

Ballyfeeny Green Energy Project



Environmental Impact Assessment Report Volume III

Appendix 15.2 – Shadow Flicker Assessment

September 2025

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SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst 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) [CLONES]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.45	1.93	2.72	4.31	5.45	4.41	4.74	3.96	3.48	2.54	1.71	1.01

Operational time

N	NE	E	SE	S	SW	W	NW	Sum
816	411	589	868	1,818	1,614	1,236	1,408	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: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpc

Receptor grid resolution: 1.0 m

All coordinates are in

Irish ITM-IRENET95 (IE), geocentric, GRS80

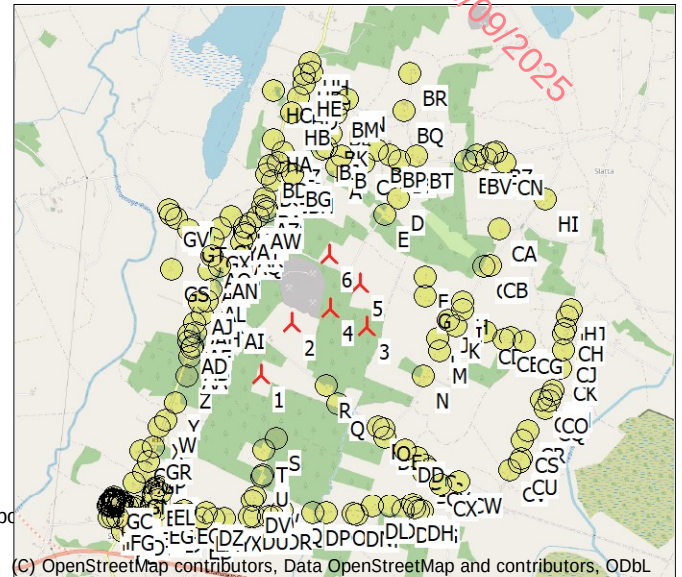
WTGs

	Easting	Northing	Z	Row data/Description	WTG type			Power, rated	Rotor diameter	Hub height	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	598,032	781,362	118.5	T1	Yes	VESTAS	V136-4,200	4,200	136.0	92.0	1,735	13.6
2	598,343	781,861	119.0	T2	Yes	VESTAS	V136-4,200	4,200	136.0	92.0	1,735	13.6
3	599,091	781,831	76.6	T3	Yes	VESTAS	V136-4,200	4,200	136.0	92.0	1,735	13.6
4	598,722	782,010	98.7	T4	Yes	VESTAS	V136-4,200	4,200	136.0	92.0	1,735	13.6
5	599,015	782,261	87.0	T5	Yes	VESTAS	V136-4,200	4,200	136.0	92.0	1,735	13.6
6	598,713	782,537	106.8	T6	Yes	VESTAS	V136-4,200	4,200	136.0	92.0	1,735	13.6

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	598,798	783,423	120.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
B	H2	598,840	783,526	123.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
C	H3	599,069	783,455	112.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
D	H4	599,401	783,112	97.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
E	H5	599,271	782,951	98.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
F	H6	599,674	782,327	92.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
G	H7	599,680	782,132	89.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
H	H8	600,044	782,075	86.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
I	H9	600,048	782,003	85.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
J	H10	599,905	781,899	82.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
K	H11	599,984	781,845	77.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
L	H12	599,805	781,713	78.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
M	H13	599,812	781,596	76.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
N	H14	599,657	781,345	77.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
O	H15	599,256	780,810	73.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
P	H16	599,201	780,837	74.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Q	H17	598,801	781,066	74.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
R	H18	598,692	781,246	79.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
S	H19	598,193	780,722	97.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
T	H20	598,071	780,617	97.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
U	H21	598,055	780,366	94.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
V	H22	598,049	780,345	94.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
W	H23	597,102	780,905	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
X	H24	597,031	780,834	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst Case)

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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]
Y H25		597,191	781,080	104.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Z H26		597,303	781,342	109.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AA H27		597,333	781,533	107.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AB H28		597,349	781,612	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AC H29		597,357	781,641	104.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AD H30		597,325	781,689	98.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AE H31		597,324	781,754	93.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AF H32		597,393	781,777	97.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AG H33		597,377	781,864	89.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AH H34		597,464	781,958	91.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AI H35		597,749	781,936	112.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AJ H36		597,428	782,081	80.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AK H37		597,504	782,090	87.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AL H38		597,539	782,208	87.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AM H39		597,523	782,399	74.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AN H40		597,626	782,427	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AO H41		597,555	782,529	67.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AP H42		597,663	782,476	89.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AQ H43		597,840	782,665	99.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AR H44		597,889	782,746	95.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AS H45		597,882	782,763	92.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AT H46		597,882	782,823	86.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AU H47		597,740	782,927	54.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AV H48		597,936	782,864	87.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AW H49		598,016	782,927	92.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AX H50		598,098	782,972	99.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AY H51		598,098	783,007	97.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AZ H52		598,056	783,033	89.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BA H53		598,085	783,106	91.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BB H54		598,150	783,274	100.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BC H55		598,094	783,349	88.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BD H56		598,132	783,429	88.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BE H57		598,205	783,461	97.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BF H58		598,288	783,369	106.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BG H59		598,355	783,344	111.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BH H60		598,389	783,278	115.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BI H61		598,643	783,594	127.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BJ H62		598,690	783,613	128.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BK H63		598,739	783,746	132.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BL H64		598,778	783,940	136.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BM H65		598,819	784,031	138.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BN H66		598,902	784,087	137.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BO H67		599,185	783,575	107.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BP H68		599,317	783,532	103.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BQ H69		599,456	783,980	110.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BR H70		599,513	784,351	112.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BS H71		599,416	783,475	98.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BT H72		599,589	783,523	94.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BU H73		600,071	783,474	94.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BV H74		600,157	783,465	93.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BW H75		600,182	783,531	95.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BX H76		600,291	783,496	89.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BY H77		600,344	783,554	90.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BZ H78		600,382	783,574	90.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CA H79		600,409	782,796	74.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CB H80		600,326	782,445	80.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CC H81		600,255	782,427	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CD H82		600,272	781,790	64.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CE H83		600,458	781,711	51.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CF H84		600,530	781,730	49.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CG H85		600,661	781,684	46.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CH H86		601,064	781,808	48.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CI H87		601,050	781,764	47.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CJ H88		601,046	781,604	46.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst Case)

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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]
CK H89		601,023	781,429	46.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CL H90		600,946	781,205	47.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CM H91		600,920	781,155	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CN H92		600,471	783,458	78.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CO H93		600,909	781,099	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CP H94		600,831	781,112	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CQ H95		600,863	781,023	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CR H96		600,698	780,804	52.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CS H97		600,643	780,706	53.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CT H98		600,622	780,527	49.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CU H99		600,608	780,483	49.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CV H100		600,518	780,413	49.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CW H101		600,007	780,294	52.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CX H102		599,827	780,257	54.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CY H103		599,756	780,367	58.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CZ H104		599,713	780,423	60.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DA H105		599,651	780,388	60.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DB H106		599,672	780,457	62.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DC H107		599,601	780,534	65.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DD H108		599,467	780,617	72.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DE H109		599,264	780,732	72.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DF H110		599,643	780,005	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DG H111		599,609	780,004	49.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DH H112		599,562	780,021	52.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DI H113		599,553	780,067	55.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DJ H114		599,455	780,010	57.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DK H115		599,317	780,049	63.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DL H116		599,148	780,050	68.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DM H117		598,997	779,960	66.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DN H118		598,957	779,972	66.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DO H119		598,687	779,985	60.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DP H120		598,561	779,983	59.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DQ H121		598,253	780,004	71.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DR H122		598,158	779,950	74.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DS H123		598,118	779,948	76.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DT H124		597,963	779,947	78.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DU H125		597,925	779,945	78.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DV H126		597,959	780,101	83.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DW H127		597,973	780,137	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DX H128		597,671	779,925	86.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DY H129		597,573	779,925	89.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DZ H130		597,490	779,982	91.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EA H131		597,457	779,929	91.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EB H132		597,394	779,842	89.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EC H133		597,282	780,000	89.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ED H134		597,074	779,917	87.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EE H135		597,020	779,914	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EF H136		596,982	779,958	87.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EG H137		596,993	780,009	87.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EH H138		596,996	780,032	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EI H139		597,017	780,120	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EJ H140		597,023	780,138	88.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EK H141		597,031	780,159	90.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EL H142		597,036	780,181	91.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EM H143		597,042	780,202	92.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EN H144		597,047	780,227	93.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EO H145		597,026	780,250	94.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EP H146		596,994	780,243	94.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EQ H147		596,987	780,218	93.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ER H148		596,982	780,197	92.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ES H149		596,977	780,174	91.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ET H150		596,974	780,151	89.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EU H151		596,953	780,054	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EV H152		596,944	780,033	87.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst Case)

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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]
EW H153		596,937	780,011	87.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EX H154		596,925	779,962	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EY H155		596,880	779,946	86.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EZ H156		596,777	779,893	85.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FA H157		596,776	779,936	85.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FB H158		596,757	779,936	85.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FC H159		596,732	779,904	85.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FD H160		596,726	779,890	84.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FE H161		596,670	779,805	81.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FF H162		596,680	779,932	85.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FG H163		596,607	779,941	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FH H164		596,568	779,943	84.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FI H165		596,533	779,941	83.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FJ H166		596,761	780,022	86.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FK H167		596,778	780,054	86.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FL H168		596,713	780,034	85.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FM H169		596,665	780,084	85.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FN H170		596,657	780,069	84.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FO H171		596,650	780,055	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FP H172		596,639	780,038	85.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FQ H173		596,639	780,103	84.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FR H174		596,631	780,092	84.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FS H175		596,625	780,079	84.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FT H176		596,619	780,068	84.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FU H177		596,615	780,058	84.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FV H178		596,608	780,047	85.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FW H179		596,598	780,121	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FX H180		596,590	780,106	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FY H181		596,579	780,089	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FZ H182		596,570	780,069	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GA H183		596,561	780,052	84.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GB H184		596,552	780,037	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GC H185		596,572	780,141	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GD H186		596,564	780,132	83.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GE H187		596,560	780,121	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GF H188		596,554	780,111	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GG H189		596,549	780,102	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GH H190		596,542	780,093	83.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GI H191		596,539	780,081	83.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GJ H192		596,533	780,071	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GK H193		596,526	780,063	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GL H194		596,522	780,054	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GM H195		596,513	780,046	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GN H196		596,783	780,282	94.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GO H197		596,867	780,391	97.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GP H198		596,915	780,499	101.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GQ H199		596,843	780,598	102.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GR H200		596,969	780,637	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GS H201		597,157	782,411	45.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GT H202		597,320	782,787	44.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GU H203		597,196	782,903	44.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GV H204		597,144	782,951	44.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GW H205		597,126	782,991	43.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GX H206		597,556	782,715	48.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GY H207		597,639	782,811	53.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GZ H208		598,263	783,573	103.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HA H209		598,164	783,696	88.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HB H210		598,346	783,957	97.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HC H211		598,157	784,178	67.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HD H212		598,413	784,113	102.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HE H213		598,468	784,249	105.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HF H214		598,471	784,336	100.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HG H215		598,544	784,355	106.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HH H216		598,525	784,445	99.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst Case)

...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]
HI H217		600,865	783,097	64.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HJ H218		601,126	781,999	53.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HK H219		601,094	781,938	51.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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		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		43:51	114	0:37	4:52	
E H5		82:07	131	1:08	8:58	
F H6		102:26	215	0:48	15:18	
G H7		121:46	216	0:59	20:05	
H H8		47:26	134	0:34	7:55	
I H9		49:05	130	0:39	8:27	
J H10		77:11	163	0:48	14:09	
K H11		65:21	148	0:45	12:11	
L H12		67:22	130	0:58	12:27	
M H13		50:15	97	0:48	9:34	
N H14		32:49	117	0:26	5:59	
O H15		16:30	52	0:25	3:12	
P H16		18:45	56	0:26	3:39	
Q H17		55:54	102	0:41	10:20	
R H18		48:50	79	0:48	9:20	
S H19		0:00	0	0:00	0:00	
T H20		0:00	0	0:00	0:00	
U H21		0:00	0	0:00	0:00	
V H22		0:00	0	0:00	0:00	
W H23		39:09	96	0:33	6:40	
X H24		33:29	89	0:30	5:43	
Y H25		47:59	122	0:37	8:11	
Z H26		54:33	130	0:44	9:45	
AA H27		56:46	150	0:44	9:15	
AB H28		63:41	160	0:43	10:08	
AC H29		65:53	163	0:44	10:23	
AD H30		60:40	158	0:42	9:42	
AE H31		59:41	144	0:46	9:46	
AF H32		74:06	180	0:49	12:05	
AG H33		70:04	164	0:52	11:25	
AH H34		88:09	199	0:51	13:35	
AI H35		153:03	244	1:13	22:36	
AJ H36		85:04	210	0:45	12:14	
AK H37		97:11	208	0:51	13:45	
AL H38		74:05	168	0:37	10:04	
AM H39		52:17	143	0:33	7:28	
AN H40		39:50	95	0:36	6:07	
AO H41		20:44	50	0:32	2:49	
AP H42		28:47	62	0:36	3:50	
AQ H43		73:55	183	0:37	9:39	
AR H44		65:43	172	0:37	8:36	
AS H45		64:43	169	0:37	8:28	
AT H46		61:27	161	0:36	8:02	
AU H47		35:03	91	0:30	4:14	
AV H48		60:51	152	0:38	7:56	
AW H49		68:10	136	0:41	8:34	
AX H50		59:27	121	0:44	7:22	
AY H51		54:30	116	0:43	6:46	
AZ H52		44:39	111	0:40	5:40	
BA H53		39:27	100	0:39	5:03	

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst Case)

...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]
BB	H54	47:26	74	0:48	5:14
BC	H55	35:42	72	0:34	3:57
BD	H56	31:57	55	0:47	3:15
BE	H57	10:51	34	0:24	1:01
BF	H58	12:09	35	0:26	1:08
BG	H59	5:47	23	0:19	0:30
BH	H60	12:04	34	0:28	1:06
BI	H61	0:00	0	0:00	0:00
BJ	H62	0:00	0	0:00	0:00
BK	H63	0:00	0	0:00	0:00
BL	H64	0:00	0	0:00	0:00
BM	H65	0:00	0	0:00	0:00
BN	H66	0:00	0	0:00	0:00
BO	H67	0:00	0	0:00	0:00
BP	H68	7:46	30	0:20	0:39
BQ	H69	0:00	0	0:00	0:00
BR	H70	0:00	0	0:00	0:00
BS	H71	23:29	56	0:30	2:13
BT	H72	22:08	68	0:26	2:15
BU	H73	16:38	74	0:19	1:41
BV	H74	12:54	79	0:18	1:24
BW	H75	8:27	50	0:16	0:49
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	15:02	73	0:21	1:58
CB	H80	22:24	100	0:24	3:20
CC	H81	24:03	103	0:24	3:36
CD	H82	36:38	105	0:34	6:52
CE	H83	16:47	65	0:23	3:08
CF	H84	14:38	60	0:22	2:43
CG	H85	5:51	26	0:20	1:05
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
CU	H99	0:00	0	0:00	0:00
CV	H100	0:00	0	0:00	0:00
CW	H101	0:00	0	0:00	0:00
CX	H102	0:00	0	0:00	0:00
CY	H103	0:00	0	0:00	0:00
CZ	H104	0:00	0	0:00	0:00
DA	H105	0:00	0	0:00	0:00
DB	H106	0:00	0	0:00	0:00
DC	H107	0:00	0	0:00	0:00
DD	H108	12:20	49	0:21	2:27
DE	H109	19:56	67	0:25	3:52
DF	H110	0:00	0	0:00	0:00
DG	H111	0:00	0	0:00	0:00
DH	H112	0:00	0	0:00	0:00
DI	H113	0:00	0	0:00	0:00
DJ	H114	0:00	0	0:00	0:00
DK	H115	0:00	0	0:00	0:00
DL	H116	0:00	0	0:00	0:00

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Project:

Ballyfeeny_WF

Licensed user:

Macro Works Ltd
 Hibernia House, Cherrywood, Loughlinstown
 IE-D18 E440 Dublin
 0035312303585
 Peter Connell / peter.connell@macroworks.ie
 Calculated:
 06/06/2025 09:10/4.0.424

SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst Case)

...continued from previous page

No.	Name	Shadow, worst case		Max shadow hours per day	Shadow, expected values	
		Shadow hours per year [h/year]	Shadow days per year [days/year]		Shadow hours per year [h/year]	Shadow hours per year [h/year]
DM	H117	0:00	0	0:00	0:00	0:00
DN	H118	0:00	0	0:00	0:00	0:00
DO	H119	0:00	0	0:00	0:00	0:00
DP	H120	0:00	0	0:00	0:00	0:00
DQ	H121	0:00	0	0:00	0:00	0:00
DR	H122	0:00	0	0:00	0:00	0:00
DS	H123	0:00	0	0:00	0:00	0:00
DT	H124	0:00	0	0:00	0:00	0:00
DU	H125	0:00	0	0:00	0:00	0:00
DV	H126	0:00	0	0:00	0:00	0:00
DW	H127	0:00	0	0:00	0:00	0:00
DX	H128	0:00	0	0:00	0:00	0:00
DY	H129	0:00	0	0:00	0:00	0:00
DZ	H130	0:00	0	0:00	0:00	0:00
EA	H131	0:00	0	0:00	0:00	0:00
EB	H132	0:00	0	0:00	0:00	0:00
EC	H133	0:00	0	0:00	0:00	0:00
ED	H134	0:00	0	0:00	0:00	0:00
EE	H135	0:00	0	0:00	0:00	0:00
EF	H136	0:00	0	0:00	0:00	0:00
EG	H137	0:00	0	0:00	0:00	0:00
EH	H138	0:00	0	0:00	0:00	0:00
EI	H139	0:00	0	0:00	0:00	0:00
EJ	H140	0:00	0	0:00	0:00	0:00
EK	H141	0:00	0	0:00	0:00	0:00
EL	H142	0:00	0	0:00	0:00	0:00
EM	H143	0:00	0	0:00	0:00	0:00
EN	H144	0:00	0	0:00	0:00	0:00
EO	H145	0:00	0	0:00	0:00	0:00
EP	H146	0:00	0	0:00	0:00	0:00
EQ	H147	0:00	0	0:00	0:00	0:00
ER	H148	0:00	0	0:00	0:00	0:00
ES	H149	0:00	0	0:00	0:00	0:00
ET	H150	0:00	0	0:00	0:00	0:00
EU	H151	0:00	0	0:00	0:00	0:00
EV	H152	0:00	0	0:00	0:00	0:00
EW	H153	0:00	0	0:00	0:00	0:00
EX	H154	0:00	0	0:00	0:00	0:00
EY	H155	0:00	0	0:00	0:00	0:00
EZ	H156	0:00	0	0:00	0:00	0:00
FA	H157	0:00	0	0:00	0:00	0:00
FB	H158	0:00	0	0:00	0:00	0:00
FC	H159	0:00	0	0:00	0:00	0:00
FD	H160	0:00	0	0:00	0:00	0:00
FE	H161	0:00	0	0:00	0:00	0:00
FF	H162	0:00	0	0:00	0:00	0:00
FG	H163	0:00	0	0:00	0:00	0:00
FH	H164	0:00	0	0:00	0:00	0:00
FI	H165	0:00	0	0:00	0:00	0:00
FJ	H166	0:00	0	0:00	0:00	0:00
FK	H167	0:00	0	0:00	0:00	0:00
FL	H168	0:00	0	0:00	0:00	0:00
FM	H169	0:00	0	0:00	0:00	0:00
FN	H170	0:00	0	0:00	0:00	0:00
FO	H171	0:00	0	0:00	0:00	0:00
FP	H172	0:00	0	0:00	0:00	0:00
FQ	H173	0:00	0	0:00	0:00	0:00
FR	H174	0:00	0	0:00	0:00	0:00
FS	H175	0:00	0	0:00	0:00	0:00
FT	H176	0:00	0	0:00	0:00	0:00
FU	H177	0:00	0	0:00	0:00	0:00
FV	H178	0:00	0	0:00	0:00	0:00
FW	H179	0:00	0	0:00	0:00	0:00

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SHADOW - Main Result

Calculation: Shadow - Technology Option 1 (Worst Case)

...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]
FX	H180	0:00	0	0:00	0:00
FY	H181	0:00	0	0:00	0:00
FZ	H182	0:00	0	0:00	0:00
GA	H183	0:00	0	0:00	0:00
GB	H184	0:00	0	0:00	0:00
GC	H185	0:00	0	0:00	0:00
GD	H186	0:00	0	0:00	0:00
GE	H187	0:00	0	0:00	0:00
GF	H188	0:00	0	0:00	0:00
GG	H189	0:00	0	0:00	0:00
GH	H190	0:00	0	0:00	0:00
GI	H191	0:00	0	0:00	0:00
GJ	H192	0:00	0	0:00	0:00
GK	H193	0:00	0	0:00	0:00
GL	H194	0:00	0	0:00	0:00
GM	H195	0:00	0	0:00	0:00
GN	H196	0:00	0	0:00	0:00
GO	H197	0:00	0	0:00	0:00
GP	H198	3:59	32	0:11	0:38
GQ	H199	20:36	65	0:24	3:25
GR	H200	18:21	58	0:27	3:00
GS	H201	47:14	156	0:26	6:31
GT	H202	28:31	99	0:24	4:04
GU	H203	17:41	66	0:21	2:28
GV	H204	16:32	63	0:20	2:18
GW	H205	16:10	62	0:20	2:13
GX	H206	32:49	92	0:28	4:40
GY	H207	44:33	113	0:29	5:38
GZ	H208	0:00	0	0:00	0:00
HA	H209	0:00	0	0:00	0:00
HB	H210	0:00	0	0:00	0:00
HC	H211	0:00	0	0:00	0:00
HD	H212	0:00	0	0:00	0:00
HE	H213	0:00	0	0:00	0:00
HF	H214	0:00	0	0:00	0:00
HG	H215	0:00	0	0:00	0:00
HH	H216	0:00	0	0:00	0:00
HI	H217	0:00	0	0:00	0:00
HJ	H218	0:00	0	0:00	0:00
HK	H219	0:00	0	0:00	0:00

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

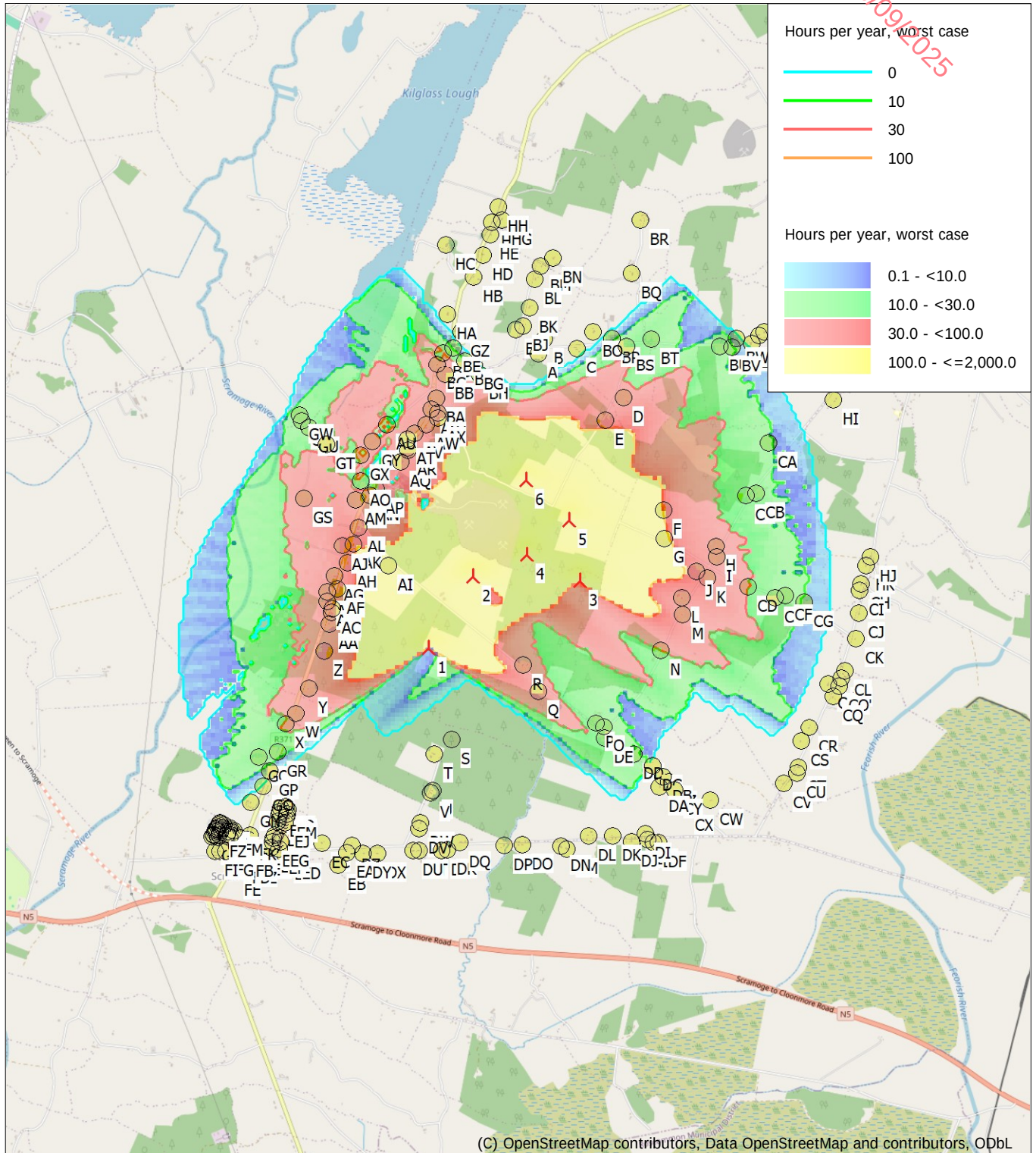
No.	Name	Worst case [h/year]	Expected [h/year]
1	T1	518:49	81:00
2	T2	398:03	59:38
3	T3	215:42	33:09
4	T4	267:43	40:13
5	T5	250:15	38:23
6	T6	473:53	68:21

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

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

SHADOW - Map

Calculation: Shadow - Technology Option 1 (Worst Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 598,590 North: 781,800

New WTG

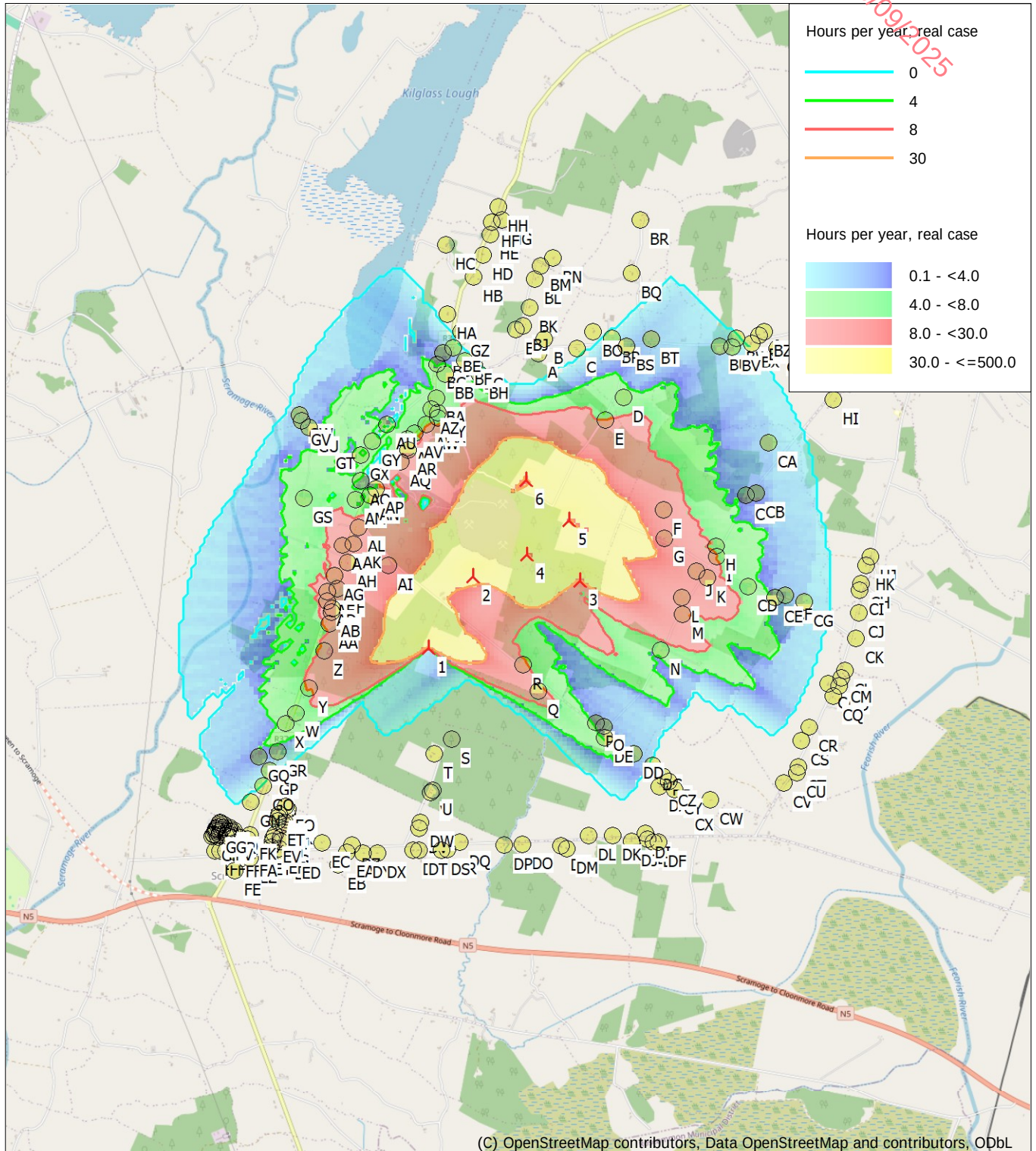
Shadow receptor

Flicker map level: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpo (1)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1.5 m

SHADOW - Map

Calculation: Shadow - Technology Option 1 (Real Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 598,590 North: 781,800

▲ New WTG

● Shadow receptor

Flicker map level: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpo (1)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1.5 m

SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst 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) [CLONES]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.45	1.93	2.72	4.31	5.45	4.41	4.74	3.96	3.48	2.54	1.71	1.01

Operational time

N	NE	E	SE	S	SW	W	NW	Sum
816	411	589	868	1,818	1,614	1,236	1,408	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: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpc
Receptor grid resolution: 1.0 m

All coordinates are in

Irish ITM-IRENET95 (IE), geocentric, GRS80

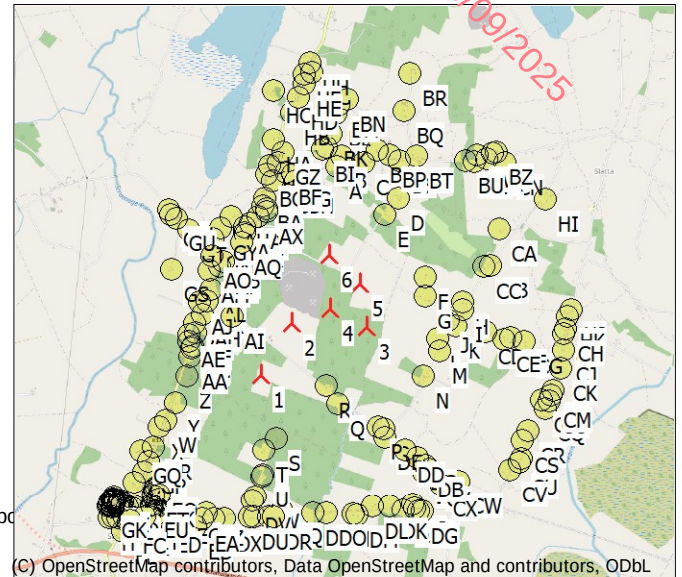
WTGs

	Easting	Northing	Z	Row data/Description	WTG type				Rotor diameter	Hub height	Shadow data	
					Valid	Manufact.	Type-generator	Power, rated			Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	598,032	781,362	118.5	T1	Yes	NORDEX	N133/4.8-4,800	4,800	133.0	90.0	1,725	12.2
2	598,343	781,861	119.0	T2	Yes	NORDEX	N133/4.8-4,800	4,800	133.0	90.0	1,725	12.2
3	599,091	781,831	76.6	T3	Yes	NORDEX	N133/4.8-4,800	4,800	133.0	90.0	1,725	12.2
4	598,722	782,010	98.7	T4	Yes	NORDEX	N133/4.8-4,800	4,800	133.0	90.0	1,725	12.2
5	599,015	782,261	87.0	T5	Yes	NORDEX	N133/4.8-4,800	4,800	133.0	90.0	1,725	12.2
6	598,713	782,537	106.8	T6	Yes	NORDEX	N133/4.8-4,800	4,800	133.0	90.0	1,725	12.2

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		598,798	783,423	120.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
B H2		598,840	783,526	123.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
C H3		599,069	783,455	112.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
D H4		599,401	783,112	97.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
E H5		599,271	782,951	98.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
F H6		599,674	782,327	92.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
G H7		599,680	782,132	89.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
H H8		600,044	782,075	86.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
I H9		600,048	782,003	85.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
J H10		599,905	781,899	82.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
K H11		599,984	781,845	77.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
L H12		599,805	781,713	78.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
M H13		599,812	781,596	76.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
N H14		599,657	781,345	77.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
O H15		599,256	780,810	73.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
P H16		599,201	780,837	74.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Q H17		598,801	781,066	74.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
R H18		598,692	781,246	79.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
S H19		598,193	780,722	97.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
T H20		598,071	780,617	97.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
U H21		598,055	780,366	94.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
V H22		598,049	780,345	94.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
W H23		597,102	780,905	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
X H24		597,031	780,834	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...



SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst Case)

...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]
Y H25		597,191	781,080	104.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Z H26		597,303	781,342	109.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AA H27		597,333	781,533	107.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AB H28		597,349	781,612	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AC H29		597,357	781,641	104.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AD H30		597,325	781,689	98.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AE H31		597,324	781,754	93.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AF H32		597,393	781,777	97.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AG H33		597,377	781,864	89.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AH H34		597,464	781,958	91.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AI H35		597,749	781,936	112.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AJ H36		597,428	782,081	80.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AK H37		597,504	782,090	87.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AL H38		597,539	782,208	87.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AM H39		597,523	782,399	74.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AN H40		597,626	782,427	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AO H41		597,555	782,529	67.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AP H42		597,663	782,476	89.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AQ H43		597,840	782,665	99.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AR H44		597,889	782,746	95.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AS H45		597,882	782,763	92.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AT H46		597,882	782,823	86.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AU H47		597,740	782,927	54.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AV H48		597,936	782,864	87.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AW H49		598,016	782,927	92.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AX H50		598,098	782,972	99.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AY H51		598,098	783,007	97.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AZ H52		598,056	783,033	89.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BA H53		598,085	783,106	91.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BB H54		598,150	783,274	100.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BC H55		598,094	783,349	88.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BD H56		598,132	783,429	88.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BE H57		598,205	783,461	97.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BF H58		598,288	783,369	106.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BG H59		598,355	783,344	111.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BH H60		598,389	783,278	115.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BI H61		598,643	783,594	127.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BJ H62		598,690	783,613	128.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BK H63		598,739	783,746	132.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BL H64		598,778	783,940	136.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BM H65		598,819	784,031	138.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BN H66		598,902	784,087	137.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BO H67		599,185	783,575	107.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BP H68		599,317	783,532	103.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BQ H69		599,456	783,980	110.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BR H70		599,513	784,351	112.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BS H71		599,416	783,475	98.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BT H72		599,589	783,523	94.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BU H73		600,071	783,474	94.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BV H74		600,157	783,465	93.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BW H75		600,182	783,531	95.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BX H76		600,291	783,496	89.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BY H77		600,344	783,554	90.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BZ H78		600,382	783,574	90.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CA H79		600,409	782,796	74.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CB H80		600,326	782,445	80.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CC H81		600,255	782,427	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CD H82		600,272	781,790	64.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CE H83		600,458	781,711	51.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CF H84		600,530	781,730	49.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CG H85		600,661	781,684	46.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CH H86		601,064	781,808	48.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CI H87		601,050	781,764	47.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CJ H88		601,046	781,604	46.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst Case)

...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]
CK H89		601,023	781,429	46.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CL H90		600,946	781,205	47.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CM H91		600,920	781,155	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CN H92		600,471	783,458	78.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CO H93		600,909	781,099	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CP H94		600,831	781,112	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CQ H95		600,863	781,023	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CR H96		600,698	780,804	52.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CS H97		600,643	780,706	53.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CT H98		600,622	780,527	49.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CU H99		600,608	780,483	49.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CV H100		600,518	780,413	49.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CW H101		600,007	780,294	52.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CX H102		599,827	780,257	54.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CY H103		599,756	780,367	58.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CZ H104		599,713	780,423	60.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DA H105		599,651	780,388	60.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DB H106		599,672	780,457	62.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DC H107		599,601	780,534	65.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DD H108		599,467	780,617	72.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DE H109		599,264	780,732	72.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DF H110		599,643	780,005	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DG H111		599,609	780,004	49.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DH H112		599,562	780,021	52.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DI H113		599,553	780,067	55.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DJ H114		599,455	780,010	57.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DK H115		599,317	780,049	63.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DL H116		599,148	780,050	68.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DM H117		598,997	779,960	66.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DN H118		598,957	779,972	66.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DO H119		598,687	779,985	60.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DP H120		598,561	779,983	59.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DQ H121		598,253	780,004	71.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DR H122		598,158	779,950	74.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DS H123		598,118	779,948	76.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DT H124		597,963	779,947	78.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DU H125		597,925	779,945	78.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DV H126		597,959	780,101	83.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DW H127		597,973	780,137	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DX H128		597,671	779,925	86.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DY H129		597,573	779,925	89.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DZ H130		597,490	779,982	91.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EA H131		597,457	779,929	91.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EB H132		597,394	779,842	89.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EC H133		597,282	780,000	89.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ED H134		597,074	779,917	87.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EE H135		597,020	779,914	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EF H136		596,982	779,958	87.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EG H137		596,993	780,009	87.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EH H138		596,996	780,032	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EI H139		597,017	780,120	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EJ H140		597,023	780,138	88.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EK H141		597,031	780,159	90.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EL H142		597,036	780,181	91.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EM H143		597,042	780,202	92.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EN H144		597,047	780,227	93.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EO H145		597,026	780,250	94.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EP H146		596,994	780,243	94.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EQ H147		596,987	780,218	93.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ER H148		596,982	780,197	92.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ES H149		596,977	780,174	91.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ET H150		596,974	780,151	89.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EU H151		596,953	780,054	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EV H152		596,944	780,033	87.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst Case)

...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]
EW H153		596,937	780,011	87.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EX H154		596,925	779,962	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EY H155		596,880	779,946	86.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EZ H156		596,777	779,893	85.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FA H157		596,776	779,936	85.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FB H158		596,757	779,936	85.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FC H159		596,732	779,904	85.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FD H160		596,726	779,890	84.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FE H161		596,670	779,805	81.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FF H162		596,680	779,932	85.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FG H163		596,607	779,941	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FH H164		596,568	779,943	84.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FI H165		596,533	779,941	83.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FJ H166		596,761	780,022	86.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FK H167		596,778	780,054	86.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FL H168		596,713	780,034	85.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FM H169		596,665	780,084	85.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FN H170		596,657	780,069	84.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FO H171		596,650	780,055	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FP H172		596,639	780,038	85.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FQ H173		596,639	780,103	84.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FR H174		596,631	780,092	84.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FS H175		596,625	780,079	84.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FT H176		596,619	780,068	84.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FU H177		596,615	780,058	84.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FV H178		596,608	780,047	85.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FW H179		596,598	780,121	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FX H180		596,590	780,106	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FY H181		596,579	780,089	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FZ H182		596,570	780,069	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GA H183		596,561	780,052	84.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GB H184		596,552	780,037	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GC H185		596,572	780,141	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GD H186		596,564	780,132	83.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GE H187		596,560	780,121	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GF H188		596,554	780,111	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GG H189		596,549	780,102	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GH H190		596,542	780,093	83.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GI H191		596,539	780,081	83.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GJ H192		596,533	780,071	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GK H193		596,526	780,063	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GL H194		596,522	780,054	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GM H195		596,513	780,046	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GN H196		596,783	780,282	94.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GO H197		596,867	780,391	97.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GP H198		596,915	780,499	101.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GQ H199		596,843	780,598	102.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GR H200		596,969	780,637	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GS H201		597,157	782,411	45.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GT H202		597,320	782,787	44.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GU H203		597,196	782,903	44.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GV H204		597,144	782,951	44.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GW H205		597,126	782,991	43.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GX H206		597,556	782,715	48.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GY H207		597,639	782,811	53.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GZ H208		598,263	783,573	103.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HA H209		598,164	783,696	88.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HB H210		598,346	783,957	97.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HC H211		598,157	784,178	67.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HD H212		598,413	784,113	102.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HE H213		598,468	784,249	105.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HF H214		598,471	784,336	100.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HG H215		598,544	784,355	106.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HH H216		598,525	784,445	99.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst Case)

...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]
HI H217		600,865	783,097	64.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HJ H218		601,126	781,999	53.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HK H219		601,094	781,938	51.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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		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		40:39	110	0:36	4:31	
E H5		75:01	130	1:03	8:15	
F H6		97:13	213	0:47	14:29	
G H7		115:37	212	0:57	19:02	
H H8		44:53	131	0:32	7:29	
I H9		46:29	129	0:38	7:59	
J H10		72:44	158	0:47	13:20	
K H11		61:37	144	0:44	11:30	
L H12		64:49	129	0:57	11:58	
M H13		47:39	94	0:48	9:04	
N H14		31:28	113	0:25	5:44	
O H15		15:40	51	0:25	3:02	
P H16		17:41	54	0:26	3:26	
Q H17		53:40	102	0:40	9:56	
R H18		46:24	77	0:47	8:51	
S H19		0:00	0	0:00	0:00	
T H20		0:00	0	0:00	0:00	
U H21		0:00	0	0:00	0:00	
V H22		0:00	0	0:00	0:00	
W H23		35:51	96	0:32	6:09	
X H24		31:38	89	0:30	5:25	
Y H25		45:52	122	0:37	7:48	
Z H26		51:27	125	0:42	9:12	
AA H27		54:04	147	0:43	8:48	
AB H28		60:50	158	0:42	9:40	
AC H29		62:54	162	0:43	9:54	
AD H30		57:27	151	0:41	9:11	
AE H31		56:46	138	0:45	9:17	
AF H32		70:28	175	0:48	11:29	
AG H33		66:40	161	0:50	10:50	
AH H34		84:01	195	0:50	12:54	
AI H35		145:06	240	1:10	21:23	
AJ H36		81:42	208	0:43	11:42	
AK H37		90:00	207	0:43	12:38	
AL H38		70:08	164	0:35	9:31	
AM H39		39:27	111	0:32	5:38	
AN H40		38:06	93	0:35	5:50	
AO H41		20:01	50	0:31	2:43	
AP H42		27:49	61	0:35	3:42	
AQ H43		69:43	176	0:36	9:04	
AR H44		61:25	169	0:36	8:03	
AS H45		60:33	168	0:36	7:56	
AT H46		57:19	158	0:35	7:31	
AU H47		33:11	89	0:29	4:00	
AV H48		57:31	149	0:37	7:31	
AW H49		64:48	133	0:40	8:08	
AX H50		55:23	118	0:43	6:53	
AY H51		50:33	112	0:41	6:18	
AZ H52		41:59	107	0:39	5:21	
BA H53		37:09	97	0:38	4:46	

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SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst Case)

...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]
BB	H54	45:26	72	0:47	5:00
BC	H55	34:16	70	0:33	3:46
BD	H56	29:59	54	0:45	3:02
BE	H57	9:03	31	0:22	0:51
BF	H58	10:07	32	0:24	0:56
BG	H59	3:28	18	0:15	0:18
BH	H60	9:21	30	0:24	0:51
BI	H61	0:00	0	0:00	0:00
BJ	H62	0:00	0	0:00	0:00
BK	H63	0:00	0	0:00	0:00
BL	H64	0:00	0	0:00	0:00
BM	H65	0:00	0	0:00	0:00
BN	H66	0:00	0	0:00	0:00
BO	H67	0:00	0	0:00	0:00
BP	H68	6:17	26	0:18	0:31
BQ	H69	0:00	0	0:00	0:00
BR	H70	0:00	0	0:00	0:00
BS	H71	22:06	54	0:29	2:04
BT	H72	21:15	66	0:25	2:09
BU	H73	15:38	72	0:19	1:34
BV	H74	12:05	78	0:17	1:19
BW	H75	7:45	49	0:16	0:44
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	14:01	73	0:20	1:50
CB	H80	20:48	98	0:22	3:06
CC	H81	22:38	103	0:23	3:24
CD	H82	26:53	86	0:33	4:58
CE	H83	15:52	64	0:22	2:58
CF	H84	14:00	60	0:22	2:36
CG	H85	5:31	26	0:20	1:01
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
CU	H99	0:00	0	0:00	0:00
CV	H100	0:00	0	0:00	0:00
CW	H101	0:00	0	0:00	0:00
CX	H102	0:00	0	0:00	0:00
CY	H103	0:00	0	0:00	0:00
CZ	H104	0:00	0	0:00	0:00
DA	H105	0:00	0	0:00	0:00
DB	H106	0:00	0	0:00	0:00
DC	H107	0:00	0	0:00	0:00
DD	H108	11:34	47	0:21	2:19
DE	H109	18:38	63	0:24	3:38
DF	H110	0:00	0	0:00	0:00
DG	H111	0:00	0	0:00	0:00
DH	H112	0:00	0	0:00	0:00
DI	H113	0:00	0	0:00	0:00
DJ	H114	0:00	0	0:00	0:00
DK	H115	0:00	0	0:00	0:00
DL	H116	0:00	0	0:00	0:00

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Project:

Ballyfeeny_WF

Licensed user:

Macro Works Ltd
 Hibernia House, Cherrywood, Loughlinstown
 IE-D18 E440 Dublin
 0035312303585
 Peter Connell / peter.connell@macroworks.ie
 Calculated:
 19/05/2025 16:31/4.0.424

SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst Case)

...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]
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	0:00	0	0:00	0:00
DY	H129	0:00	0	0:00	0:00
DZ	H130	0:00	0	0:00	0:00
EA	H131	0:00	0	0:00	0:00
EB	H132	0:00	0	0:00	0:00
EC	H133	0:00	0	0:00	0:00
ED	H134	0:00	0	0:00	0:00
EE	H135	0:00	0	0:00	0:00
EF	H136	0:00	0	0:00	0:00
EG	H137	0:00	0	0:00	0:00
EH	H138	0:00	0	0:00	0:00
EI	H139	0:00	0	0:00	0:00
EJ	H140	0:00	0	0:00	0:00
EK	H141	0:00	0	0:00	0:00
EL	H142	0:00	0	0:00	0:00
EM	H143	0:00	0	0:00	0:00
EN	H144	0:00	0	0:00	0:00
EO	H145	0:00	0	0:00	0:00
EP	H146	0:00	0	0:00	0:00
EQ	H147	0:00	0	0:00	0:00
ER	H148	0:00	0	0:00	0:00
ES	H149	0:00	0	0:00	0:00
ET	H150	0:00	0	0:00	0:00
EU	H151	0:00	0	0:00	0:00
EV	H152	0:00	0	0:00	0:00
EW	H153	0:00	0	0:00	0:00
EX	H154	0:00	0	0:00	0:00
EY	H155	0:00	0	0:00	0:00
EZ	H156	0:00	0	0:00	0:00
FA	H157	0:00	0	0:00	0:00
FB	H158	0:00	0	0:00	0:00
FC	H159	0:00	0	0:00	0:00
FD	H160	0:00	0	0:00	0:00
FE	H161	0:00	0	0:00	0:00
FF	H162	0:00	0	0:00	0:00
FG	H163	0:00	0	0:00	0:00
FH	H164	0:00	0	0:00	0:00
FI	H165	0:00	0	0:00	0:00
FJ	H166	0:00	0	0:00	0:00
FK	H167	0:00	0	0:00	0:00
FL	H168	0:00	0	0:00	0:00
FM	H169	0:00	0	0:00	0:00
FN	H170	0:00	0	0:00	0:00
FO	H171	0:00	0	0:00	0:00
FP	H172	0:00	0	0:00	0:00
FQ	H173	0:00	0	0:00	0:00
FR	H174	0:00	0	0:00	0:00
FS	H175	0:00	0	0:00	0:00
FT	H176	0:00	0	0:00	0:00
FU	H177	0:00	0	0:00	0:00
FV	H178	0:00	0	0:00	0:00
FW	H179	0:00	0	0:00	0:00

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 2 (Worst Case)

...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]
FX	H180	0:00	0	0:00	0:00
FY	H181	0:00	0	0:00	0:00
FZ	H182	0:00	0	0:00	0:00
GA	H183	0:00	0	0:00	0:00
GB	H184	0:00	0	0:00	0:00
GC	H185	0:00	0	0:00	0:00
GD	H186	0:00	0	0:00	0:00
GE	H187	0:00	0	0:00	0:00
GF	H188	0:00	0	0:00	0:00
GG	H189	0:00	0	0:00	0:00
GH	H190	0:00	0	0:00	0:00
GI	H191	0:00	0	0:00	0:00
GJ	H192	0:00	0	0:00	0:00
GK	H193	0:00	0	0:00	0:00
GL	H194	0:00	0	0:00	0:00
GM	H195	0:00	0	0:00	0:00
GN	H196	0:00	0	0:00	0:00
GO	H197	0:00	0	0:00	0:00
GP	H198	3:50	32	0:10	0:36
GQ	H199	19:58	65	0:24	3:19
GR	H200	17:59	57	0:27	2:57
GS	H201	45:21	152	0:25	6:14
GT	H202	27:29	97	0:24	3:55
GU	H203	17:08	66	0:21	2:24
GV	H204	15:53	63	0:20	2:12
GW	H205	15:39	62	0:20	2:09
GX	H206	11:34	34	0:27	1:52
GY	H207	42:42	110	0:28	5:24
GZ	H208	0:00	0	0:00	0:00
HA	H209	0:00	0	0:00	0:00
HB	H210	0:00	0	0:00	0:00
HC	H211	0:00	0	0:00	0:00
HD	H212	0:00	0	0:00	0:00
HE	H213	0:00	0	0:00	0:00
HF	H214	0:00	0	0:00	0:00
HG	H215	0:00	0	0:00	0:00
HH	H216	0:00	0	0:00	0:00
HI	H217	0:00	0	0:00	0:00
HJ	H218	0:00	0	0:00	0:00
HK	H219	0:00	0	0:00	0:00

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

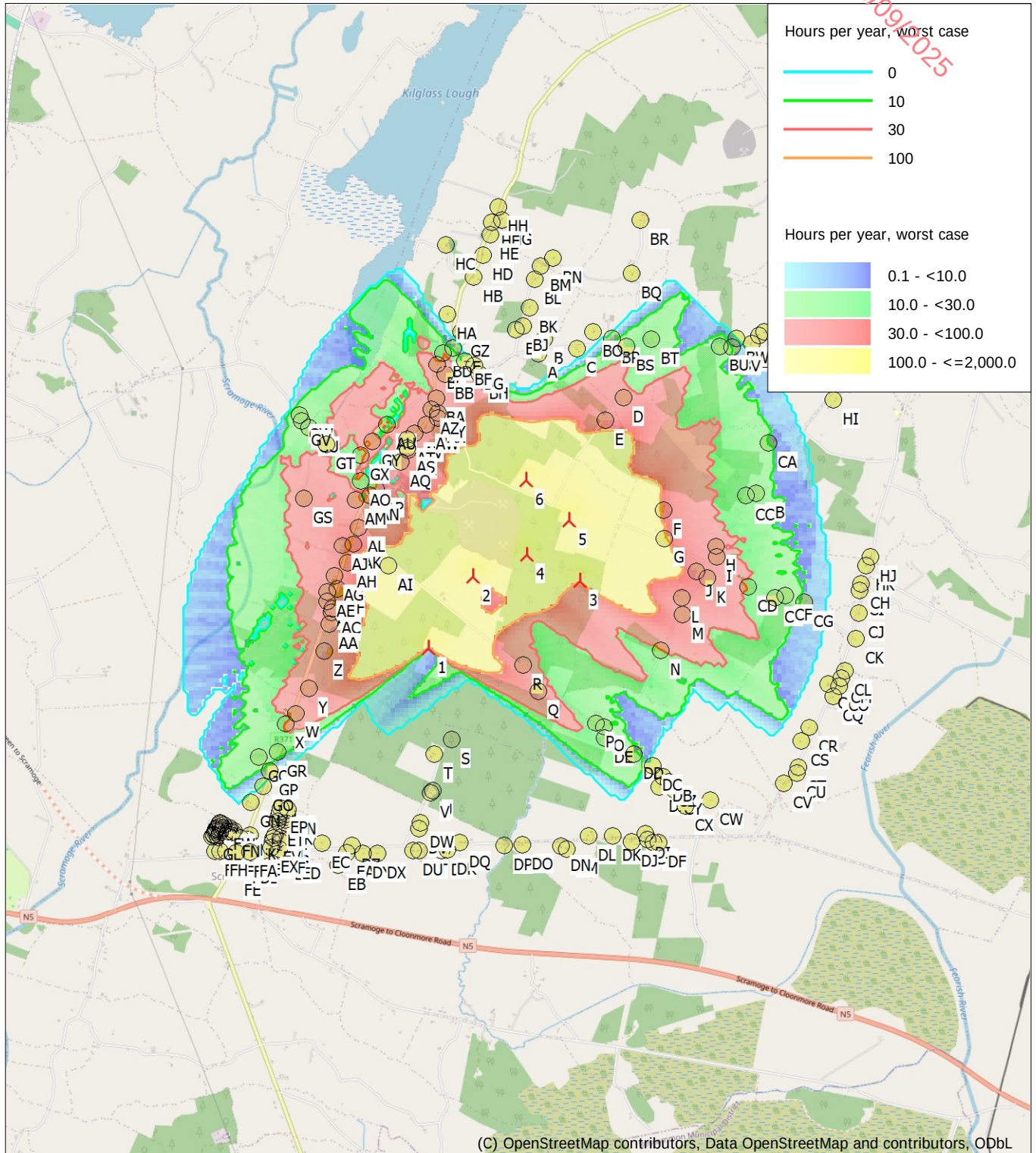
No.	Name	Worst case [h/year]	Expected [h/year]
1	T1	500:15	77:55
2	T2	368:04	55:22
3	T3	202:01	31:01
4	T4	247:27	37:14
5	T5	235:42	36:15
6	T6	452:56	65:25

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

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

SHADOW - Map

Calculation: Shadow - Technology Option 2 (Worst Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 598,590 North: 781,800

New WTG

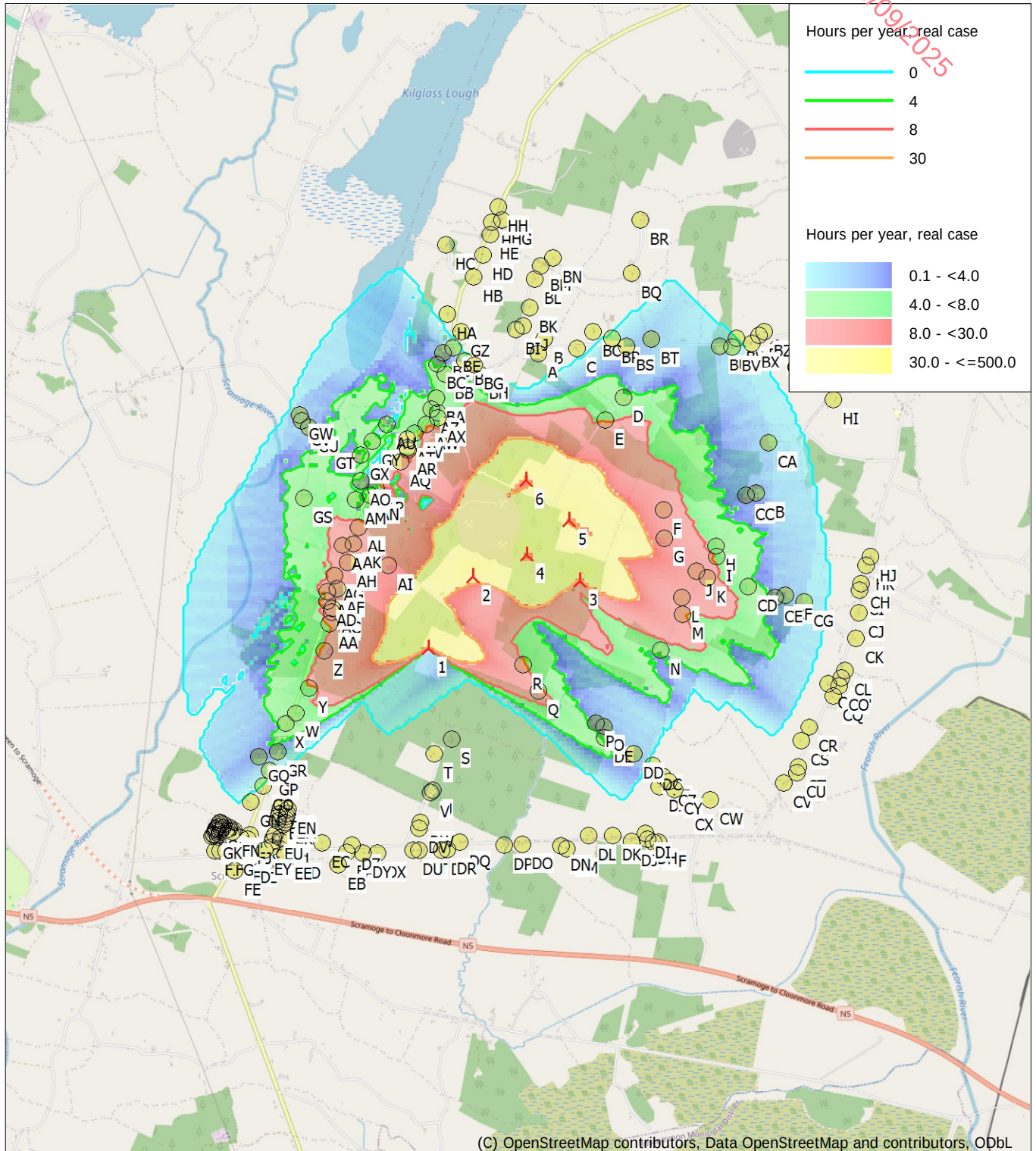
Shadow receptor

Flicker map level: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpo (1)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1.5 m

SHADOW - Map

Calculation: Shadow - Technology Option 2 (Real Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 598,590 North: 781,800
 New WTG Shadow receptor

Flicker map level: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpo (1)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1.5 m

Project:

Ballyfeeny_WF

Licensed user:

Macro Works Ltd
Hibernia House, Cherrywood, Loughlinstown
IE-D18 E440 Dublin
0035312303585
Peter Connell / peter.connell@macroworks.ie
Calculated:
19/05/2025 16:16/4.0.424

SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst 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) [CLONES]

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1.45	1.93	2.72	4.31	5.45	4.41	4.74	3.96	3.48	2.54	1.71	1.01

Operational time

N	NE	E	SE	S	SW	W	NW	Sum
816	411	589	868	1,818	1,614	1,236	1,408	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: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpc

Receptor grid resolution: 1.0 m

All coordinates are in

Irish ITM-IRENET95 (IE), geocentric, GRS80

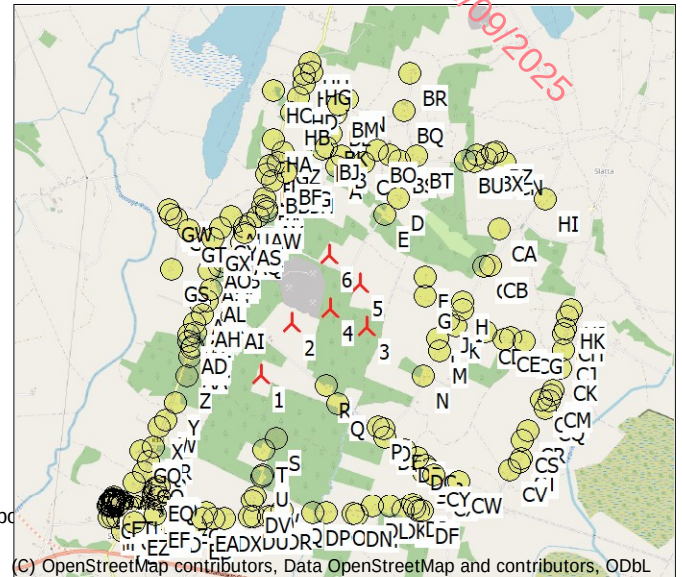
WTGs

	Easting	Northing	Z	Row data/Description	WTG type			Power, rated	Rotor diameter	Hub height	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance	RPM
			[m]					[kW]	[m]	[m]	[m]	[RPM]
1	598,032	781,362	118.5	T1	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	90.0	1,691	11.1
2	598,343	781,861	119.0	T2	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	90.0	1,691	11.1
3	599,091	781,831	76.6	T3	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	90.0	1,691	11.1
4	598,722	782,010	98.7	T4	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	90.0	1,691	11.1
5	599,015	782,261	87.0	T5	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	90.0	1,691	11.1
6	598,713	782,537	106.8	T6	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	90.0	1,691	11.1

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	598,798	783,423	120.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
B	H2	598,840	783,526	123.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
C	H3	599,069	783,455	112.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
D	H4	599,401	783,112	97.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
E	H5	599,271	782,951	98.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
F	H6	599,674	782,327	92.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
G	H7	599,680	782,132	89.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
H	H8	600,044	782,075	86.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
I	H9	600,048	782,003	85.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
J	H10	599,905	781,899	82.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
K	H11	599,984	781,845	77.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
L	H12	599,805	781,713	78.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
M	H13	599,812	781,596	76.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
N	H14	599,657	781,345	77.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
O	H15	599,256	780,810	73.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
P	H16	599,201	780,837	74.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Q	H17	598,801	781,066	74.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
R	H18	598,692	781,246	79.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
S	H19	598,193	780,722	97.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
T	H20	598,071	780,617	97.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
U	H21	598,055	780,366	94.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
V	H22	598,049	780,345	94.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
W	H23	597,102	780,905	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
X	H24	597,031	780,834	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...



SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst Case)

...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]
Y H25		597,191	781,080	104.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
Z H26		597,303	781,342	109.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AA H27		597,333	781,533	107.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AB H28		597,349	781,612	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AC H29		597,357	781,641	104.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AD H30		597,325	781,689	98.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AE H31		597,324	781,754	93.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AF H32		597,393	781,777	97.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AG H33		597,377	781,864	89.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AH H34		597,464	781,958	91.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AI H35		597,749	781,936	112.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AJ H36		597,428	782,081	80.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AK H37		597,504	782,090	87.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AL H38		597,539	782,208	87.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AM H39		597,523	782,399	74.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AN H40		597,626	782,427	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AO H41		597,555	782,529	67.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AP H42		597,663	782,476	89.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AQ H43		597,840	782,665	99.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AR H44		597,889	782,746	95.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AS H45		597,882	782,763	92.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AT H46		597,882	782,823	86.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AU H47		597,740	782,927	54.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AV H48		597,936	782,864	87.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AW H49		598,016	782,927	92.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AX H50		598,098	782,972	99.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AY H51		598,098	783,007	97.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
AZ H52		598,056	783,033	89.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BA H53		598,085	783,106	91.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BB H54		598,150	783,274	100.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BC H55		598,094	783,349	88.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BD H56		598,132	783,429	88.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BE H57		598,205	783,461	97.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BF H58		598,288	783,369	106.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BG H59		598,355	783,344	111.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BH H60		598,389	783,278	115.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BI H61		598,643	783,594	127.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BJ H62		598,690	783,613	128.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BK H63		598,739	783,746	132.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BL H64		598,778	783,940	136.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BM H65		598,819	784,031	138.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BN H66		598,902	784,087	137.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BO H67		599,185	783,575	107.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BP H68		599,317	783,532	103.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BQ H69		599,456	783,980	110.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BR H70		599,513	784,351	112.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BS H71		599,416	783,475	98.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BT H72		599,589	783,523	94.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BU H73		600,071	783,474	94.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BV H74		600,157	783,465	93.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BW H75		600,182	783,531	95.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BX H76		600,291	783,496	89.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BY H77		600,344	783,554	90.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
BZ H78		600,382	783,574	90.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CA H79		600,409	782,796	74.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CB H80		600,326	782,445	80.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CC H81		600,255	782,427	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CD H82		600,272	781,790	64.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CE H83		600,458	781,711	51.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CF H84		600,530	781,730	49.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CG H85		600,661	781,684	46.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CH H86		601,064	781,808	48.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CI H87		601,050	781,764	47.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CJ H88		601,046	781,604	46.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst Case)

...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]
CK H89		601,023	781,429	46.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CL H90		600,946	781,205	47.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CM H91		600,920	781,155	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CN H92		600,471	783,458	78.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CO H93		600,909	781,099	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CP H94		600,831	781,112	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CQ H95		600,863	781,023	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CR H96		600,698	780,804	52.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CS H97		600,643	780,706	53.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CT H98		600,622	780,527	49.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CU H99		600,608	780,483	49.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CV H100		600,518	780,413	49.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CW H101		600,007	780,294	52.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CX H102		599,827	780,257	54.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CY H103		599,756	780,367	58.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
CZ H104		599,713	780,423	60.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DA H105		599,651	780,388	60.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DB H106		599,672	780,457	62.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DC H107		599,601	780,534	65.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DD H108		599,467	780,617	72.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DE H109		599,264	780,732	72.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DF H110		599,643	780,005	48.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DG H111		599,609	780,004	49.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DH H112		599,562	780,021	52.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DI H113		599,553	780,067	55.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DJ H114		599,455	780,010	57.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DK H115		599,317	780,049	63.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DL H116		599,148	780,050	68.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DM H117		598,997	779,960	66.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DN H118		598,957	779,972	66.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DO H119		598,687	779,985	60.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DP H120		598,561	779,983	59.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DQ H121		598,253	780,004	71.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DR H122		598,158	779,950	74.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DS H123		598,118	779,948	76.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DT H124		597,963	779,947	78.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DU H125		597,925	779,945	78.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DV H126		597,959	780,101	83.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DW H127		597,973	780,137	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DX H128		597,671	779,925	86.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DY H129		597,573	779,925	89.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
DZ H130		597,490	779,982	91.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EA H131		597,457	779,929	91.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EB H132		597,394	779,842	89.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EC H133		597,282	780,000	89.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ED H134		597,074	779,917	87.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EE H135		597,020	779,914	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EF H136		596,982	779,958	87.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EG H137		596,993	780,009	87.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EH H138		596,996	780,032	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EI H139		597,017	780,120	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EJ H140		597,023	780,138	88.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EK H141		597,031	780,159	90.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EL H142		597,036	780,181	91.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EM H143		597,042	780,202	92.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EN H144		597,047	780,227	93.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EO H145		597,026	780,250	94.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EP H146		596,994	780,243	94.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EQ H147		596,987	780,218	93.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ER H148		596,982	780,197	92.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ES H149		596,977	780,174	91.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
ET H150		596,974	780,151	89.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EU H151		596,953	780,054	88.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EV H152		596,944	780,033	87.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst Case)

...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]
EW H153		596,937	780,011	87.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EX H154		596,925	779,962	86.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EY H155		596,880	779,946	86.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
EZ H156		596,777	779,893	85.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FA H157		596,776	779,936	85.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FB H158		596,757	779,936	85.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FC H159		596,732	779,904	85.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FD H160		596,726	779,890	84.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FE H161		596,670	779,805	81.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FF H162		596,680	779,932	85.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FG H163		596,607	779,941	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FH H164		596,568	779,943	84.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FI H165		596,533	779,941	83.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FJ H166		596,761	780,022	86.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FK H167		596,778	780,054	86.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FL H168		596,713	780,034	85.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FM H169		596,665	780,084	85.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FN H170		596,657	780,069	84.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FO H171		596,650	780,055	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FP H172		596,639	780,038	85.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FQ H173		596,639	780,103	84.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FR H174		596,631	780,092	84.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FS H175		596,625	780,079	84.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FT H176		596,619	780,068	84.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FU H177		596,615	780,058	84.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FV H178		596,608	780,047	85.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FW H179		596,598	780,121	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FX H180		596,590	780,106	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FY H181		596,579	780,089	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
FZ H182		596,570	780,069	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GA H183		596,561	780,052	84.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GB H184		596,552	780,037	84.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GC H185		596,572	780,141	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GD H186		596,564	780,132	83.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GE H187		596,560	780,121	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GF H188		596,554	780,111	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GG H189		596,549	780,102	83.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GH H190		596,542	780,093	83.6	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GI H191		596,539	780,081	83.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GJ H192		596,533	780,071	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GK H193		596,526	780,063	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GL H194		596,522	780,054	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GM H195		596,513	780,046	84.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GN H196		596,783	780,282	94.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GO H197		596,867	780,391	97.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GP H198		596,915	780,499	101.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GQ H199		596,843	780,598	102.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GR H200		596,969	780,637	106.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GS H201		597,157	782,411	45.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GT H202		597,320	782,787	44.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GU H203		597,196	782,903	44.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GV H204		597,144	782,951	44.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GW H205		597,126	782,991	43.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GX H206		597,556	782,715	48.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GY H207		597,639	782,811	53.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
GZ H208		598,263	783,573	103.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HA H209		598,164	783,696	88.4	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HB H210		598,346	783,957	97.2	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HC H211		598,157	784,178	67.3	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HD H212		598,413	784,113	102.8	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HE H213		598,468	784,249	105.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HF H214		598,471	784,336	100.1	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HG H215		598,544	784,355	106.9	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HH H216		598,525	784,445	99.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst Case)

...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]
HI H217		600,865	783,097	64.7	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HJ H218		601,126	781,999	53.0	2.0	2.0	0.5	90.0	"Green house mode"	2.5
HK H219		601,094	781,938	51.5	2.0	2.0	0.5	90.0	"Green house mode"	2.5

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		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		44:01	114	0:38	4:53	
E H5		82:35	133	1:08	9:02	
F H6		103:34	216	0:49	15:27	
G H7		123:08	216	1:00	20:18	
H H8		43:50	134	0:32	7:21	
I H9		45:35	131	0:33	7:54	
J H10		77:23	163	0:49	14:11	
K H11		65:43	150	0:44	12:15	
L H12		67:45	131	0:58	12:31	
M H13		50:54	105	0:49	9:41	
N H14		33:30	118	0:26	6:07	
O H15		16:47	53	0:26	3:15	
P H16		19:09	57	0:27	3:43	
Q H17		57:14	104	0:41	10:35	
R H18		50:15	81	0:49	9:35	
S H19		0:00	0	0:00	0:00	
T H20		0:00	0	0:00	0:00	
U H21		0:00	0	0:00	0:00	
V H22		0:00	0	0:00	0:00	
W H23		39:21	96	0:33	6:43	
X H24		33:58	90	0:31	5:48	
Y H25		48:30	124	0:38	8:16	
Z H26		55:12	129	0:44	9:51	
AA H27		50:41	107	0:45	8:16	
AB H28		64:29	161	0:44	10:15	
AC H29		66:52	166	0:44	10:32	
AD H30		61:42	159	0:42	9:51	
AE H31		60:59	147	0:46	9:58	
AF H32		71:29	162	0:49	11:37	
AG H33		71:51	168	0:51	11:40	
AH H34		91:08	205	0:52	13:57	
AI H35		154:16	245	1:14	22:46	
AJ H36		87:42	209	0:45	12:33	
AK H37		98:47	209	0:51	13:57	
AL H38		75:21	169	0:37	10:14	
AM H39		53:30	147	0:34	7:39	
AN H40		41:02	97	0:36	6:17	
AO H41		21:33	52	0:32	2:56	
AP H42		30:04	64	0:37	4:00	
AQ H43		74:19	183	0:37	9:42	
AR H44		66:08	173	0:38	8:40	
AS H45		65:04	169	0:38	8:31	
AT H46		62:10	161	0:37	8:08	
AU H47		35:35	90	0:31	4:18	
AV H48		61:15	152	0:39	8:00	
AW H49		68:41	136	0:41	8:38	
AX H50		59:32	121	0:44	7:23	
AY H51		54:42	116	0:43	6:48	
AZ H52		45:06	110	0:41	5:44	
BA H53		40:05	102	0:40	5:08	

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SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst Case)

...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]
BB	H54	47:31	74	0:48	5:15
BC	H55	36:13	72	0:34	3:59
BD	H56	31:50	54	0:47	3:14
BE	H57	10:30	34	0:24	0:59
BF	H58	11:54	34	0:26	1:07
BG	H59	5:20	22	0:19	0:28
BH	H60	11:36	32	0:28	1:03
BI	H61	0:00	0	0:00	0:00
BJ	H62	0:00	0	0:00	0:00
BK	H63	0:00	0	0:00	0:00
BL	H64	0:00	0	0:00	0:00
BM	H65	0:00	0	0:00	0:00
BN	H66	0:00	0	0:00	0:00
BO	H67	0:00	0	0:00	0:00
BP	H68	7:33	28	0:20	0:38
BQ	H69	0:00	0	0:00	0:00
BR	H70	0:00	0	0:00	0:00
BS	H71	23:41	56	0:30	2:14
BT	H72	22:16	66	0:27	2:15
BU	H73	16:40	72	0:19	1:41
BV	H74	8:32	56	0:18	0:52
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	10:37	51	0:21	1:18
CB	H80	22:25	100	0:24	3:21
CC	H81	24:12	103	0:25	3:38
CD	H82	28:41	89	0:35	5:18
CE	H83	17:01	65	0:24	3:11
CF	H84	14:55	60	0:22	2:46
CG	H85	5:49	26	0:20	1:04
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
CU	H99	0:00	0	0:00	0:00
CV	H100	0:00	0	0:00	0:00
CW	H101	0:00	0	0:00	0:00
CX	H102	0:00	0	0:00	0:00
CY	H103	0:00	0	0:00	0:00
CZ	H104	0:00	0	0:00	0:00
DA	H105	0:00	0	0:00	0:00
DB	H106	0:00	0	0:00	0:00
DC	H107	0:00	0	0:00	0:00
DD	H108	12:24	49	0:22	2:28
DE	H109	20:11	67	0:25	3:55
DF	H110	0:00	0	0:00	0:00
DG	H111	0:00	0	0:00	0:00
DH	H112	0:00	0	0:00	0:00
DI	H113	0:00	0	0:00	0:00
DJ	H114	0:00	0	0:00	0:00
DK	H115	0:00	0	0:00	0:00
DL	H116	0:00	0	0:00	0:00

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Project:

Ballyfeeny_WF

Licensed user:

Macro Works Ltd
 Hibernia House, Cherrywood, Loughlinstown
 IE-D18 E440 Dublin
 0035312303585
 Peter Connell / peter.connell@macroworks.ie
 Calculated:
 19/05/2025 16:16/4.0.424

SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst Case)

...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]
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	0:00	0	0:00	0:00
DY	H129	0:00	0	0:00	0:00
DZ	H130	0:00	0	0:00	0:00
EA	H131	0:00	0	0:00	0:00
EB	H132	0:00	0	0:00	0:00
EC	H133	0:00	0	0:00	0:00
ED	H134	0:00	0	0:00	0:00
EE	H135	0:00	0	0:00	0:00
EF	H136	0:00	0	0:00	0:00
EG	H137	0:00	0	0:00	0:00
EH	H138	0:00	0	0:00	0:00
EI	H139	0:00	0	0:00	0:00
EJ	H140	0:00	0	0:00	0:00
EK	H141	0:00	0	0:00	0:00
EL	H142	0:00	0	0:00	0:00
EM	H143	0:00	0	0:00	0:00
EN	H144	0:00	0	0:00	0:00
EO	H145	0:00	0	0:00	0:00
EP	H146	0:00	0	0:00	0:00
EQ	H147	0:00	0	0:00	0:00
ER	H148	0:00	0	0:00	0:00
ES	H149	0:00	0	0:00	0:00
ET	H150	0:00	0	0:00	0:00
EU	H151	0:00	0	0:00	0:00
EV	H152	0:00	0	0:00	0:00
EW	H153	0:00	0	0:00	0:00
EX	H154	0:00	0	0:00	0:00
EY	H155	0:00	0	0:00	0:00
EZ	H156	0:00	0	0:00	0:00
FA	H157	0:00	0	0:00	0:00
FB	H158	0:00	0	0:00	0:00
FC	H159	0:00	0	0:00	0:00
FD	H160	0:00	0	0:00	0:00
FE	H161	0:00	0	0:00	0:00
FF	H162	0:00	0	0:00	0:00
FG	H163	0:00	0	0:00	0:00
FH	H164	0:00	0	0:00	0:00
FI	H165	0:00	0	0:00	0:00
FJ	H166	0:00	0	0:00	0:00
FK	H167	0:00	0	0:00	0:00
FL	H168	0:00	0	0:00	0:00
FM	H169	0:00	0	0:00	0:00
FN	H170	0:00	0	0:00	0:00
FO	H171	0:00	0	0:00	0:00
FP	H172	0:00	0	0:00	0:00
FQ	H173	0:00	0	0:00	0:00
FR	H174	0:00	0	0:00	0:00
FS	H175	0:00	0	0:00	0:00
FT	H176	0:00	0	0:00	0:00
FU	H177	0:00	0	0:00	0:00
FV	H178	0:00	0	0:00	0:00
FW	H179	0:00	0	0:00	0:00

To be continued on next page...

SHADOW - Main Result

Calculation: Shadow - Technology Option 3 (Worst Case)

...continued from previous page

No.	Name	Shadow, worst case		Max shadow hours per day	Shadow, expected values	
		Shadow hours per year [h/year]	Shadow days per year [days/year]		Shadow hours per year [h/year]	Shadow hours per year [h/year]
FX	H180	0:00	0	0:00	0:00	0:00
FY	H181	0:00	0	0:00	0:00	0:00
FZ	H182	0:00	0	0:00	0:00	0:00
GA	H183	0:00	0	0:00	0:00	0:00
GB	H184	0:00	0	0:00	0:00	0:00
GC	H185	0:00	0	0:00	0:00	0:00
GD	H186	0:00	0	0:00	0:00	0:00
GE	H187	0:00	0	0:00	0:00	0:00
GF	H188	0:00	0	0:00	0:00	0:00
GG	H189	0:00	0	0:00	0:00	0:00
GH	H190	0:00	0	0:00	0:00	0:00
GI	H191	0:00	0	0:00	0:00	0:00
GJ	H192	0:00	0	0:00	0:00	0:00
GK	H193	0:00	0	0:00	0:00	0:00
GL	H194	0:00	0	0:00	0:00	0:00
GM	H195	0:00	0	0:00	0:00	0:00
GN	H196	0:00	0	0:00	0:00	0:00
GO	H197	0:00	0	0:00	0:00	0:00
GP	H198	4:13	33	0:11	0:40	0:40
GQ	H199	20:49	66	0:25	3:28	3:28
GR	H200	18:35	58	0:27	3:03	3:03
GS	H201	48:49	157	0:26	6:42	6:42
GT	H202	29:26	97	0:24	4:11	4:11
GU	H203	18:27	66	0:22	2:35	2:35
GV	H204	17:07	65	0:21	2:22	2:22
GW	H205	16:45	63	0:20	2:18	2:18
GX	H206	34:16	94	0:29	4:52	4:52
GY	H207	45:39	113	0:29	5:47	5:47
GZ	H208	0:00	0	0:00	0:00	0:00
HA	H209	0:00	0	0:00	0:00	0:00
HB	H210	0:00	0	0:00	0:00	0:00
HC	H211	0:00	0	0:00	0:00	0:00
HD	H212	0:00	0	0:00	0:00	0:00
HE	H213	0:00	0	0:00	0:00	0:00
HF	H214	0:00	0	0:00	0:00	0:00
HG	H215	0:00	0	0:00	0:00	0:00
HH	H216	0:00	0	0:00	0:00	0:00
HI	H217	0:00	0	0:00	0:00	0:00
HJ	H218	0:00	0	0:00	0:00	0:00
HK	H219	0:00	0	0:00	0:00	0:00

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

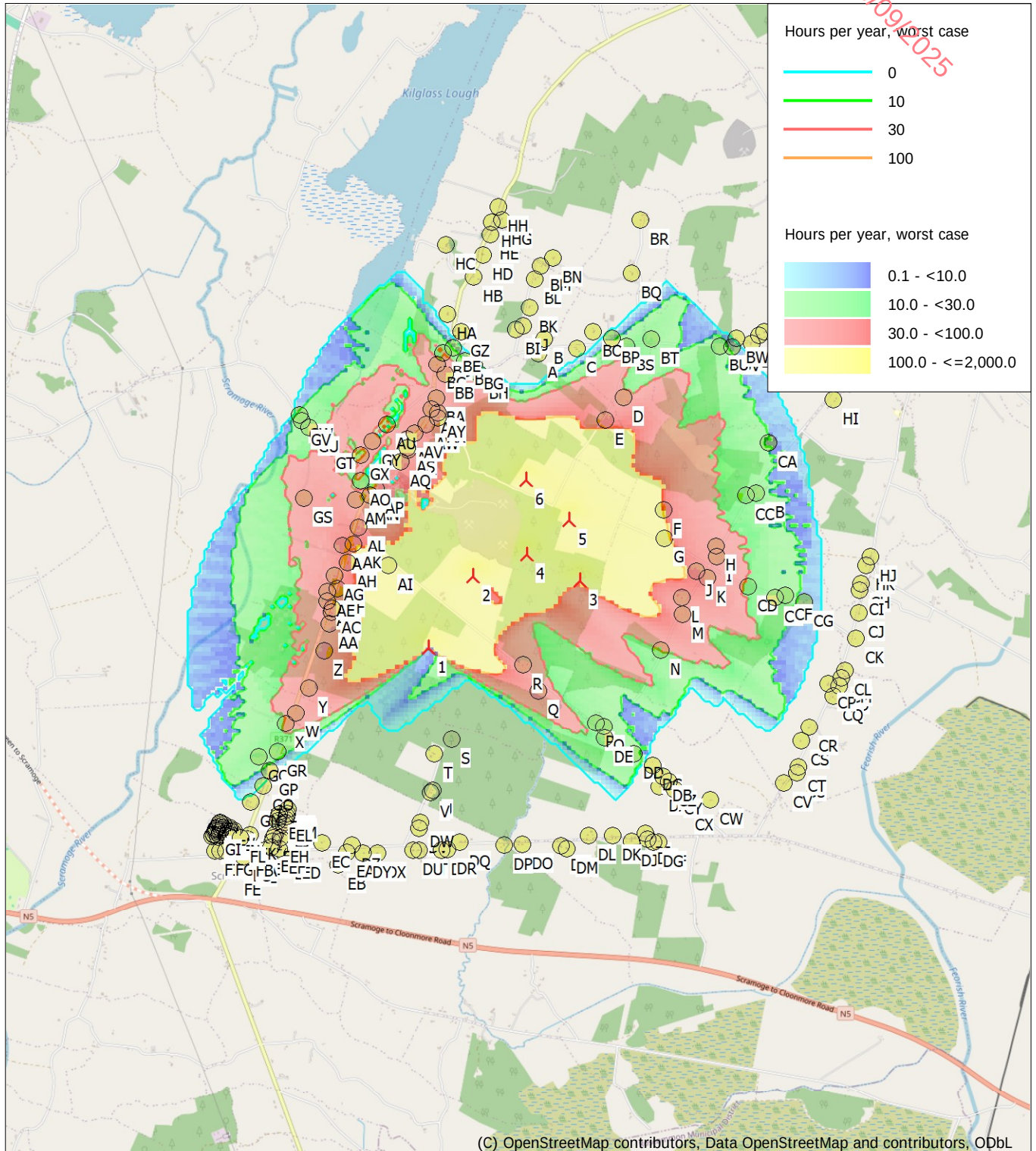
No.	Name	Worst case [h/year]	Expected [h/year]
1	T1	525:18	81:57
2	T2	397:25	59:25
3	T3	214:22	32:55
4	T4	267:12	40:10
5	T5	249:03	38:16
6	T6	468:17	67:38

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

The calculation of the total expected values for a given receptor assumes a weighted average directional reduction for all WTGs contributing to shadow flicker within the same day. In the case where shadow flicker from different WTGs is not concurrent within the day, the total expected time at a given receptor may deviate marginally from the individual flicker time caused by each turbine separately.

SHADOW - Map

Calculation: Shadow - Technology Option 3 (Worst Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 598,590 North: 781,800

⚡ New WTG

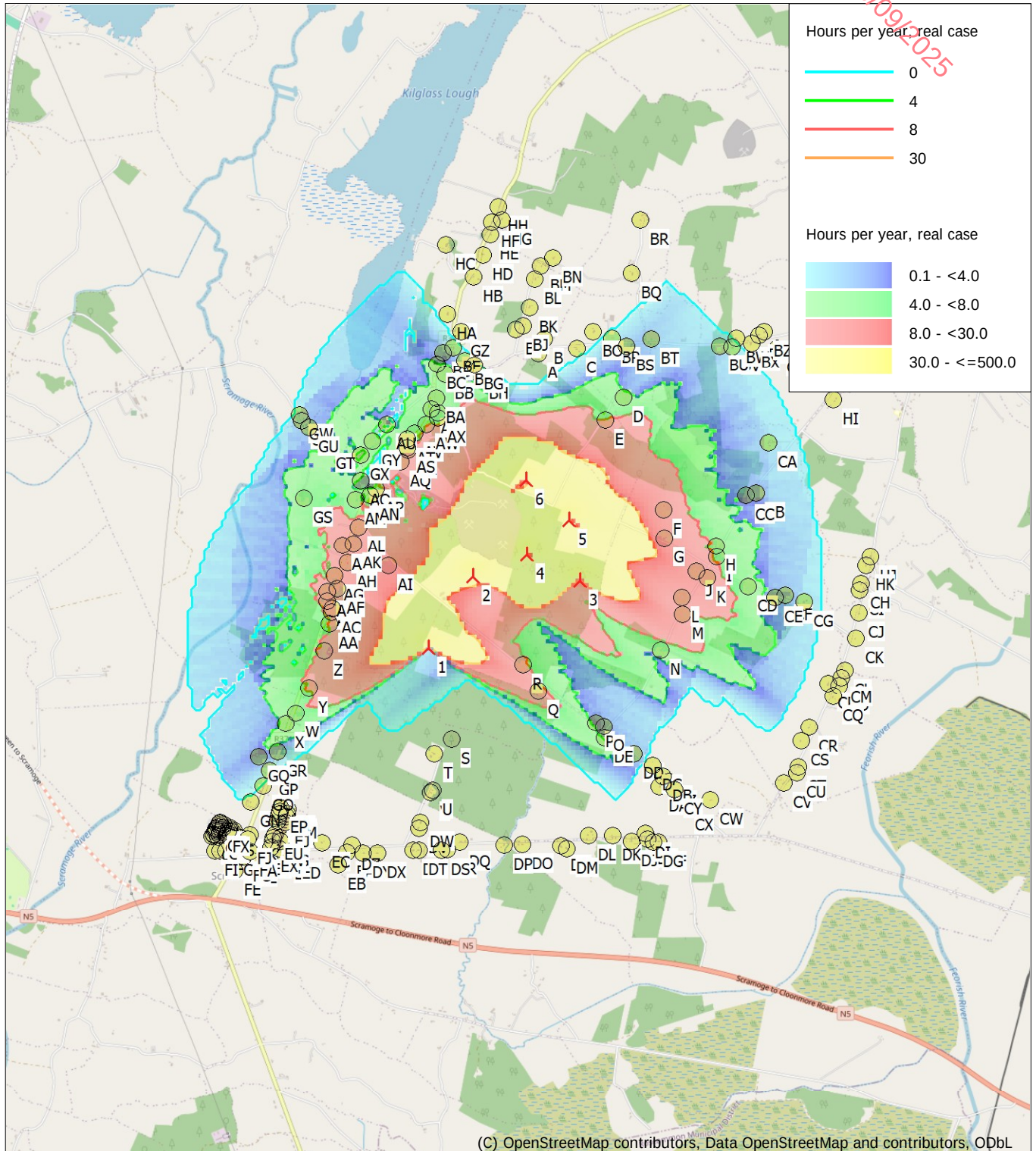
🟡 Shadow receptor

Flicker map level: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpo (1)

Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1.5 m

SHADOW - Map

Calculation: Shadow - Technology Option 3 (Real Case)



0 500 1000 1500 2000 m

Map: EMD OpenStreetMap , Print scale 1:40,000, Map center Irish ITM-IRENET95 (IE), geocentric, GRS80 East: 598,590 North: 781,800
 New WTG Shadow receptor
 Flicker map level: Height Contours: CONTOURLINE_Ballyfeeny_WF_1.wpo (1)
 Time step: 4 minutes, Day step: 14 days, Map resolution: 30 m, Visibility resolution: 15 m, Eye height: 1.5 m