GALETECH
ENERGY SERVICES

Cush Wind Farm
Phase II

Environmental Impact Assessment Report

Annex 13.3: Cumulative Shadow Flicker Modelling Results

Cush Wind Limited

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Clondargan, Stradone
IE-CO. CAVAN H12 NV06
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Calculated:
11/09/2026 16:27/4.2.303

SHADOW - Main Result

Calculation: Cush - Enercon E175 - Cumulative

Assumptions for shadow calculations

Maximum distance for influence 1. WTG distance circle radius

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) [BIRR]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.57	2.08	2.82	4.36	5.20	4.37	4.15	3.90	3.54	2.68	1.94	1.23

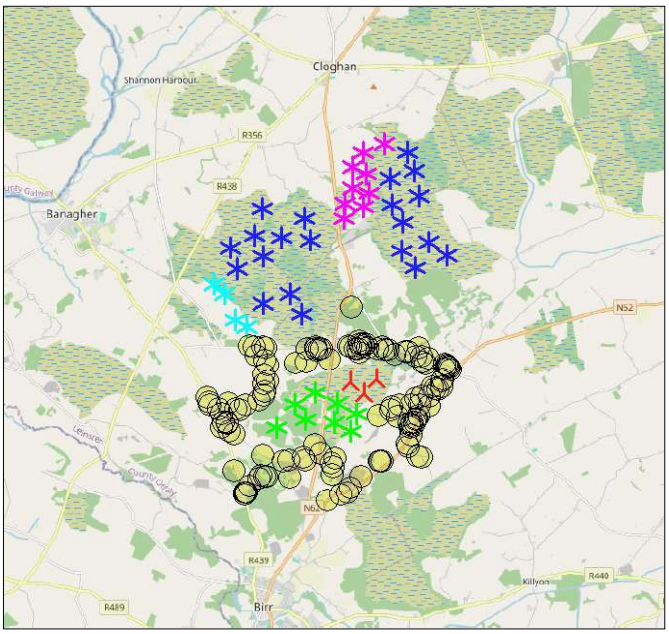
Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
297	221	328	510	236	166	281	856	1,081	898	1,029	889

W	WNW	NW	NNW	Sum
735	495	400	338	8,760

Yearly 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: Elevation Grid Data Object: Cush Wind Farm_(SHADOW FLICKER CALC
Receptor grid resolution: 1.0 m

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



Scale 1:200,000

New WTG Existing WTG Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	608,636	710,729	51.3	T9	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
2	608,275	711,034	49.8	T10	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
3	608,944	711,100	50.8	T11	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
4	605,523	712,484	53.7	Meenwaun M1	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
5	605,200	712,679	55.0	Meenwaun M2	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
6	604,933	713,362	58.5	Meenwaun M3	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
7	604,656	713,609	58.6	Meenwaun M4	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
8	607,026	715,375	53.7	Derrinlough D1	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
9	607,206	714,769	55.5	Derrinlough D2	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
10	606,666	713,348	57.5	Derrinlough D3	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
11	605,958	713,100	54.4	Derrinlough D4	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
12	606,961	712,824	55.9	Derrinlough D5	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
13	606,452	714,872	56.8	Derrinlough D6	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
14	605,725	714,915	56.3	Derrinlough D7	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
15	605,919	715,618	58.1	Derrinlough D8	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
16	605,955	714,337	58.7	Derrinlough D9	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
17	605,094	714,562	55.8	Derrinlough D10	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
18	605,274	714,022	57.2	Derrinlough D11	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
19	609,662	715,257	52.4	Derrinlough D12	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
20	609,601	714,503	51.6	Derrinlough D13	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
21	609,982	714,058	52.3	Derrinlough D14	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
22	610,807	714,384	54.0	Derrinlough D15	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
23	610,313	714,732	52.4	Derrinlough D16	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
24	610,068	715,972	53.2	Derrinlough D17	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
25	609,959	716,616	51.9	Derrinlough D18	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
26	609,360	715,724	51.4	Derrinlough D19	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
27	609,307	716,406	53.1	Derrinlough D20	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
28	609,762	717,087	53.1	Derrinlough D21	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
29	608,097	715,366	53.4	Cloghan C1	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
30	608,601	715,678	50.5	Cloghan C2	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
31	608,108	715,754	53.7	Cloghan C3	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
32	608,750	716,042	53.0	Cloghan C4	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
33	608,327	716,161	50.7	Cloghan C5	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
34	608,672	716,535	54.6	Cloghan C6	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7

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SHADOW - Main Result

Calculation: Cush - Enercon E175 - Cumulative

...continued from previous page

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
35	608,311	716,733	52.5	Cloghan C7	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
36	608,600	717,098	55.9	Cloghan C8	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
37	609,153	717,319	59.2	Cloghan C9	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
38	606,797	710,446	47.0	T1	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
39	606,312	709,829	46.7	T2	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
40	607,351	710,753	48.5	T3	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
41	607,060	710,033	46.9	T4	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
42	607,922	710,465	46.9	T5	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
43	607,844	709,967	49.0	T6	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
44	608,286	709,735	52.1	T7	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-
45	608,427	710,195	50.9	T8	Yes	ENERCON	E-175 EP5 E2-7,000	7,000	175.0	111.6	1,750	-

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
A	H1	604,473	710,611	53.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
B	H2	604,513	710,481	51.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
C	H3	604,560	710,397	49.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
D	H4	604,793	710,300	50.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
E	H5	604,868	710,199	49.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
F	H6	605,037	710,465	51.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
G	H7	605,253	710,310	49.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
H	H8	605,337	710,277	48.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
I	H9	605,512	710,429	52.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
J	H10	605,848	710,529	54.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
K	H11	605,980	710,676	57.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
L	H12	606,002	710,762	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
M	H13	605,991	710,967	56.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
N	H14	606,089	711,041	56.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
O	H15	605,992	711,219	59.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
P	H16	606,072	711,473	57.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Q	H17	605,999	711,625	59.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
R	H18	605,781	711,736	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
S	H19	605,597	711,988	54.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
T	H20	605,735	711,966	55.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
U	H21	605,958	711,958	59.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
V	H22	606,031	711,938	60.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
W	H23	606,821	711,514	58.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
X	H24	607,091	711,562	60.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Y	H25	607,141	711,906	58.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Z	H26	607,355	711,953	61.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AA	H27	607,369	711,920	61.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AB	H28	607,377	711,858	61.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AC	H29	607,458	711,911	61.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AD	H30	607,501	711,911	60.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AE	H31	607,709	711,650	61.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AF	H32	608,211	711,989	64.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AG	H33	608,276	711,954	66.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AH	H34	608,399	711,924	65.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AI	H35	608,462	711,916	64.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AJ	H36	608,510	711,820	61.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AK	H37	608,516	712,123	61.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AL	H38	608,533	712,036	62.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AM	H39	608,552	711,973	62.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AN	H40	608,602	712,041	59.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AO	H41	608,622	711,992	59.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AP	H42	608,682	712,035	57.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AQ	H43	608,717	711,950	60.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AR	H44	608,993	711,913	62.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AS	H45	609,115	711,957	60.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AT	H46	609,273	711,896	66.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0

To be continued on next page...

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SHADOW - Main Result

Calculation: Cush - Enercon E175 - Cumulative

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No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
AU	H47	609,461	711,748	60.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AV	H48	610,385	710,654	69.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AW	H49	610,174	710,669	71.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AX	H50	610,370	710,379	64.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AY	H51	610,101	710,420	67.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AZ	H52	610,007	710,586	73.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BA	H53	609,898	710,417	70.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BB	H54	609,568	710,399	63.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BC	H55	609,356	710,359	62.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BD	H56	609,348	710,291	61.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BE	H57	609,016	710,126	66.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BF	H58	609,526	710,119	61.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BG	H59	610,067	710,128	64.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BH	H60	610,030	710,061	64.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BI	H61	610,018	710,045	64.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BJ	H62	609,974	709,951	63.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BK	H63	609,911	709,957	62.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BL	H64	609,820	709,935	58.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BM	H65	609,879	709,876	61.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BN	H66	609,858	709,846	59.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BO	H67	609,939	709,852	62.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BP	H68	609,872	709,638	60.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BQ	H69	609,779	709,404	58.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BR	H70	609,799	709,337	58.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BS	H71	610,049	709,089	58.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BT	H72	610,169	709,063	60.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BU	H73	609,109	708,940	66.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BV	H74	609,072	708,937	67.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BW	H75	609,042	708,947	67.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BX	H76	608,569	708,536	64.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BY	H77	608,285	708,227	67.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BZ	H78	608,198	708,088	66.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CA	H79	608,005	708,038	67.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CB	H80	607,662	707,913	68.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CC	H81	607,865	709,036	53.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CD	H82	607,751	708,884	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CE	H83	607,490	709,143	59.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CF	H84	607,310	709,373	55.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CG	H85	607,027	709,054	55.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CH	H86	606,680	708,508	58.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CI	H87	606,657	708,968	52.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CJ	H88	606,500	708,943	59.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CK	H89	606,051	708,521	56.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CL	H90	606,024	708,520	56.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CM	H91	605,909	708,570	54.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CN	H92	605,851	708,477	52.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CO	H93	605,608	708,265	47.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CP	H94	605,525	708,100	46.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CQ	H95	605,497	708,087	46.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CR	H96	605,482	708,080	45.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CS	H97	605,473	708,043	45.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CT	H98	605,197	708,689	48.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CU	H99	605,962	709,085	59.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CV	H100	605,189	709,640	51.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CW	H101	605,060	709,718	50.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CX	H102	605,034	709,921	48.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CY	H103	604,999	709,941	48.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CZ	H104	604,907	709,932	50.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DA	H105	604,855	709,831	49.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DB	H106	607,073	708,957	54.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DC	H107	608,313	713,012	58.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DD	H108	609,726	711,851	64.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DE	H109	609,792	711,845	64.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DF	H110	610,079	711,939	58.5	1.5	1.5	1.0	90.0	"Green house mode"	2.5

To be continued on next page...

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SHADOW - Main Result

Calculation: Cush - Enercon E175 - Cumulative

...continued from previous page

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]
DG	H111	610,012	711,725	61.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DH	H112	610,164	711,708	63.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DI	H113	610,193	711,561	70.0	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DJ	H114	610,262	711,519	71.5	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DK	H115	610,347	711,661	74.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DL	H116	610,755	711,406	75.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DM	H117	610,752	711,516	79.9	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DN	H118	610,821	711,492	79.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DO	H119	610,858	711,474	77.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DP	H120	610,870	711,435	74.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DQ	H121	610,894	711,417	71.7	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DR	H122	610,919	711,381	68.8	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DS	H123	610,707	711,093	72.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DT	H124	610,693	711,056	72.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DU	H125	610,580	710,824	69.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DV	H126	610,689	710,922	72.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DW	H127	610,504	710,833	72.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DX	H128	610,445	710,905	73.0	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DY	H129	609,178	711,885	63.9	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DZ	H130	607,835	708,810	61.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
EA	H131	607,797	708,599	56.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5

Calculation Results

Shadow receptor

		Shadow, worst case			**Shadow, expected values**
No.	Name	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	0:00	0	0:00	0:00
B	H2	0:00	0	0:00	0:00
C	H3	0:00	0	0:00	0:00
D	H4	7:20	29	0:24	1:02
E	H5	8:51	32	0:26	1:16
F	H6	10:56	37	0:28	1:28
G	H7	26:02	77	0:35	3:53
H	H8	37:13	110	0:39	5:34
I	H9	51:10	133	0:42	7:08
J	H10	106:17	194	0:53	13:52
K	H11	70:52	172	0:47	9:59
L	H12	60:55	139	0:48	8:37
M	H13	56:25	132	0:43	7:25
N	H14	70:22	153	0:46	8:48
O	H15	51:59	127	0:39	6:15
P	H16	31:12	84	0:32	3:31
Q	H17	15:55	62	0:24	1:48
R	H18	13:01	40	0:24	1:18
S	H19	0:00	0	0:00	0:00
T	H20	12:40	51	0:21	2:07
U	H21	0:00	0	0:00	0:00
V	H22	0:00	0	0:00	0:00
W	H23	73:06	109	1:04	8:24
X	H24	42:42	86	0:57	4:52
Y	H25	13:33	44	0:29	1:40
Z	H26	27:14	81	0:33	3:09
AA	H27	27:19	84	0:35	3:12
AB	H28	30:43	99	0:35	3:49
AC	H29	43:14	108	0:40	5:02
AD	H30	48:04	106	0:43	5:32
AE	H31	98:53	139	1:11	11:45
AF	H32	44:03	70	0:54	4:49
AG	H33	53:32	68	1:06	5:54
AH	H34	55:38	62	1:05	6:13
AI	H35	50:02	64	0:56	5:40

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SHADOW - Main Result

Calculation: Cush - Enercon E175 - Cumulative

...continued from previous page

		Shadow, worst case			Shadow, expected values
No.	Name	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]
AJ	H36	78:48	80	1:25	9:07
AK	H37	0:00	0	0:00	0:00
AL	H38	18:18	56	0:27	2:10
AM	H39	26:31	66	0:34	3:06
AN	H40	0:00	0	0:00	0:00
AO	H41	3:04	16	0:15	0:19
AP	H42	0:00	0	0:00	0:00
AQ	H43	12:07	32	0:34	1:24
AR	H44	39:18	70	0:39	4:55
AS	H45	33:18	76	0:35	4:16
AT	H46	37:13	93	0:37	4:47
AU	H47	83:25	122	0:53	11:04
AV	H48	8:55	35	0:24	1:31
AW	H49	21:01	73	0:30	3:36
AX	H50	12:14	48	0:24	2:05
AY	H51	43:29	137	0:31	6:52
AZ	H52	42:41	136	0:34	7:06
BA	H53	41:05	143	0:31	6:33
BB	H54	79:00	186	0:56	13:00
BC	H55	130:55	232	1:06	20:33
BD	H56	105:11	214	0:52	16:25
BE	H57	152:19	207	1:32	25:08
BF	H58	65:13	180	0:40	10:21
BG	H59	16:35	69	0:25	2:50
BH	H60	18:56	76	0:25	3:15
BI	H61	19:45	77	0:25	3:23
BJ	H62	35:30	132	0:26	5:40
BK	H63	39:25	132	0:27	6:13
BL	H64	36:56	125	0:27	5:46
BM	H65	30:41	118	0:25	4:47
BN	H66	26:46	113	0:25	4:13
BO	H67	29:54	118	0:24	4:39
BP	H68	17:22	67	0:25	3:00
BQ	H69	32:26	111	0:26	5:11
BR	H70	30:10	103	0:25	4:45
BS	H71	0:00	0	0:00	0:00
BT	H72	0:00	0	0:00	0:00
BU	H73	0:12	9	0:02	0:01
BV	H74	0:00	0	0:00	0:00
BW	H75	0:00	0	0:00	0:00
BX	H76	0:00	0	0:00	0:00
BY	H77	0:00	0	0:00	0:00
BZ	H78	0:00	0	0:00	0:00
CA	H79	0:00	0	0:00	0:00
CB	H80	0:00	0	0:00	0:00
CC	H81	10:11	43	0:22	1:44
CD	H82	16:30	61	0:23	2:29
CE	H83	45:16	80	0:50	7:18
CF	H84	84:11	121	1:14	14:36
CG	H85	27:12	88	0:29	4:48
CH	H86	0:00	0	0:00	0:00
CI	H87	0:00	0	0:00	0:00
CJ	H88	4:30	36	0:11	0:45
CK	H89	0:00	0	0:00	0:00
CL	H90	0:00	0	0:00	0:00
CM	H91	0:00	0	0:00	0:00
CN	H92	0:00	0	0:00	0:00
CO	H93	0:00	0	0:00	0:00
CP	H94	0:00	0	0:00	0:00
CQ	H95	0:00	0	0:00	0:00
CR	H96	0:00	0	0:00	0:00
CS	H97	0:00	0	0:00	0:00
CT	H98	0:00	0	0:00	0:00

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SHADOW - Main Result

Calculation: Cush - Enercon E175 - Cumulative

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No.	Name	Shadow, worst case: Shadow hours per year [h/year]	Shadow, worst case: Shadow days per year [days/year]	Shadow, worst case: Max shadow hours per day [h/day]	Shadow, expected values: Shadow hours per year [h/year]
CU	H99	0:00	0	0:00	0:00
CV	H100	19:30	48	0:36	3:21
CW	H101	14:25	42	0:32	2:30
CX	H102	13:00	38	0:31	2:01
CY	H103	12:08	38	0:30	1:51
CZ	H104	10:01	33	0:28	1:32
DA	H105	9:22	32	0:26	1:32
DB	H106	24:56	68	0:30	4:13
DC	H107	8:15	30	0:25	1:16
DD	H108	43:04	120	0:40	5:54
DE	H109	35:38	108	0:38	4:59
DF	H110	13:10	44	0:29	1:50
DG	H111	21:38	62	0:33	3:06
DH	H112	11:08	38	0:29	1:38
DI	H113	10:11	35	0:28	1:31
DJ	H114	8:53	32	0:27	1:20
DK	H115	6:52	29	0:23	1:00
DL	H116	0:00	0	0:00	0:00
DM	H117	0:00	0	0:00	0:00
DN	H118	0:00	0	0:00	0:00
DO	H119	0:00	0	0:00	0:00
DP	H120	0:00	0	0:00	0:00
DQ	H121	0:00	0	0:00	0:00
DR	H122	0:00	0	0:00	0:00
DS	H123	0:00	0	0:00	0:00
DT	H124	4:15	24	0:17	0:42
DU	H125	5:34	26	0:20	0:56
DV	H126	0:00	0	0:00	0:00
DW	H127	6:19	28	0:21	1:04
DX	H128	6:58	30	0:23	1:11
DY	H129	36:56	88	0:34	4:48
DZ	H130	0:00	0	0:00	0:00
EA	H131	0:00	0	0:00	0:00

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

No.	Name	Worst case [h/year]	Expected [h/year]
1	T9	207:47	30:23
2	T10	260:04	34:19
3	T11	365:35	48:46
4	Meenwaun M1	0:00	0:00
5	Meenwaun M2	0:00	0:00
6	Meenwaun M3	0:00	0:00
7	Meenwaun M4	0:00	0:00
8	Derrinlough D1	0:00	0:00
9	Derrinlough D2	0:00	0:00
10	Derrinlough D3	0:00	0:00
11	Derrinlough D4	0:00	0:00
12	Derrinlough D5	20:55	3:23
13	Derrinlough D6	0:00	0:00
14	Derrinlough D7	0:00	0:00
15	Derrinlough D8	0:00	0:00
16	Derrinlough D9	0:00	0:00
17	Derrinlough D10	0:00	0:00
18	Derrinlough D11	0:00	0:00
19	Derrinlough D12	0:00	0:00
20	Derrinlough D13	0:00	0:00
21	Derrinlough D14	0:00	0:00
22	Derrinlough D15	0:00	0:00
23	Derrinlough D16	0:00	0:00
24	Derrinlough D17	0:00	0:00
25	Derrinlough D18	0:00	0:00

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SHADOW - Main Result

Calculation: Cush - Enercon E175 - Cumulative

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
26	Derrinlough D19	0:00	0:00
27	Derrinlough D20	0:00	0:00
28	Derrinlough D21	0:00	0:00
29	Cloghan C1	0:00	0:00
30	Cloghan C2	0:00	0:00
31	Cloghan C3	0:00	0:00
32	Cloghan C4	0:00	0:00
33	Cloghan C5	0:00	0:00
34	Cloghan C6	0:00	0:00
35	Cloghan C7	0:00	0:00
36	Cloghan C8	0:00	0:00
37	Cloghan C9	0:00	0:00
38	T1	211:03	28:20
39	T2	249:10	34:57
40	T3	172:16	22:11
41	T4	89:13	11:19
42	T5	72:13	10:09
43	T6	26:10	4:03
44	T7	157:14	26:06
45	T8	175:20	28:51

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.

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SHADOW - Main Result

Calculation: Cush - GE164 - Cumulative

Assumptions for shadow calculations

Maximum distance for influence 1. WTG distance circle radius

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) [BIRR]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.57	2.08	2.82	4.36	5.20	4.37	4.15	3.90	3.54	2.68	1.94	1.23

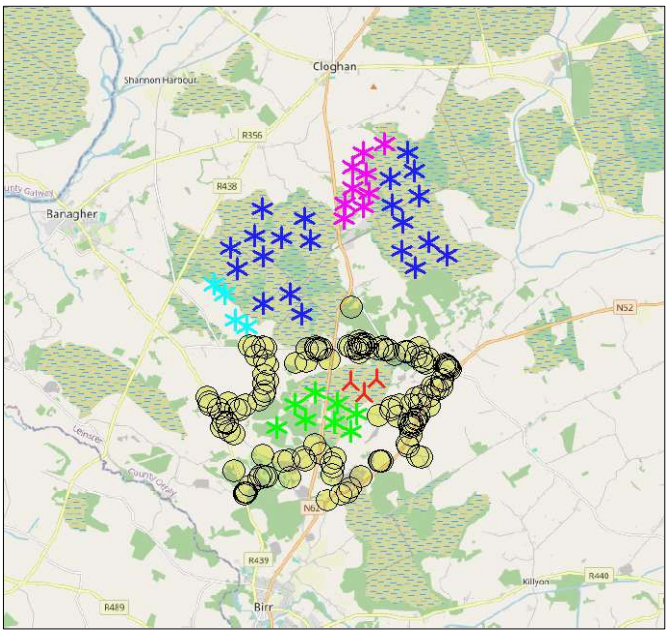
Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
297	221	328	510	236	166	281	856	1,081	898	1,029	889

W	WNW	NW	NNW	Sum
735	495	400	338	8,760

Yearly 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: Elevation Grid Data Object: Cush Wind Farm_(SHADOW FLICKER CALC
Receptor grid resolution: 1.0 m

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



Scale 1:200,000

New WTG | Existing WTG | Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	608,636	710,729	51.3	T9	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
2	608,275	711,034	49.8	T10	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
3	608,944	711,100	50.8	T11	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
4	605,523	712,484	53.7	Meenwaun M1	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
5	605,200	712,679	55.0	Meenwaun M2	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
6	604,933	713,362	58.5	Meenwaun M3	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
7	604,656	713,609	58.6	Meenwaun M4	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
8	607,026	715,375	53.7	Derrinlough D1	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
9	607,206	714,769	55.5	Derrinlough D2	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
10	606,666	713,348	57.5	Derrinlough D3	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
11	605,958	713,100	54.4	Derrinlough D4	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
12	606,961	712,824	55.9	Derrinlough D5	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
13	606,452	714,872	56.8	Derrinlough D6	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
14	605,725	714,915	56.3	Derrinlough D7	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
15	605,919	715,618	58.1	Derrinlough D8	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
16	605,955	714,337	58.7	Derrinlough D9	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
17	605,094	714,562	55.8	Derrinlough D10	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
18	605,274	714,022	57.2	Derrinlough D11	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
19	609,662	715,257	52.4	Derrinlough D12	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
20	609,601	714,503	51.6	Derrinlough D13	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
21	609,982	714,058	52.3	Derrinlough D14	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
22	610,807	714,384	54.0	Derrinlough D15	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
23	610,313	714,732	52.4	Derrinlough D16	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
24	610,068	715,972	53.2	Derrinlough D17	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
25	609,959	716,616	51.9	Derrinlough D18	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
26	609,360	715,724	51.4	Derrinlough D19	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
27	609,307	716,406	53.1	Derrinlough D20	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
28	609,762	717,087	53.1	Derrinlough D21	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
29	608,097	715,366	53.4	Cloghan C1	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
30	608,601	715,678	50.5	Cloghan C2	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
31	608,108	715,754	53.7	Cloghan C3	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
32	608,750	716,042	53.0	Cloghan C4	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
33	608,327	716,161	50.7	Cloghan C5	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
34	608,672	716,535	54.6	Cloghan C6	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7

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SHADOW - Main Result

Calculation: Cush - GE164 - Cumulative

...continued from previous page

					WTG type						Shadow data	
	Easting	Northing	Z	Row data/Description	Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
35	608,311	716,733	52.5	Cloghan C7	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
36	608,600	717,098	55.9	Cloghan C8	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
37	609,153	717,319	59.2	Cloghan C9	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
38	606,797	710,446	47.0	T1	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
39	606,312	709,829	46.7	T2	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
40	607,351	710,753	48.5	T3	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
41	607,060	710,033	46.9	T4	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
42	607,922	710,465	46.9	T5	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
43	607,844	709,967	49.0	T6	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
44	608,286	709,735	52.1	T7	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-
45	608,427	710,195	50.9	T8	Yes	GE Vernova	GEV 6.5-164-6,500	6,500	164.0	118.0	1,640	-

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
A	H1	604,473	710,611	53.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
B	H2	604,513	710,481	51.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
C	H3	604,560	710,397	49.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
D	H4	604,793	710,300	50.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
E	H5	604,868	710,199	49.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
F	H6	605,037	710,465	51.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
G	H7	605,253	710,310	49.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
H	H8	605,337	710,277	48.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
I	H9	605,512	710,429	52.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
J	H10	605,848	710,529	54.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
K	H11	605,980	710,676	57.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
L	H12	606,002	710,762	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
M	H13	605,991	710,967	56.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
N	H14	606,089	711,041	56.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
O	H15	605,992	711,219	59.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
P	H16	606,072	711,473	57.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Q	H17	605,999	711,625	59.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
R	H18	605,781	711,736	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
S	H19	605,597	711,988	54.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
T	H20	605,735	711,966	55.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
U	H21	605,958	711,958	59.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
V	H22	606,031	711,938	60.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
W	H23	606,821	711,514	58.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
X	H24	607,091	711,562	60.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Y	H25	607,141	711,906	58.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Z	H26	607,355	711,953	61.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AA	H27	607,369	711,920	61.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AB	H28	607,377	711,858	61.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AC	H29	607,458	711,911	61.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AD	H30	607,501	711,911	60.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AE	H31	607,709	711,650	61.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AF	H32	608,211	711,989	64.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AG	H33	608,276	711,954	66.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AH	H34	608,399	711,924	65.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AI	H35	608,462	711,916	64.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AJ	H36	608,510	711,820	61.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AK	H37	608,516	712,123	61.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AL	H38	608,533	712,036	62.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AM	H39	608,552	711,973	62.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AN	H40	608,602	712,041	59.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AO	H41	608,622	711,992	59.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AP	H42	608,682	712,035	57.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AQ	H43	608,717	711,950	60.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AR	H44	608,993	711,913	62.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AS	H45	609,115	711,957	60.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AT	H46	609,273	711,896	66.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: Cush - GE164 - Cumulative

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
AU	H47	609,461	711,748	60.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AV	H48	610,385	710,654	69.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AW	H49	610,174	710,669	71.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AX	H50	610,370	710,379	64.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AY	H51	610,101	710,420	67.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AZ	H52	610,007	710,586	73.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BA	H53	609,898	710,417	70.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BB	H54	609,568	710,399	63.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BC	H55	609,356	710,359	62.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BD	H56	609,348	710,291	61.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BE	H57	609,016	710,126	66.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BF	H58	609,526	710,119	61.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BG	H59	610,067	710,128	64.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BH	H60	610,030	710,061	64.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BI	H61	610,018	710,045	64.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BJ	H62	609,974	709,951	63.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BK	H63	609,911	709,957	62.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BL	H64	609,820	709,935	58.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BM	H65	609,879	709,876	61.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BN	H66	609,858	709,846	59.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BO	H67	609,939	709,852	62.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BP	H68	609,872	709,638	60.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BQ	H69	609,779	709,404	58.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BR	H70	609,799	709,337	58.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BS	H71	610,049	709,089	58.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BT	H72	610,169	709,063	60.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BU	H73	609,109	708,940	66.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BV	H74	609,072	708,937	67.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BW	H75	609,042	708,947	67.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BX	H76	608,569	708,536	64.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BY	H77	608,285	708,227	67.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BZ	H78	608,198	708,088	66.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CA	H79	608,005	708,038	67.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CB	H80	607,662	707,913	68.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CC	H81	607,865	709,036	53.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CD	H82	607,751	708,884	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CE	H83	607,490	709,143	59.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CF	H84	607,310	709,373	55.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CG	H85	607,027	709,054	55.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CH	H86	606,680	708,508	58.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CI	H87	606,657	708,968	52.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CJ	H88	606,500	708,943	59.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CK	H89	606,051	708,521	56.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CL	H90	606,024	708,520	56.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CM	H91	605,909	708,570	54.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CN	H92	605,851	708,477	52.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CO	H93	605,608	708,265	47.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CP	H94	605,525	708,100	46.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CQ	H95	605,497	708,087	46.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CR	H96	605,482	708,080	45.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CS	H97	605,473	708,043	45.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CT	H98	605,197	708,689	48.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CU	H99	605,962	709,085	59.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CV	H100	605,189	709,640	51.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CW	H101	605,060	709,718	50.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CX	H102	605,034	709,921	48.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CY	H103	604,999	709,941	48.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CZ	H104	604,907	709,932	50.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DA	H105	604,855	709,831	49.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DB	H106	607,073	708,957	54.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DC	H107	608,313	713,012	58.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DD	H108	609,726	711,851	64.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DE	H109	609,792	711,845	64.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DF	H110	610,079	711,939	58.5	1.5	1.5	1.0	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Cush - GE164 - Cumulative

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No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
DG	H111	610,012	711,725	61.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DH	H112	610,164	711,708	63.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DI	H113	610,193	711,561	70.0	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DJ	H114	610,262	711,519	71.5	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DK	H115	610,347	711,661	74.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DL	H116	610,755	711,406	75.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DM	H117	610,752	711,516	79.9	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DN	H118	610,821	711,492	79.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DO	H119	610,858	711,474	77.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DP	H120	610,870	711,435	74.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DQ	H121	610,894	711,417	71.7	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DR	H122	610,919	711,381	68.8	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DS	H123	610,707	711,093	72.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DT	H124	610,693	711,056	72.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DU	H125	610,580	710,824	69.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DV	H126	610,689	710,922	72.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DW	H127	610,504	710,833	72.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DX	H128	610,445	710,905	73.0	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DY	H129	609,178	711,885	63.9	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DZ	H130	607,835	708,810	61.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
EA	H131	607,797	708,599	56.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5

Calculation Results

Shadow receptor

		Shadow, worst case			**Shadow, expected values**
No.	Name	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	0:00	0	0:00	0:00
B	H2	0:00	0	0:00	0:00
C	H3	0:00	0	0:00	0:00
D	H4	7:02	28	0:23	1:00
E	H5	8:28	31	0:25	1:13
F	H6	10:22	35	0:27	1:24
G	H7	24:47	75	0:33	3:42
H	H8	29:31	80	0:36	4:24
I	H9	47:57	129	0:40	6:41
J	H10	100:37	193	0:49	13:08
K	H11	67:26	165	0:45	9:29
L	H12	57:06	138	0:44	8:04
M	H13	53:10	128	0:41	7:00
N	H14	67:42	151	0:43	8:28
O	H15	50:30	124	0:37	6:04
P	H16	30:00	82	0:31	3:22
Q	H17	15:25	61	0:23	1:45
R	H18	0:00	0	0:00	0:00
S	H19	0:00	0	0:00	0:00
T	H20	12:40	51	0:21	2:07
U	H21	0:00	0	0:00	0:00
V	H22	0:00	0	0:00	0:00
W	H23	69:31	108	1:01	8:00
X	H24	41:32	86	0:56	4:44
Y	H25	12:50	44	0:27	1:35
Z	H26	25:43	82	0:32	2:59
AA	H27	25:23	84	0:32	2:59
AB	H28	23:16	68	0:33	2:50
AC	H29	34:06	80	0:34	3:51
AD	H30	39:49	76	0:41	4:27
AE	H31	95:19	138	1:08	11:21
AF	H32	42:18	70	0:52	4:38
AG	H33	51:06	68	1:03	5:39
AH	H34	53:47	62	1:02	6:01
AI	H35	48:17	64	0:55	5:29

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Calculated:
11/09/2026 16:29/4.2.303

SHADOW - Main Result

Calculation: Cush - GE164 - Cumulative

...continued from previous page

		Shadow, worst case			Shadow, expected values
No.	Name	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]
AJ	H36	75:57	80	1:21	8:48
AK	H37	0:00	0	0:00	0:00
AL	H38	3:15	17	0:15	0:19
AM	H39	12:34	34	0:28	1:19
AN	H40	0:00	0	0:00	0:00
AO	H41	3:24	17	0:15	0:21
AP	H42	0:00	0	0:00	0:00
AQ	H43	12:33	32	0:35	1:27
AR	H44	37:34	70	0:37	4:42
AS	H45	32:01	76	0:33	4:06
AT	H46	36:04	93	0:36	4:38
AU	H47	78:25	122	0:49	10:25
AV	H48	8:30	35	0:23	1:26
AW	H49	20:11	73	0:29	3:27
AX	H50	11:45	48	0:23	2:00
AY	H51	36:57	111	0:30	5:51
AZ	H52	40:50	134	0:34	6:47
BA	H53	33:04	120	0:29	5:11
BB	H54	70:36	155	0:55	11:37
BC	H55	125:53	225	1:05	19:45
BD	H56	100:19	207	0:52	15:38
BE	H57	143:59	199	1:32	23:47
BF	H58	50:20	139	0:34	7:58
BG	H59	10:12	41	0:24	1:45
BH	H60	18:05	75	0:25	3:06
BI	H61	19:02	77	0:24	3:16
BJ	H62	28:59	106	0:25	4:39
BK	H63	37:46	129	0:27	5:57
BL	H64	35:36	124	0:27	5:33
BM	H65	29:30	116	0:25	4:35
BN	H66	25:28	110	0:25	4:00
BO	H67	23:20	89	0:24	3:38
BP	H68	16:38	66	0:25	2:52
BQ	H69	31:09	108	0:26	4:58
BR	H70	28:54	101	0:25	4:33
BS	H71	0:00	0	0:00	0:00
BT	H72	0:00	0	0:00	0:00
BU	H73	0:03	3	0:01	0:00
BV	H74	0:00	0	0:00	0:00
BW	H75	0:00	0	0:00	0:00
BX	H76	0:00	0	0:00	0:00
BY	H77	0:00	0	0:00	0:00
BZ	H78	0:00	0	0:00	0:00
CA	H79	0:00	0	0:00	0:00
CB	H80	0:00	0	0:00	0:00
CC	H81	0:00	0	0:00	0:00
CD	H82	0:00	0	0:00	0:00
CE	H83	41:55	78	0:48	6:44
CF	H84	78:58	118	1:11	13:42
CG	H85	25:55	86	0:28	4:34
CH	H86	0:00	0	0:00	0:00
CI	H87	0:00	0	0:00	0:00
CJ	H88	0:00	0	0:00	0:00
CK	H89	0:00	0	0:00	0:00
CL	H90	0:00	0	0:00	0:00
CM	H91	0:00	0	0:00	0:00
CN	H92	0:00	0	0:00	0:00
CO	H93	0:00	0	0:00	0:00
CP	H94	0:00	0	0:00	0:00
CQ	H95	0:00	0	0:00	0:00
CR	H96	0:00	0	0:00	0:00
CS	H97	0:00	0	0:00	0:00
CT	H98	0:00	0	0:00	0:00

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SHADOW - Main Result

Calculation: Cush - GE164 - Cumulative

...continued from previous page

		Shadow, worst case			Shadow, expected values
No.	Name	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]
CU	H99	0:00	0	0:00	0:00
CV	H100	18:24	46	0:34	3:10
CW	H101	13:40	40	0:30	2:23
CX	H102	12:17	36	0:30	1:54
CY	H103	11:27	36	0:29	1:45
CZ	H104	9:31	32	0:26	1:27
DA	H105	8:53	32	0:26	1:27
DB	H106	23:43	66	0:29	4:00
DC	H107	8:15	30	0:25	1:16
DD	H108	34:58	94	0:37	4:44
DE	H109	28:40	83	0:36	3:59
DF	H110	12:36	42	0:28	1:46
DG	H111	14:40	42	0:31	2:08
DH	H112	10:36	35	0:28	1:33
DI	H113	9:48	33	0:27	1:27
DJ	H114	8:30	31	0:26	1:16
DK	H115	6:38	28	0:23	0:58
DL	H116	0:00	0	0:00	0:00
DM	H117	0:00	0	0:00	0:00
DN	H118	0:00	0	0:00	0:00
DO	H119	0:00	0	0:00	0:00
DP	H120	0:00	0	0:00	0:00
DQ	H121	0:00	0	0:00	0:00
DR	H122	0:00	0	0:00	0:00
DS	H123	0:00	0	0:00	0:00
DT	H124	0:00	0	0:00	0:00
DU	H125	0:00	0	0:00	0:00
DV	H126	0:00	0	0:00	0:00
DW	H127	6:04	28	0:21	1:01
DX	H128	6:42	30	0:22	1:09
DY	H129	35:27	88	0:32	4:37
DZ	H130	0:00	0	0:00	0:00
EA	H131	0:00	0	0:00	0:00

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

No.	Name	Worst case [h/year]	Expected [h/year]
1	T9	195:12	28:43
2	T10	248:00	32:31
3	T11	353:10	47:01
4	Meenwaun M1	0:00	0:00
5	Meenwaun M2	0:00	0:00
6	Meenwaun M3	0:00	0:00
7	Meenwaun M4	0:00	0:00
8	Derrinlough D1	0:00	0:00
9	Derrinlough D2	0:00	0:00
10	Derrinlough D3	0:00	0:00
11	Derrinlough D4	0:00	0:00
12	Derrinlough D5	20:55	3:23
13	Derrinlough D6	0:00	0:00
14	Derrinlough D7	0:00	0:00
15	Derrinlough D8	0:00	0:00
16	Derrinlough D9	0:00	0:00
17	Derrinlough D10	0:00	0:00
18	Derrinlough D11	0:00	0:00
19	Derrinlough D12	0:00	0:00
20	Derrinlough D13	0:00	0:00
21	Derrinlough D14	0:00	0:00
22	Derrinlough D15	0:00	0:00
23	Derrinlough D16	0:00	0:00
24	Derrinlough D17	0:00	0:00
25	Derrinlough D18	0:00	0:00

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SHADOW - Main Result

Calculation: Cush - GE164 - Cumulative

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
26	Derrinlough D19	0:00	0:00
27	Derrinlough D20	0:00	0:00
28	Derrinlough D21	0:00	0:00
29	Cloghan C1	0:00	0:00
30	Cloghan C2	0:00	0:00
31	Cloghan C3	0:00	0:00
32	Cloghan C4	0:00	0:00
33	Cloghan C5	0:00	0:00
34	Cloghan C6	0:00	0:00
35	Cloghan C7	0:00	0:00
36	Cloghan C8	0:00	0:00
37	Cloghan C9	0:00	0:00
38	T1	198:07	26:52
39	T2	234:51	32:58
40	T3	169:10	21:47
41	T4	82:02	10:15
42	T5	64:51	9:03
43	T6	20:05	3:02
44	T7	151:35	25:09
45	T8	169:15	27:51

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.

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SHADOW - Main Result

Calculation: Cush - GE158 - Cumulative

Assumptions for shadow calculations

Maximum distance for influence 1. WTG distance circle radius

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) [BIRR]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.57	2.08	2.82	4.36	5.20	4.37	4.15	3.90	3.54	2.68	1.94	1.23

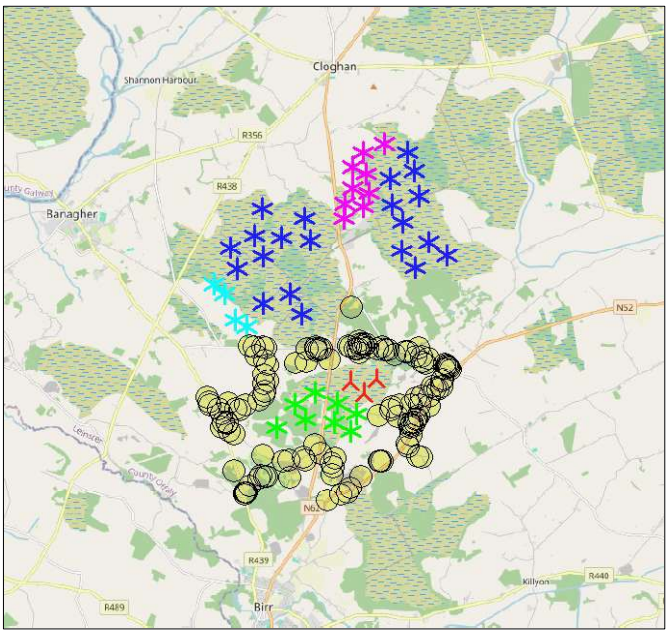
Operational time

N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW
297	221	328	510	236	166	281	856	1,081	898	1,029	889

W	WNW	NW	NNW	Sum
735	495	400	338	8,760

Yearly 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: Elevation Grid Data Object: Cush Wind Farm_(SHADOW FLICKER CALC
Receptor grid resolution: 1.0 m

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



Scale 1:200,000

New WTG | Existing WTG | Shadow receptor

WTGs

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	608,636	710,729	51.3	T9	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
2	608,275	711,034	49.8	T10	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
3	608,944	711,100	50.8	T11	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
4	605,523	712,484	53.7	Meenwaun M1	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
5	605,200	712,679	55.0	Meenwaun M2	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
6	604,933	713,362	58.5	Meenwaun M3	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
7	604,656	713,609	58.6	Meenwaun M4	No	GE WIND ENERGY	GE 2.5-120-2,500	2,500	120.0	110.0	1,200	13.0
8	607,026	715,375	53.7	Derrinlough D1	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
9	607,206	714,769	55.5	Derrinlough D2	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
10	606,666	713,348	57.5	Derrinlough D3	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
11	605,958	713,100	54.4	Derrinlough D4	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
12	606,961	712,824	55.9	Derrinlough D5	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
13	606,452	714,872	56.8	Derrinlough D6	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
14	605,725	714,915	56.3	Derrinlough D7	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
15	605,919	715,618	58.1	Derrinlough D8	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
16	605,955	714,337	58.7	Derrinlough D9	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
17	605,094	714,562	55.8	Derrinlough D10	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
18	605,274	714,022	57.2	Derrinlough D11	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
19	609,662	715,257	52.4	Derrinlough D12	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
20	609,601	714,503	51.6	Derrinlough D13	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
21	609,982	714,058	52.3	Derrinlough D14	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
22	610,807	714,384	54.0	Derrinlough D15	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
23	610,313	714,732	52.4	Derrinlough D16	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
24	610,068	715,972	53.2	Derrinlough D17	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
25	609,959	716,616	51.9	Derrinlough D18	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
26	609,360	715,724	51.4	Derrinlough D19	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
27	609,307	716,406	53.1	Derrinlough D20	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
28	609,762	717,087	53.1	Derrinlough D21	Yes	VESTAS	V150-6.0-6,000	6,000	150.0	110.0	1,500	-
29	608,097	715,366	53.4	Cloghan C1	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
30	608,601	715,678	50.5	Cloghan C2	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
31	608,108	715,754	53.7	Cloghan C3	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
32	608,750	716,042	53.0	Cloghan C4	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
33	608,327	716,161	50.7	Cloghan C5	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
34	608,672	716,535	54.6	Cloghan C6	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7

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SHADOW - Main Result

Calculation: Cush - GE158 - Cumulative

...continued from previous page

	Easting	Northing	Z	Row data/Description	WTG type Valid	Manufact.	Type-generator	Power, rated	Rotor diameter	Hub height	Shadow data Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
35	608,311	716,733	52.5	Cloghan C7	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
36	608,600	717,098	55.9	Cloghan C8	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
37	609,153	717,319	59.2	Cloghan C9	Yes	VESTAS	V136-3.6MW-3,600	3,600	136.0	101.0	1,360	11.7
38	606,797	710,446	47.0	T1	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
39	606,312	709,829	46.7	T2	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
40	607,351	710,753	48.5	T3	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
41	607,060	710,033	46.9	T4	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
42	607,922	710,465	46.9	T5	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
43	607,844	709,967	49.0	T6	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
44	608,286	709,735	52.1	T7	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-
45	608,427	710,195	50.9	T8	Yes	GE WIND ENERGY	6.1-158 -6,100	6,100	158.0	120.9	1,580	-

Shadow receptor-Input

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
A	H1	604,473	710,611	53.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
B	H2	604,513	710,481	51.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
C	H3	604,560	710,397	49.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
D	H4	604,793	710,300	50.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
E	H5	604,868	710,199	49.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
F	H6	605,037	710,465	51.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
G	H7	605,253	710,310	49.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
H	H8	605,337	710,277	48.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
I	H9	605,512	710,429	52.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
J	H10	605,848	710,529	54.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
K	H11	605,980	710,676	57.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
L	H12	606,002	710,762	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
M	H13	605,991	710,967	56.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
N	H14	606,089	711,041	56.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
O	H15	605,992	711,219	59.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
P	H16	606,072	711,473	57.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Q	H17	605,999	711,625	59.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
R	H18	605,781	711,736	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
S	H19	605,597	711,988	54.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
T	H20	605,735	711,966	55.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
U	H21	605,958	711,958	59.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
V	H22	606,031	711,938	60.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
W	H23	606,821	711,514	58.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
X	H24	607,091	711,562	60.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Y	H25	607,141	711,906	58.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
Z	H26	607,355	711,953	61.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AA	H27	607,369	711,920	61.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AB	H28	607,377	711,858	61.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AC	H29	607,458	711,911	61.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AD	H30	607,501	711,911	60.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AE	H31	607,709	711,650	61.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AF	H32	608,211	711,989	64.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AG	H33	608,276	711,954	66.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AH	H34	608,399	711,924	65.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AI	H35	608,462	711,916	64.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AJ	H36	608,510	711,820	61.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AK	H37	608,516	712,123	61.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AL	H38	608,533	712,036	62.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AM	H39	608,552	711,973	62.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AN	H40	608,602	712,041	59.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AO	H41	608,622	711,992	59.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AP	H42	608,682	712,035	57.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AQ	H43	608,717	711,950	60.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AR	H44	608,993	711,913	62.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AS	H45	609,115	711,957	60.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AT	H46	609,273	711,896	66.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0

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SHADOW - Main Result

Calculation: Cush - GE158 - Cumulative

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
AU	H47	609,461	711,748	60.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AV	H48	610,385	710,654	69.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AW	H49	610,174	710,669	71.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AX	H50	610,370	710,379	64.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AY	H51	610,101	710,420	67.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
AZ	H52	610,007	710,586	73.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BA	H53	609,898	710,417	70.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BB	H54	609,568	710,399	63.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BC	H55	609,356	710,359	62.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BD	H56	609,348	710,291	61.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BE	H57	609,016	710,126	66.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BF	H58	609,526	710,119	61.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BG	H59	610,067	710,128	64.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BH	H60	610,030	710,061	64.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BI	H61	610,018	710,045	64.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BJ	H62	609,974	709,951	63.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BK	H63	609,911	709,957	62.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BL	H64	609,820	709,935	58.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BM	H65	609,879	709,876	61.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BN	H66	609,858	709,846	59.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BO	H67	609,939	709,852	62.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BP	H68	609,872	709,638	60.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BQ	H69	609,779	709,404	58.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BR	H70	609,799	709,337	58.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BS	H71	610,049	709,089	58.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BT	H72	610,169	709,063	60.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BU	H73	609,109	708,940	66.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BV	H74	609,072	708,937	67.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BW	H75	609,042	708,947	67.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BX	H76	608,569	708,536	64.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BY	H77	608,285	708,227	67.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
BZ	H78	608,198	708,088	66.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CA	H79	608,005	708,038	67.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CB	H80	607,662	707,913	68.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CC	H81	607,865	709,036	53.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CD	H82	607,751	708,884	55.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CE	H83	607,490	709,143	59.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CF	H84	607,310	709,373	55.7	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CG	H85	607,027	709,054	55.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CH	H86	606,680	708,508	58.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CI	H87	606,657	708,968	52.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CJ	H88	606,500	708,943	59.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CK	H89	606,051	708,521	56.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CL	H90	606,024	708,520	56.4	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CM	H91	605,909	708,570	54.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CN	H92	605,851	708,477	52.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CO	H93	605,608	708,265	47.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CP	H94	605,525	708,100	46.6	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CQ	H95	605,497	708,087	46.2	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CR	H96	605,482	708,080	45.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CS	H97	605,473	708,043	45.0	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CT	H98	605,197	708,689	48.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CU	H99	605,962	709,085	59.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CV	H100	605,189	709,640	51.3	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CW	H101	605,060	709,718	50.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CX	H102	605,034	709,921	48.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CY	H103	604,999	709,941	48.9	1.5	1.5	0.5	90.0	"Green house mode"	2.0
CZ	H104	604,907	709,932	50.1	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DA	H105	604,855	709,831	49.5	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DB	H106	607,073	708,957	54.8	1.5	1.5	0.5	90.0	"Green house mode"	2.0
DC	H107	608,313	713,012	58.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DD	H108	609,726	711,851	64.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DE	H109	609,792	711,845	64.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DF	H110	610,079	711,939	58.5	1.5	1.5	1.0	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Cush - GE158 - Cumulative

...continued from previous page

No.	Name	Easting	Northing	Z	Width	Height	Elevation a.g.l.	Slope of window	Direction mode	Eye height (ZVI) a.g.l.
				[m]	[m]	[m]	[m]	[°]		[m]
DG	H111	610,012	711,725	61.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DH	H112	610,164	711,708	63.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DI	H113	610,193	711,561	70.0	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DJ	H114	610,262	711,519	71.5	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DK	H115	610,347	711,661	74.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DL	H116	610,755	711,406	75.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DM	H117	610,752	711,516	79.9	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DN	H118	610,821	711,492	79.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DO	H119	610,858	711,474	77.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DP	H120	610,870	711,435	74.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DQ	H121	610,894	711,417	71.7	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DR	H122	610,919	711,381	68.8	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DS	H123	610,707	711,093	72.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DT	H124	610,693	711,056	72.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DU	H125	610,580	710,824	69.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DV	H126	610,689	710,922	72.2	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DW	H127	610,504	710,833	72.1	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DX	H128	610,445	710,905	73.0	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DY	H129	609,178	711,885	63.9	1.5	1.5	1.0	90.0	"Green house mode"	2.5
DZ	H130	607,835	708,810	61.4	1.5	1.5	1.0	90.0	"Green house mode"	2.5
EA	H131	607,797	708,599	56.6	1.5	1.5	1.0	90.0	"Green house mode"	2.5

Calculation Results

Shadow receptor

		Shadow, worst case			**Shadow, expected values**
No.	Name	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	0:00	0	0:00	0:00
B	H2	0:00	0	0:00	0:00
C	H3	0:00	0	0:00	0:00
D	H4	0:00	0	0:00	0:00
E	H5	8:06	30	0:24	1:09
F	H6	9:56	34	0:26	1:20
G	H7	23:37	72	0:32	3:32
H	H8	28:22	78	0:35	4:14
I	H9	39:21	97	0:38	5:28
J	H10	96:50	190	0:47	12:39
K	H11	64:34	163	0:43	9:05
L	H12	54:46	134	0:43	7:45
M	H13	51:12	127	0:39	6:45
N	H14	65:59	150	0:42	8:16
O	H15	38:14	116	0:35	4:47
P	H16	29:06	82	0:30	3:16
Q	H17	7:13	28	0:19	0:42
R	H18	0:00	0	0:00	0:00
S	H19	0:00	0	0:00	0:00
T	H20	12:40	51	0:21	2:07
U	H21	0:00	0	0:00	0:00
V	H22	0:00	0	0:00	0:00
W	H23	67:06	107	1:00	7:43
X	H24	40:17	84	0:55	4:35
Y	H25	12:26	42	0:27	1:32
Z	H26	24:39	81	0:30	2:52
AA	H27	24:22	84	0:31	2:52
AB	H28	22:21	66	0:32	2:43
AC	H29	33:01	79	0:33	3:44
AD	H30	36:14	76	0:34	4:02
AE	H31	92:16	137	1:05	10:59
AF	H32	41:00	70	0:51	4:29
AG	H33	49:28	68	1:00	5:28
AH	H34	52:26	62	1:01	5:52
AI	H35	30:27	56	0:39	3:14

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SHADOW - Main Result

Calculation: Cush - GE158 - Cumulative

...continued from previous page

		Shadow, worst case			Shadow, expected values
No.	Name	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]
AJ	H36	73:47	80	1:18	8:33
AK	H37	0:00	0	0:00	0:00
AL	H38	3:01	17	0:13	0:18
AM	H39	12:08	34	0:28	1:16
AN	H40	0:00	0	0:00	0:00
AO	H41	3:11	17	0:14	0:19
AP	H42	0:00	0	0:00	0:00
AQ	H43	12:04	32	0:34	1:23
AR	H44	36:30	70	0:35	4:34
AS	H45	31:02	76	0:32	3:58
AT	H46	34:59	93	0:34	4:30
AU	H47	75:19	122	0:47	10:01
AV	H48	8:16	33	0:23	1:24
AW	H49	19:37	73	0:28	3:22
AX	H50	0:00	0	0:00	0:00
AY	H51	35:49	106	0:29	5:41
AZ	H52	34:30	106	0:32	5:49
BA	H53	31:45	118	0:28	4:59
BB	H54	68:34	152	0:55	11:17
BC	H55	122:29	222	1:04	19:12
BD	H56	96:48	203	0:51	15:04
BE	H57	137:54	193	1:30	22:48
BF	H58	48:26	134	0:34	7:39
BG	H59	9:48	39	0:24	1:41
BH	H60	11:42	45	0:24	1:59
BI	H61	12:23	48	0:24	2:06
BJ	H62	28:00	105	0:25	4:29
BK	H63	31:11	104	0:26	4:56
BL	H64	34:27	120	0:27	5:22
BM	H65	22:37	86	0:24	3:31
BN	H66	24:23	106	0:25	3:50
BO	H67	22:47	88	0:23	3:32
BP	H68	9:46	38	0:24	1:41
BQ	H69	30:00	107	0:25	4:47
BR	H70	8:07	32	0:23	1:21
BS	H71	0:00	0	0:00	0:00
BT	H72	0:00	0	0:00	0:00
BU	H73	0:00	0	0:00	0:00
BV	H74	0:00	0	0:00	0:00
BW	H75	0:00	0	0:00	0:00
BX	H76	0:00	0	0:00	0:00
BY	H77	0:00	0	0:00	0:00
BZ	H78	0:00	0	0:00	0:00
CA	H79	0:00	0	0:00	0:00
CB	H80	0:00	0	0:00	0:00
CC	H81	0:00	0	0:00	0:00
CD	H82	0:00	0	0:00	0:00
CE	H83	39:53	78	0:46	6:24
CF	H84	75:28	117	1:09	13:06
CG	H85	25:03	85	0:28	4:25
CH	H86	0:00	0	0:00	0:00
CI	H87	0:00	0	0:00	0:00
CJ	H88	0:00	0	0:00	0:00
CK	H89	0:00	0	0:00	0:00
CL	H90	0:00	0	0:00	0:00
CM	H91	0:00	0	0:00	0:00
CN	H92	0:00	0	0:00	0:00
CO	H93	0:00	0	0:00	0:00
CP	H94	0:00	0	0:00	0:00
CQ	H95	0:00	0	0:00	0:00
CR	H96	0:00	0	0:00	0:00
CS	H97	0:00	0	0:00	0:00
CT	H98	0:00	0	0:00	0:00

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SHADOW - Main Result

Calculation: Cush - GE158 - Cumulative

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No.	Name	Shadow, worst case: Shadow hours per year [h/year]	Shadow, worst case: Shadow days per year [days/year]	Shadow, worst case: Max shadow hours per day [h/day]	Shadow, expected values: Shadow hours per year [h/year]
CU	H99	0:00	0	0:00	0:00
CV	H100	17:44	46	0:33	3:03
CW	H101	13:05	40	0:30	2:17
CX	H102	11:49	35	0:29	1:50
CY	H103	11:00	35	0:28	1:41
CZ	H104	9:13	32	0:26	1:24
DA	H105	8:37	30	0:25	1:24
DB	H106	23:01	65	0:28	3:53
DC	H107	8:15	30	0:25	1:16
DD	H108	34:00	94	0:36	4:36
DE	H109	23:48	64	0:34	3:20
DF	H110	12:08	41	0:27	1:42
DG	H111	14:07	42	0:31	2:03
DH	H112	10:14	35	0:27	1:30
DI	H113	9:29	33	0:27	1:25
DJ	H114	8:18	31	0:25	1:14
DK	H115	6:27	28	0:22	0:56
DL	H116	0:00	0	0:00	0:00
DM	H117	0:00	0	0:00	0:00
DN	H118	0:00	0	0:00	0:00
DO	H119	0:00	0	0:00	0:00
DP	H120	0:00	0	0:00	0:00
DQ	H121	0:00	0	0:00	0:00
DR	H122	0:00	0	0:00	0:00
DS	H123	0:00	0	0:00	0:00
DT	H124	0:00	0	0:00	0:00
DU	H125	0:00	0	0:00	0:00
DV	H126	0:00	0	0:00	0:00
DW	H127	0:00	0	0:00	0:00
DX	H128	6:22	29	0:21	1:05
DY	H129	34:14	88	0:31	4:27
DZ	H130	0:00	0	0:00	0:00
EA	H131	0:00	0	0:00	0:00

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

No.	Name	Worst case [h/year]	Expected [h/year]
1	T9	187:38	27:47
2	T10	243:46	32:00
3	T11	345:03	45:55
4	Meenwaun M1	0:00	0:00
5	Meenwaun M2	0:00	0:00
6	Meenwaun M3	0:00	0:00
7	Meenwaun M4	0:00	0:00
8	Derrinlough D1	0:00	0:00
9	Derrinlough D2	0:00	0:00
10	Derrinlough D3	0:00	0:00
11	Derrinlough D4	0:00	0:00
12	Derrinlough D5	20:55	3:23
13	Derrinlough D6	0:00	0:00
14	Derrinlough D7	0:00	0:00
15	Derrinlough D8	0:00	0:00
16	Derrinlough D9	0:00	0:00
17	Derrinlough D10	0:00	0:00
18	Derrinlough D11	0:00	0:00
19	Derrinlough D12	0:00	0:00
20	Derrinlough D13	0:00	0:00
21	Derrinlough D14	0:00	0:00
22	Derrinlough D15	0:00	0:00
23	Derrinlough D16	0:00	0:00
24	Derrinlough D17	0:00	0:00
25	Derrinlough D18	0:00	0:00

To be continued on next page...

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SHADOW - Main Result

Calculation: Cush - GE158 - Cumulative

...continued from previous page

No.	Name	Worst case [h/year]	Expected [h/year]
26	Derrinlough D19	0:00	0:00
27	Derrinlough D20	0:00	0:00
28	Derrinlough D21	0:00	0:00
29	Cloghan C1	0:00	0:00
30	Cloghan C2	0:00	0:00
31	Cloghan C3	0:00	0:00
32	Cloghan C4	0:00	0:00
33	Cloghan C5	0:00	0:00
34	Cloghan C6	0:00	0:00
35	Cloghan C7	0:00	0:00
36	Cloghan C8	0:00	0:00
37	Cloghan C9	0:00	0:00
38	T1	192:43	26:11
39	T2	224:25	31:33
40	T3	159:48	20:37
41	T4	69:40	8:40
42	T5	62:52	8:46
43	T6	19:40	2:59
44	T7	140:52	23:19
45	T8	157:23	26:02

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.