Project:

Description:

Nyvallsåsen

The wind turbine sound power level(s) used in this calculation represents official data sheet value. If not expressly added in dataulation below, the uncertainty according to the relevant ENERCON wind turbine datashet was not considered in this calculation. The applied calculation method considers the ISO9613-2 and the Swedish guidelines Ljud fram vindiratflyerk (2010) for a wind speed 87 mg/s in 10 m below). On the swedies 18 mg/s is the official values up the individual criticals band lower.

EI19276PO Ramström Vind AB inscandination does not include an elevation lander. This classification in mine without variety in the stress of control in the same provided by the developer or third party is cored as the same of the same provided by the developer or third party is cored as distribution in the same of the same provided by the developer or third party is cored as distribution of RERECON shall not be responsible and takes therefore no liability for the accuracy and sufficiency of the sufficiency and sufficiency as the sufficiency of the sufficiency and sufficiency and

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2019-09-06 14:53/3.3.261

# **DECIBEL - Main Result**

Calculation: Initial Noise Impact - A01b SVENSKA BESTÄMMELSER FÖR EXTERNT BULLER FRÅN LANDBASERADE VINDKRAFTVERK

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

All coordinates are in Geo [deg]-WGS84



Scale 1:50 000

★ Existing WTG

Noise sensitive area

#### WTGs

					WTG type					Noise o	lata				
	Longitude	Latitude	Z	Row data/Description	Valid	Manufact.	Type-generator	Power,	Rotor	Hub	Creator	Name	Wind	LwA,ref	Pure
								rated	diameter	height			speed		tones
			[m]					[kW]	[m]	[m]			[m/s]	[dB(A)]	
ExistWEC 01	16.992799° Ost	62.097178° Nord	0.0	) VESTAS V90 2000 90.0 !O! NH:	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2009	8.0	104.0	No h
ExistWEC 02	16.991884° Ost	62.100468° Nord	0.0	) VESTAS V90 2000 90.0 !O! NH:	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2009	8.0	104.0	No h
ExistWEC 03	17.035269° Ost	62.083350° Nord	0.0	) VESTAS V90 2000 90.0 !O! NH:	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2009	8.0	104.0	No h
ExistWEC 04	17.042727° Ost	62.085458° Nord	0.0	) VESTAS V90 2000 90.0 !O! NH:	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2009	8.0	104.0	No h
			0.0	) VESTAS V90 2000 90.0 !O! NH:	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2009	8.0	104.0	No h
h) Generic	octave distrib	ution used													

#### Calculation Results

#### Sound level

Noise No.	sensitive area Name	Longitude	Latitude	Z	Imission height	Demands Noise	Sound I From WTGs	evel Distance to noise	Demands fulfilled? Noise
					Ü			demand	
				[m]	[m]	[dB(A)]	[dB(A)]	[m]	
NSA 01	Nordanstig Bergsiö Prastgård 1:10	17 015736° Ost	62 103867° Nord	1 00	15	40.0	32.6	738	Yes

#### Distances (m)

WIG	NSA 01
ExistWEC 01	1411
ExistWEC 02	1302
ExistWEC 03	2503
ExistWEC 04	2489
ExistWEC 05	2484

Nyvallsåsen

EI19276PO Ramström Vind AB

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# **DECIBEL - Main Result**

Calculation: Additional Noise Impact - A01b SVENSKA BESTÄMMELSER FÖR EXTERNT BULLER FRÅN LANDBASERADE VINDKRAFTVERK

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

All coordinates are in Geo [deg]-WGS84



#### WTGs

	Longitude	Latitude	Z	Row data/Description		type Manufact.	Type-generator	Power,	Rotor	Hub	Noise of Creator				Wind	LwA,ref	Pure
								rated	diameter	height					speed		tones
			[m]					[kW]	[m]	[m]					[m/s]	[dB(A)]	
WEC1	17.003514° Ost	62.094060° Nord	0.0	ENERCON GmbH E-160 EP5 460.	.Yes	ENERCON GmbH	E-160 EP5-4 600	4 600	160.0	166.6	USER	E-160 EP5 - OM (	s - 4600 kW	+ 1.7 dB	8.0	107.9	No

## Calculation Results

# Sound level

Noise s	sensitive area					Demands	Sound I	evel	Demands fulfilled?
No.	Name	Longitude	Latitude	Z	<b>Imission</b>	Noise	From	Distance	Noise
					height		WTGs	to noise	
								demand	
				[m]	[m]	[dB(A)]	[dB(A)]	[m]	
NSA 01	Nordanstig Bergsjö Prastgård 1:10	17.015736° Ost	62.103867° Nord	0.0	1.5	40.0	33.4	612	Yes

Distances (m)

WTG

NSA WEC1

NSA 01 1265

2019-09-06 14:57 / 1

Project:

Description:

Nyvallsåsen

The wind turbine sound power level(s) used in this calculation represents official data sheet value. If not expressly added in the calculation below, the uncertainty according to the relevant ENERCON wind turbine databaset was not considered in this calculation. The applied calculation method considers the ISO9613-2 and the Swedish guidelines Lijud fran vindkraftverk (2010) for a wind speed of 8 m/s in 10 m height. Only the sum level at 8 m/s is the official value, not the individual cative band levels.

EI19276PO Ramström Vind AB information provided by the developer or third party. Thus, chicuation was perfured without visining the site and is obsessionation of the control of the developer or third party. Thus, chicuation was perfured in the assumption that the aforementationed of the developer or third party. Thus, the chicago and a strict and sufficient and ENERCON shall not be responsible and takes a chicago and sufficiency of any such add. This calculation does not represent or imply any guarantee wavarranty and is provided as a basis for information purposes only. In case of any discrepancies of site coordinates or divergences continued to the control of the cont

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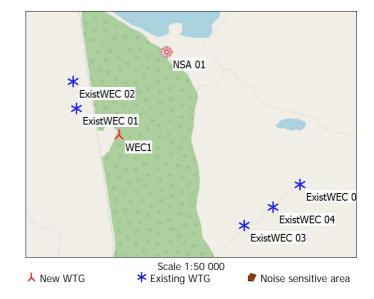
2019-09-06 14:53/3.3.261

# **DECIBEL - Main Result**

Calculation: Total Noise Impact - A01b SVENSKA BESTÄMMELSER FÖR EXTERNT BULLER FRÅN LANDBASERADE VINDKRAFTVERK

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

All coordinates are in Geo [deg]-WGS84



#### WTGs

	WTG type								Noise data							
	Longitude	Latitude	Z	Row data/Description	Valid	Manufact.	Type-generator	Power,	Rotor	Hub	Creator	r Name	Wind	LwA,r	ef Pure	
								rated	diameter				spee		tones	
			[m]	1				[kW]	[m]	[m]			[m/s	[dB(A	/]	
ExistWEC 01	16.992799° Ost	62.097178° Nord	0.0	0 VESTAS V90 2000 90.0 !O! NH: 1	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2	2009 8	.0 104	.0 No	, h
ExistWEC 02	16.991884° Ost	62.100468° Nord	0.0	0 VESTAS V90 2000 90.0 !O! NH: 1	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2	2009 8	.0 104	.0 No	, h
ExistWEC 03	17.035269° Ost	62.083350° Nord	0.0	0 VESTAS V90 2000 90.0 !O! NH: 1	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2	2009 8	.0 104	.0 No	, h
ExistWEC 04	17.042727° Ost	62.085458° Nord	0.0	0 VESTAS V90 2000 90.0 !O! NH: 1	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-:	2009 8	.0 104	.0 No	, h
ExistWEC 05	17.049656° Ost	62.088238° Nord	0.0	0 VESTAS V90 2000 90.0 !O! NH: 1	. Yes	VESTAS	V90-2 000	2 000	90.0	105.0	EMD	Level 0 - calculated - Mode 0 - 07-2	2009 8	.0 104	.0 No	, h
WEC1	17.003514° Ost	62.094060° Nord	0.0	0 ENERCON GmbH E-160 EP5 4600 .	Yes	ENERCON GmbH	E-160 EP5-4 600	4 600	160.0	166.6	USER	E-160 EP5 - OM 0s - 4600 kW + 1.	7 dB 8	.0 107	.9 No	)
h) Generic	octave distril	oution used														

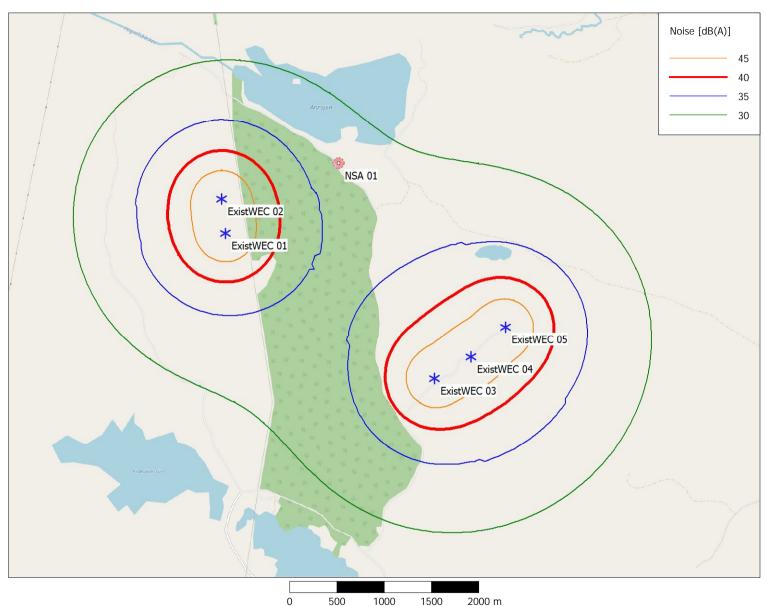
## Calculation Results

#### Sound level

No	ise sensitive area					Demands	Sound level	Demands fulfilled?
No.	Name	Longitude	Latitude	Z	Imission	Noise	From WTGs	Noise
		Ü			height			
				[m]	[m]	[dB(A)]	[dB(A)]	
NSA	A 01 Nordanstig Bergsjö Prastgård 1:10	17.015736° Ost	62.103867° Nord	0.0	1.5	40.0	36.1	Yes

# Distances (m)

WTG	NSA 01
ExistWEC 01	1411
ExistWEC 02	1302
ExistWEC 03	2503
ExistWEC 04	2489
ExistWEC 05	2484
WFC1	1265



Map: EMD OpenStreetMap, Print scale 1:40 000, Map center Geo WGS84 East: 17.022967° Ost North: 62.090309° Nord Noise sensitive area

Noise calculation model: Swedish 2009. Wind speed: 8.0 m/s Height above sea level: 0.0 m

### Nyvallsåsen

### EI19276PO Ramström Vind AB

Description:

The wind turbine sound power level(s) used in this calculation represents official data sheet value. If not expressly added in the calculation below, the uncertainty according to the relevant ENERCON wind turbine datasheet was not considered in this calculation.

The applied calculation method considers the ISO9613-2 and the Swedish guidelines Ljud fran vindkraftverk (2010) for a wind speed of 8 m/s in 10 m height. Only the sum level at 8 m/s is the official value, not the individual octave band levels. This calculation does not include an elevation model. This calculation was performed without visiting the site and is based solely on information provided by the developer or third party. Thus, this calculation is based on the assumption that the aforementioned information provided by the developer or third party is correct and sufficient and ENERCON shall not be responsible and takes therefore no liability for the accuracy and sufficiency of any such data. This calculation does not represent or imply any quarantee or warranty and is provided as a basis for information purposes only. In case of any discrepancies of site coordinates or divergences of specific site circumstances from standard assumptions, ENERCON does not take any responsibility for calculated sound pressure values at considered noise sensitive areas.

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# **DECIBEL** -Map 8.0 m/s

Calculation:

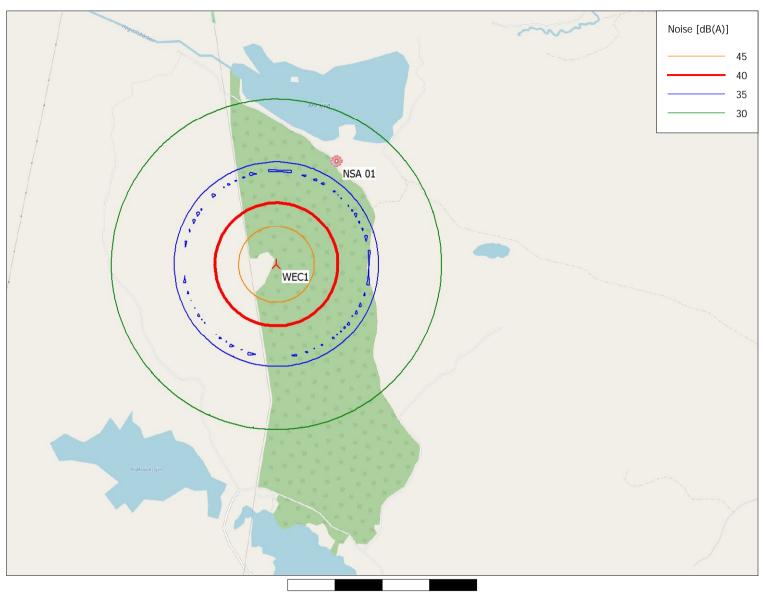
Initial Noise Impact - A01b

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**\*** Existing WTG



500 1000 1500 2000 m Map: EMD OpenStreetMap, Print scale 1:40 000, Map center Geo WGS84 East: 17.022967° Ost North: 62.090309° Nord Noise sensitive area

Noise calculation model: Swedish 2009. Wind speed: 8.0 m/s Height above sea level: 0.0 m

## Nyvallsåsen

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# **DECIBEL** -Map 8.0 m/s

Calculation:

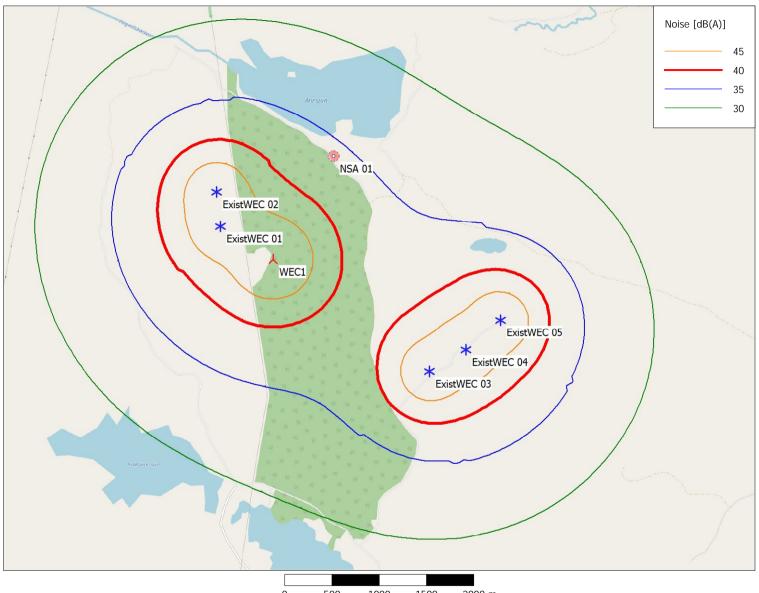
Additional Noise Impact - A01b

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New WTG



500 1000 1500 2000 m Map: EMD OpenStreetMap, Print scale 1:40 000, Map center Geo WGS84 East: 17.022967° Ost North: 62.090309° Nord \* Existing WTG Noise sensitive area

Noise calculation model: Swedish 2009. Wind speed: 8.0 m/s

Height above sea level: 0.0 m

## Nyvallsåsen

## EI19276PO Ramström Vind AB

Description:

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# **DECIBEL** -Map 8.0 m/s

Calculation:

Total Noise Impact - A01b

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New WTG