

Project:
231122BjärekraftPrelimYield

Licensed user:
SWECO Energuide AB
Gjörwellsgatan 22, Box 34004
SE-100 26 Stockholm
+46 8 695 60 00
Ulrik Horn / ulrik.horn@sweco.se
Calculated:
21/12/2023 12:56/3.6.377

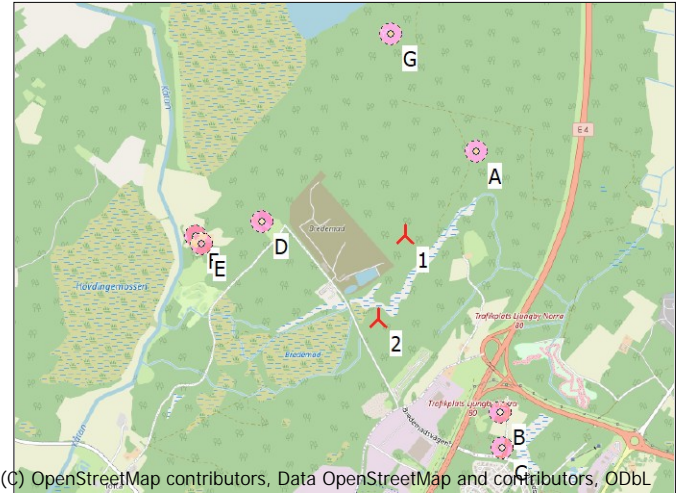
DECIBEL - Main Result

Calculation: 231221UpdatedNoiseCalc - ReplicaOfLastButE138andActualFinalFinalFinalPositions

SVENSKA BESTÄMMELSER FÖR EXTERNT BULLER FRÅN
LANDBASERADE VINDKRAFTVERK

Beräkningen är baserad på den av Statens Naturvårdsverk
rekommenderad metod "Ljud från vindkraftverk", 2010 (NV dnr
382-6897-07 Rv)

All coordinates are in
Swedish UTM 33-SWEREF99 (SE)



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Scale 1:50,000

New WTG Noise sensitive area

WTGs

	Easting	Northing	Z	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Noise data		Wind speed [m/s]	Status	LWA,ref [dB(A)]	Pure tones
					Valid	Manufact.	Type-generator				Creator	Name				
1	435,015	6,302,939	155.0	Northern turbine in previous so...	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	80.8	USER	Mode 00 - OM 0 s (4260 kW)	8.0	From other hub height	106.0	No f
2	434,832	6,302,389	151.1	Southern turbine previous nois...	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	80.8	USER	Mode 00 - OM 0 s (4260 kW)	8.0	From other hub height	106.0	No f

Calculation Results

Sound level

Noise sensitive area				Demands			Sound level			Demands fulfilled ?		
No.	Name	Easting	Northing	Z	Immission height [m]	Noise [dB(A)]	Distance [m]	From WTGs [dB(A)]	Distance to noise demand [m]	Noise	Distance	All
A	A	435,495	6,303,487	155.0	1.5	40.0	700	37.9	127	Yes	Yes	Yes
B	B	435,627	6,301,759	153.0	1.5	40.0	700	34.9	393	Yes	Yes	Yes
C	C	435,634	6,301,523	150.0	1.5	40.0	700	33.2	564	Yes	Yes	Yes
D	D	434,064	6,303,044	150.3	1.5	40.0	700	36.4	266	Yes	Yes	Yes
E	E	433,662	6,302,910	147.7	1.5	40.0	700	33.3	608	Yes	Yes	Yes
F	F	433,623	6,302,954	147.3	1.5	40.0	700	32.9	657	Yes	Yes	Yes
G	G	434,937	6,304,275	157.0	1.5	40.0	700	31.5	737	Yes	Yes	Yes

Distances (m)

NSA	WTG	
	1	2
A	728	1283
B	1329	1014
C	1545	1180
D	957	1009
E	1353	1281
F	1392	1335
G	1338	1889

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SHADOW - Main Result

Calculation: 231221UpdatedShadowCalcE138_actualFinalFinal

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) [VAXJO /KRONOBER G]
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
1.36 1.52 2.62 6.08 8.82 7.64 6.65 5.42 4.02 2.68 1.38 0.88

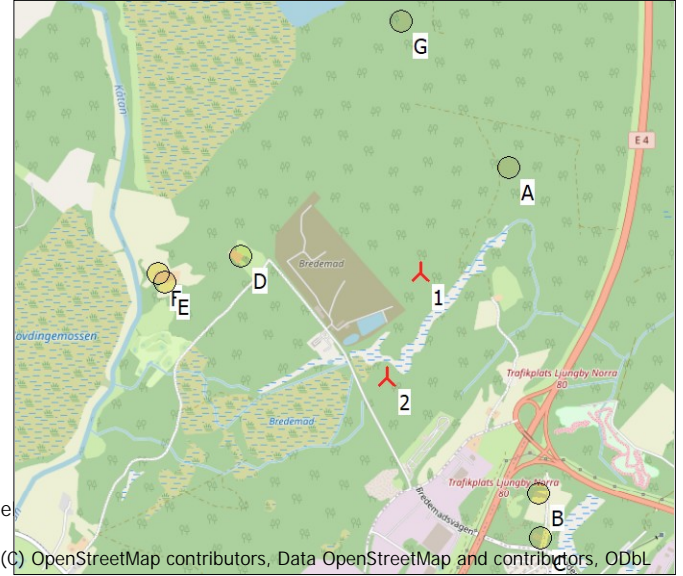
Operational time
N NNE ENE E ESE SSE S SSW WSW W WNW NNW Sum
361 396 515 614 639 635 672 876 1,251 1,375 648 406 8,388

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_ONLINEDATA_0same
Receptor grid resolution: 1.0 m

All coordinates are in Swedish UTM 33-SWREF99 (SE)

WTGs

No.	Easting	Northing	Z [m]	Row data/Description	WTG type			Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Shadow data	
					Valid	Manufact.	Type-generator				Calculation distance [m]	RPM [RPM]
1	435,015	6,302,939	155.0	Northern turbine in previous so...	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	80.8	1,691	11.1
2	434,832	6,302,389	151.1	Southern turbine previous nois...	Yes	ENERCON	E-138 EP3 E3-4,260	4,260	138.3	80.8	1,691	11.1



Scale 1:40,000
New WTG Shadow receptor

Shadow receptor-Input

No.	Name	Easting	Northing	Z [m]	Width [m]	Height [m]	Elevation a.g.l. [m]	Slope of window [°]	Direction mode	Eye height (ZVI) a.g.l. [m]
A	A	435,495	6,303,487	155.0	5.0	5.0	1.0	0.0	"Green house mode"	1.0
B	B	435,627	6,301,759	153.0	5.0	5.0	1.0	0.0	"Green house mode"	1.0
C	C	435,634	6,301,523	150.0	5.0	5.0	1.0	0.0	"Green house mode"	1.0
D	D	434,064	6,303,044	150.3	5.0	5.0	1.0	0.0	"Green house mode"	1.0
E	E	433,662	6,302,910	147.7	5.0	5.0	1.0	0.0	"Green house mode"	1.0
F	F	433,623	6,302,954	147.3	5.0	5.0	1.0	0.0	"Green house mode"	1.0
G	G	434,937	6,304,275	157.0	5.0	5.0	1.0	0.0	"Green house mode"	1.0

Calculation Results

Shadow receptor

No.	Name	Shadow, worst case			Shadow, expected values	
		Shadow hours per year [h/year]	Shadow days per year [days/year]	Max shadow hours per day [h/day]	Shadow hours per year [h/year]	Shadow hours per year [h/year]
A	A	62:32	107	0:48	6:41	6:41
B	B	21:43	60	0:31	5:13	5:13
C	C	0:00	0	0:00	0:00	0:00
D	D	32:26	89	0:34	4:21	4:21
E	E	13:44	57	0:24	2:22	2:22
F	F	12:22	53	0:23	1:59	1:59
G	G	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	Northern turbine in previous sound/shadow calcs	71:37	9:50
2	Southern turbine previous noise/shadow calc	60:41	9:13

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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.

BILAGA 4

E138, Fotopunkt 1 – inzoomat, endast för jämförelse med rotor V126.



V126, Fotopunkt 1 – inzoomat, endast för jämförelse med E138

