19:54	86	0:24	3:13
BQ	H69	102:04	237	0:54	19:12
BR	H70	0:00	0	0:00	0:00
BS	H71	8:52	45	0:22	1:27
BT	H72	8:50	45	0:22	1:27
BU	H73	109:05	254	0:45	20:23
BV	H74	0:00	0	0:00	0:00

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow Flicker Predictions - Cumulative

...continued from previous page

No.	Name	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]
BW	H75	8:09	44	0:21	1:21
BX	H76	6:56	41	0:20	1:16
BY	H77	7:55	44	0:21	1:19
BZ	H78	7:34	34	0:22	1:06
CA	H79	6:58	39	0:20	1:11
CB	H80	7:30	42	0:21	1:15
CC	H81	0:00	0	0:00	0:00
CD	H82	0:00	0	0:00	0:00
CE	H83	6:15	39	0:19	1:08
CF	H84	84:33	272	0:43	14:49
CG	H85	27:01	100	0:23	5:05
CH	H86	4:18	24	0:18	0:45
CI	H87	17:47	80	0:20	3:13
CJ	H88	83:01	241	0:40	15:19
CK	H89	0:00	0	0:00	0:00
CL	H90	0:00	0	0:00	0:00
CM	H91	7:35	37	0:21	1:04
CN	H92	75:32	234	0:47	13:42
CO	H93	80:21	222	0:44	15:05
CP	H94	76:16	231	0:47	14:01
CQ	H95	41:01	156	0:24	7:44
CR	H96	3:57	22	0:17	0:40
CS	H97	3:45	22	0:17	0:40
CT	H98	38:15	144	0:23	6:50
CU	H99	0:00	0	0:00	0:00
CV	H100	3:34	21	0:16	0:38
CW	H101	85:55	230	0:50	15:58
CX	H102	10:29	67	0:20	2:04
CY	H103	79:32	246	0:45	14:14
CZ	H104	74:40	240	0:42	13:14
DA	H105	35:22	144	0:23	6:44
DB	H106	0:00	0	0:00	0:00
DC	H107	0:00	0	0:00	0:00
DD	H108	10:37	68	0:19	2:05
DE	H109	79:27	280	0:32	13:41
DF	H110	31:01	138	0:22	5:55
DG	H111	2:58	20	0:15	0:31
DH	H112	2:46	19	0:14	0:29
DI	H113	27:41	132	0:21	5:17
DJ	H114	0:00	0	0:00	0:00
DK	H115	10:21	58	0:15	1:56
DL	H116	0:00	0	0:00	0:00
DM	H117	4:44	26	0:18	0:57
DN	H118	2:45	18	0:14	0:29
DO	H119	2:27	18	0:13	0:25
DP	H120	98:47	289	0:38	17:12
DQ	H121	2:25	18	0:13	0:25
DR	H122	88:45	270	0:39	15:30
DS	H123	63:24	209	0:28	11:04
DT	H124	0:00	0	0:00	0:00
DU	H125	2:45	18	0:14	0:29
DV	H126	56:07	185	0:28	9:55
DW	H127	11:44	54	0:20	2:20
DX	H128	7:03	34	0:19	1:23
DY	H129	3:05	20	0:15	0:34

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

No.	Name	Worst case [h/year]	Expected [h/year]
1	T01	286:05	43:19
2	T02	260:18	39:07
3	T03	264:51	45:52
4	T04	349:43	60:02

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Project:

Whitehills Wind Farm

Licensed user:

Galetech Energy Services
Clondargan, Stradone
IE-CO. CAVAN H12 NV06
+353 49 5555050

Calculated:

19/05/2022 16:09/3.5.552

SHADOW - Main Result

Calculation: Shadow Flicker Predictions - Cumulative

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
5	T05	321:58	55:32
6	T06	341:22	55:22
7	T07	392:48	62:30
8	Seskin T01	70:41	13:59
9	Seskin T02	54:38	10:49
10	Seskin T03	51:03	10:12
11	Seskin T04	57:22	11:02
12	Seskin T05	161:20	29:12
13	Seskin T06	208:59	39:07
14	Seskin T07	116:11	22:56

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.

