

Svarthammaren vindkraftverk

VEDLEGG B – VISUALISERINGER

Project:

Svarthammaren - photomontage

Licensed user:

Meventus AS

Kongsgård Allé 59

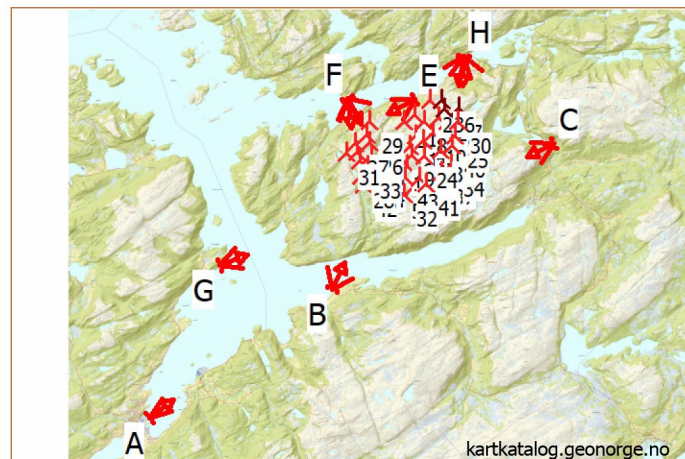
NO-4632 Kristiansand

+47 3860 7115

Data / data@meventus.com

Calculated:

22.01.2019 15:00/3.2.737

**VISUAL - Main result****Calculation:** Svarthammaren (44 turbines)

Scale 1:400,000

New WTG

Camera

A 1

UTM WGS84 Zone 32 East North Z Clouds Clear sky (0/0) Landscape picture file 4016 x 4016 pixels
Eye point 524,952 7,018,402 14.4 Visibility Normal
Target point 525,277 7,020,051 14.2
Photo dir. 120°
Field of view 36.0° x 36.0° Lens: 32 mm Film: 36x24 mm

B 2

UTM WGS84 Zone 32 East North Z Clouds Clear sky (0/0) Landscape picture file 4016 x 4016 pixels
Eye point 514,131 7,022,449 17.5 Visibility Normal
Target point 514,131 7,022,470 17.5
Photo dir. 120°
Field of view 36.0° x 36.0° Lens: 32 mm Film: 36x24 mm

C 6

UTM WGS84 Zone 32 East North Z Clouds Clear sky (0/0) Landscape picture file 4016 x 4016 pixels
Eye point 526,382 7,018,381 13.7 Visibility Normal
Target point 526,382 7,018,411 13.7
Photo dir. 120°
Field of view 36.0° x 36.0° Lens: 32 mm Film: 36x24 mm

D 7

UTM WGS84 Zone 32 East North Z Clouds Heavy covered with clouds (0/0) Landscape picture file 4016 x 4016 pixels
Eye point 514,247 7,022,471 16.2 Visibility Normal
Target point 514,247 7,022,471 16.2
Photo dir. 120°
Field of view 36.0° x 36.0° Lens: 32 mm Film: 36x24 mm

E 8

UTM WGS84 Zone 32 East North Z Clouds Clear sky (0/0) Landscape picture file 4016 x 4016 pixels
Eye point 518,655 7,025,389 16.9 Visibility Normal
Target point 518,655 7,025,389 16.9
Photo dir. 120°
Field of view 36.0° x 36.0° Lens: 32 mm Film: 36x24 mm

F 9

UTM WGS84 Zone 32 East North Z Clouds Clear sky (0/0) Landscape picture file 4016 x 4016 pixels
Eye point 515,091 7,025,421 16.7 Visibility Normal
Target point 515,091 7,025,421 16.7
Photo dir. 120°
Field of view 36.0° x 36.0° Lens: 40 mm Film: 36x24 mm

G 11

UTM WGS84 Zone 32 East North Z Clouds Clear sky (0/0) Landscape picture file 4016 x 4016 pixels
Eye point 508,752 7,026,762 22.1 Visibility Normal
Target point 512,719 7,028,426 24.6
Photo dir. 120°
Field of view 34.4° x 33.0° Lens: 34 mm Film: 36x24 mm

H 7 Panorama

UTM WGS84 Zone 32 East North Z Clouds Completely covered with clouds (0/0) Landscape picture file 8472 x 2588 pixels
Eye point 511,247 7,027,277 28.0 Visibility Normal
Target point 511,247 7,027,277 28.0
Photo dir. 120°
Panorama 7.39°
Panorama field of view 338.7° x 33.0°

I 9 Panorama

UTM WGS84 Zone 32 East North Z Clouds Heavy covered with clouds (0/0) Landscape picture file 8472 x 2588 pixels
Eye point 511,247 7,027,277 28.0 Visibility Normal
Target point 511,247 7,027,277 28.0
Photo dir. 120°
Panorama 7.39°
Panorama field of view 338.7° x 33.0°

WTG siting

	WTG type		Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Distance to camera								
	Valid	Manufact.					A	B	C	D	E	F	G	H	I
1 New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,192	7,826	8,187	6,421	3,286	4,306	11,151	6,421	4,306
2 New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	125.0	22,749	11,322	6,088	2,965	1,660	5,195	14,572	2,965	5,195
3 New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	20,763	9,298	6,915	4,959	2,253	4,640	12,716	4,959	4,640
4 New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	20,824	9,745	8,018	4,670	1,295	3,275	12,464	4,670	3,275
5 New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	18,123	6,531	8,542	7,731	4,722	5,440	10,417	7,731	5,440
6 New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	20,025	8,666	7,666	5,577	2,515	4,174	11,921	5,577	4,174
7 New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	125.0	23,308	11,773	5,394	2,751	2,376	5,937	15,219	2,751	5,937

To be continued on next page...

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Data / data@meventus.com

Calculated:

22.01.2019 15:00/3.2.737



VISUAL - Main result

Calculation: Svarthammaren (44 turbines)

...continued from previous page

WTG type							Distance to camera									
Valid	Manufact.	Type-generator		Power, rated [kW]	Rotor diameter [m]	Hub height [m]	A	B	C	D	E	F	G	H	I	
8	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	21,522	10,200	6,980	4,042	1,281	4,268	13,305	4,042	4,268
9	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,737	8,278	7,596	5,965	3,006	4,570	11,748	5,965	4,570
10	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	21,381	9,880	6,432	4,417	2,073	4,931	13,339	4,417	4,931
11	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,256	7,554	7,355	6,864	4,186	5,716	11,615	6,864	5,716
12	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	22,164	10,726	6,275	3,548	1,608	4,952	14,021	3,548	4,952
13	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	21,878	10,305	5,869	4,120	2,307	5,428	13,895	4,120	5,428
14	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	21,549	9,913	5,815	4,600	2,711	5,629	13,664	4,600	5,629
15	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,001	8,442	9,946	6,625	3,174	2,197	10,466	6,625	2,197
16	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	21,429	10,273	7,558	4,064	831	3,672	13,091	4,064	3,672
17	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	18,682	6,961	7,806	7,445	4,676	5,893	11,121	7,445	5,893
18	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,837	8,091	6,741	6,475	4,043	5,968	12,233	6,475	5,968
19	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	20,613	9,270	7,371	4,972	1,976	4,138	12,459	4,972	4,138
20	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	22,526	11,302	6,970	2,974	796	4,378	14,190	2,974	4,378
21	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	22,371	10,836	5,776	3,568	2,094	5,453	14,320	3,568	5,453
22	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,172	7,677	7,912	6,568	3,575	4,783	11,261	6,568	4,783
23	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	17,686	7,000	10,336	7,829	4,388	3,405	9,306	7,829	3,405
24	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	20,220	8,631	6,901	5,698	3,072	5,129	12,347	5,698	5,129
25	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	22,139	10,466	5,278	4,238	2,873	6,043	14,279	4,238	6,043
26	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	18,739	8,038	9,788	6,808	3,354	2,666	10,286	6,808	2,666
27	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	18,260	7,865	10,538	7,390	3,939	2,449	9,702	7,390	2,449
28	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	17,107	6,231	10,394	8,386	4,989	4,200	8,891	8,386	4,200
29	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,642	9,152	9,858	6,092	2,686	1,714	11,044	6,092	1,714
30	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	22,746	11,133	5,232	3,502	2,579	5,996	14,774	3,502	5,996
31	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	17,540	7,282	11,054	8,110	4,656	2,934	8,979	8,110	2,934
32	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	18,059	6,359	8,399	7,979	5,080	5,925	10,517	7,979	5,925
33	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	17,711	6,787	9,952	7,782	4,386	3,825	9,464	7,782	3,825
34	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	20,945	9,141	5,593	5,826	3,999	6,552	13,397	5,826	6,552
35	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	21,045	9,374	6,028	5,157	3,056	5,682	13,238	5,157	5,682
36	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	125.0	22,976	11,633	6,377	2,610	1,433	5,018	14,715	2,610	5,018
37	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	20,321	8,526	6,167	6,272	4,132	6,360	12,789	6,272	6,360
38	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	17,944	7,413	10,452	7,624	4,169	2,934	9,467	7,624	2,934
39	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	18,300	7,436	9,713	7,198	3,776	3,298	9,967	7,198	3,298
40	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	21,693	9,979	5,390	4,774	3,169	6,120	13,920	4,774	6,120
41	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	19,307	7,526	7,111	7,065	4,545	6,192	11,811	7,065	6,192
42	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	16,872	5,836	10,334	8,641	5,287	4,670	8,787	8,641	4,670
43	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	18,702	7,128	8,100	7,138	4,180	5,203	10,923	7,138	5,203
44	New	Yes	Generic 6 MW	RD 155 - 6.0MW-6,000	6,000	155.0	150.0	17,527	6,441	9,820	7,987	4,642	4,291	9,405	7,987	4,291



Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 34 cm

Photo exposed: 18.12.2018 14:53:44
Field of view: 39.6°x18.0° Lens: 51 mm Film: 36x24 mm Pixels: 6016x4016
Eye point: UTM WGS84 Zone: 32 East: 504,562 North: 7,018,602
Wind direction: 250° Direction of photo: 53°
Camera: 1
Photo: X:\...\Posisjon 1 Kyrksæterøra\DSC_5099.JPG

Created by:
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+47 3860 7115
Data / data@meventus.com



Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 15 cm

Photo exposed: 18.12.2018 14:18:09
Field of view: 73.7°x18.0° Lens: 23 mm Film: 36x24 mm Pixels: 6016x4016
Eye point: UTM WGS84 Zone: 32 East: 514,313 North: 7,025,440
Wind direction: 0° Direction of photo: 25°
Camera: 2
Photo: X:\...\Posisjon 2 Ytre Snillfjord\DSC_5094.JPG

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Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 21 cm

Photo exposed: 17.12.2018 14:15:06
Field of view: 59.0°x18.0° Lens: 32 mm Film: 36x24 mm Pixels: 6016x4016
Eye point: UTM WGS84 Zone: 32 East: 526,052 North: 7,033,281
Wind direction: 0° Direction of photo: 243°
Camera: 6
Photo: X:\...\Posisjon 6 1\DSC_5038.JPG

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Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 24 cm

Photo exposed: 18.12.2018 12:16:22
Field of view: 53.4°x18.0° Lens: 36 mm Film: 36x24 mm Pixels: 6016x4016
Eye point: UTM WGS84 Zone: 32 East: 521,247 North: 7,037,877
Wind direction: 0° Direction of photo: 189°
Camera: 7
Photo: X:\...\Posisjon 7 2\DSC_5068.JPG

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Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 21 cm

Photo exposed: 18.12.2018 12:54:44
Field of view: 58.8°x18.0° Lens: 32 mm Film: 36x24 mm Pixels: 6016x4016
Eye point: UTM WGS84 Zone: 32 East: 518,656 North: 7,035,589
Wind direction: 0° Direction of photo: 239°
Camera: 8
Photo: X:\...\Posisjon 8 1\DSC_5078.JPG

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Project:
Svarthammaren - photomontage

Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	Distance [m]
15 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	2,197
23 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	3,405
26 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	2,666
27 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	2,449
28 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	4,200
31 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	2,934
33 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	3,825
38 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	2,934
39 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	3,298
42 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	4,670
44 New Yes	Generic	6 MW RD 155 - 6.0MW-6,000	6,000	155.0	150.0	4,291

Recommended observation distance: 26 cm

Photo exposed: 17.12.2018 15:28:45

Field of view: 48.4°x18.0° Lens: 40 mm Film: 36x24 mm Pixels: 6016x4016

Eye point: UTM WGS84 Zone: 32 East: 515,071 North: 7,035,621

Wind direction: 0° Direction of photo: 174°

Camera: 9

Photo: X:\...\Posisjon 9 1\DSC_5058.JPG

Created by:

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Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 23 cm

Photo exposed: 18.12.2018 15:22:18
Field of view: 54.4°x18.0° Lens: 34 mm Film: 36x24 mm Pixels: 6016x4016
Eye point: UTM WGS84 Zone: 32 East: 508,321 North: 7,026,702
Wind direction: 0° Direction of photo: 69°
Camera: 11
Photo: X:\...\Posisjon 11 Storodden\DSC_5105.JPG

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Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 13 cm

Photo exposed: 18.12.2018 12:15:52
 Panorama field of view: 109.7°x18.0° Pixels: 8472x2588
 Eye point: UTM WGS84 Zone: 32 East: 521,247 North: 7,037,877
 Wind direction: 0° Direction of photo: 184°
 Camera: 7 Panorama
 Photo: X:\...\Panoramas Raw Photos\7\Panorama_7.jpg

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Project:
Svarthammaren - photomontage

WTGs: 44

Recommended observation distance: 14 cm

Photo exposed: 17.12.2018 15:26:54
Panorama field of view: 102.2°x18.0° Pixels: 8563x2808
Eye point: UTM WGS84 Zone: 32 East: 515,071 North: 7,035,621
Wind direction: 0° Direction of photo: 153°
Camera: 9 Panorama
Photo: X:\...\Panoramas Raw Photos\9\Panorama_9.1_rot_sky.jpg

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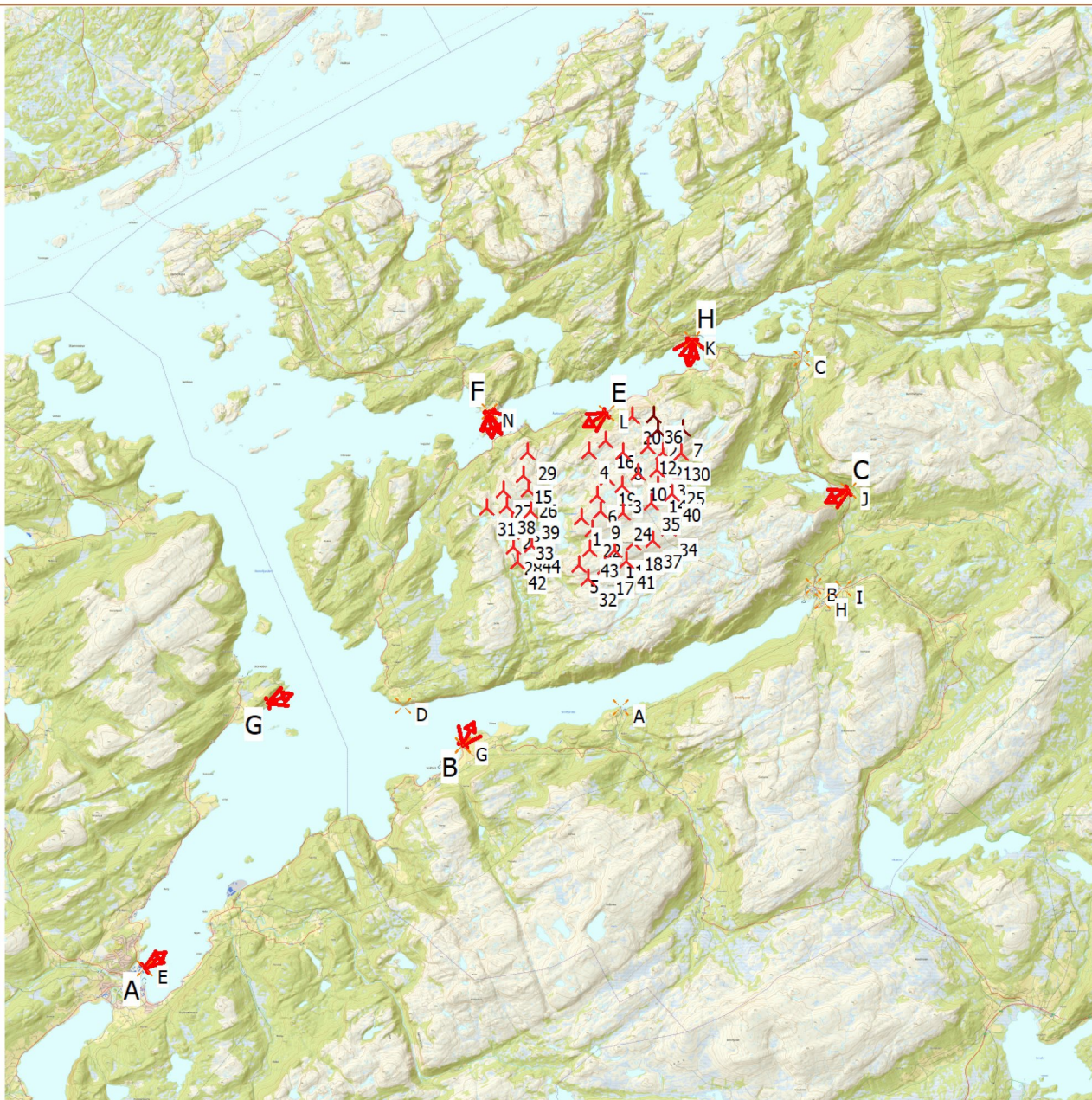
Calculated:

22.01.2019 15:00/3.2.737



VISUAL - Map

Calculation: Svarthammaren (44 turbines)



kartkatalog.geonorge.no

0 2.5 5 7.5 10km

Map: Topografisk norgeskart, Print scale 1:200,000, Map center UTM WGS84 Zone: 32 East: 515,307 North: 7,028,239

 New WTG

 Camera