

Project:

Merkkikallio

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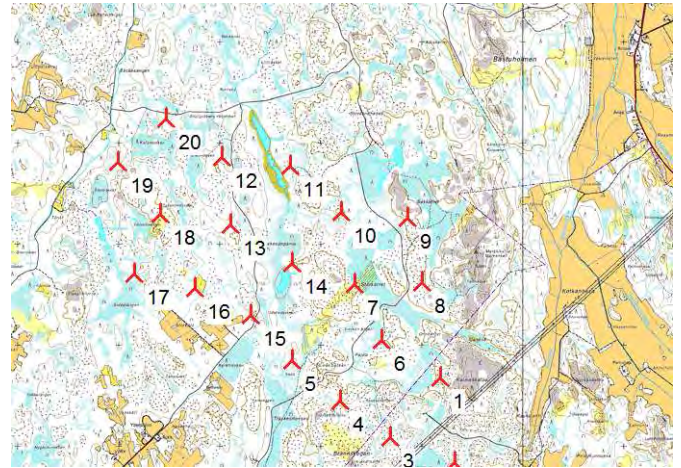
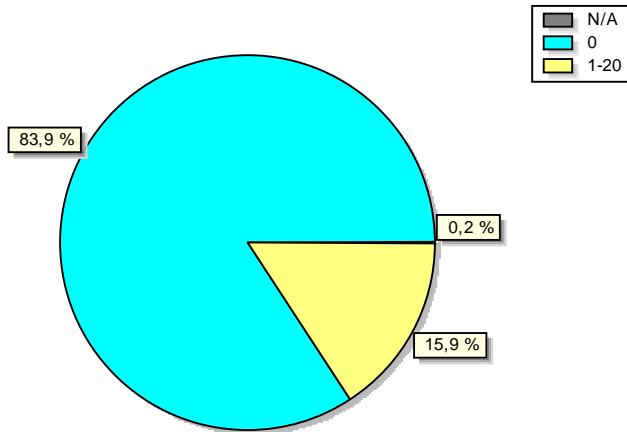
Calculated:

24.10.2014 9:19/2.9.269

ZVI - Standard ZVI summary

Calculation: G132-5000 x 20 x HH149

Area with specific number of WTGs visible



Scale 1:75 000

↗ New WTG

Assumptions for ZVI calculation

Center for calculation	Finish TM ETRS-TM35FIN-ETRS89 East: 245 987 North: 7 008 792
Width of calculation area	35 000 m
Height of calculation area	35 000 m
Calculation step	50 m
Eye height	1,5 m
Calculation area	122 501 ha
Highest relevant visible part of a WTG	Hub height
Obstacles used in calculation	0
DHM object	Height Contours: Merkkikallio_height contour lines.wpo (1)
Area object(s) used in calculation	Area object (Roughness, ZVI): REGIONS_Merkkikallio_0.w2r (1)
Height of background area type	0,00 m
New WTGs used in calculation	20
Existing WTGs used in calculation	0

No maximum distance to WTG

ZVI Results

WTGs visible	Area [ha]	Area [%]
N/A	289	0,2
0	102 790	83,9
1	1 008	0,8
2	827	0,7
3	644	0,5
4	636	0,5
5	529	0,4
6	500	0,4
7	500	0,4
8	521	0,4
9	515	0,4
10	454	0,4
11	472	0,4
12	480	0,4
13	443	0,4
14	458	0,4
15	455	0,4
16	508	0,4
17	499	0,4
18	599	0,5
19	800	0,7
20	8 578	7,0

WTGs

Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	East	North	Z [m]
1	Yes	GAMESA G132-5 000	5 000	132,0	149,0	247 179	7 007 678	23,1
2	Yes	GAMESA G132-5 000	5 000	132,0	149,0	247 326	7 006 839	30,0
3	Yes	GAMESA G132-5 000	5 000	132,0	149,0	246 686	7 007 088	29,0
4	Yes	GAMESA G132-5 000	5 000	132,0	149,0	246 193	7 007 452	25,0
5	Yes	GAMESA G132-5 000	5 000	132,0	149,0	245 719	7 007 851	15,0
6	Yes	GAMESA G132-5 000	5 000	132,0	149,0	246 599	7 008 050	20,0
7	Yes	GAMESA G132-5 000	5 000	132,0	149,0	246 333	7 008 602	20,0
8	Yes	GAMESA G132-5 000	5 000	132,0	149,0	247 005	7 008 619	23,7
9	Yes	GAMESA G132-5 000	5 000	132,0	149,0	246 857	7 009 262	20,4
10	Yes	GAMESA G132-5 000	5 000	132,0	149,0	246 197	7 009 318	20,0
11	Yes	GAMESA G132-5 000	5 000	132,0	149,0	245 695	7 009 777	15,6
12	Yes	GAMESA G132-5 000	5 000	132,0	149,0	245 020	7 009 865	15,0
13	Yes	GAMESA G132-5 000	5 000	132,0	149,0	245 102	7 009 197	18,4
14	Yes	GAMESA G132-5 000	5 000	132,0	149,0	245 718	7 008 815	15,0
15	Yes	GAMESA G132-5 000	5 000	132,0	149,0	245 303	7 008 303	15,0
16	Yes	GAMESA G132-5 000	5 000	132,0	149,0	244 750	7 008 865	15,0
17	Yes	GAMESA G132-5 000	5 000	132,0	149,0	244 153	7 008 706	12,9
18	Yes	GAMESA G132-5 000	5 000	132,0	149,0	244 411	7 009 302	20,0
19	Yes	GAMESA G132-5 000	5 000	132,0	149,0	243 995	7 009 816	14,3
20	Yes	GAMESA G132-5 000	5 000	132,0	149,0	244 472	7 010 240	16,7

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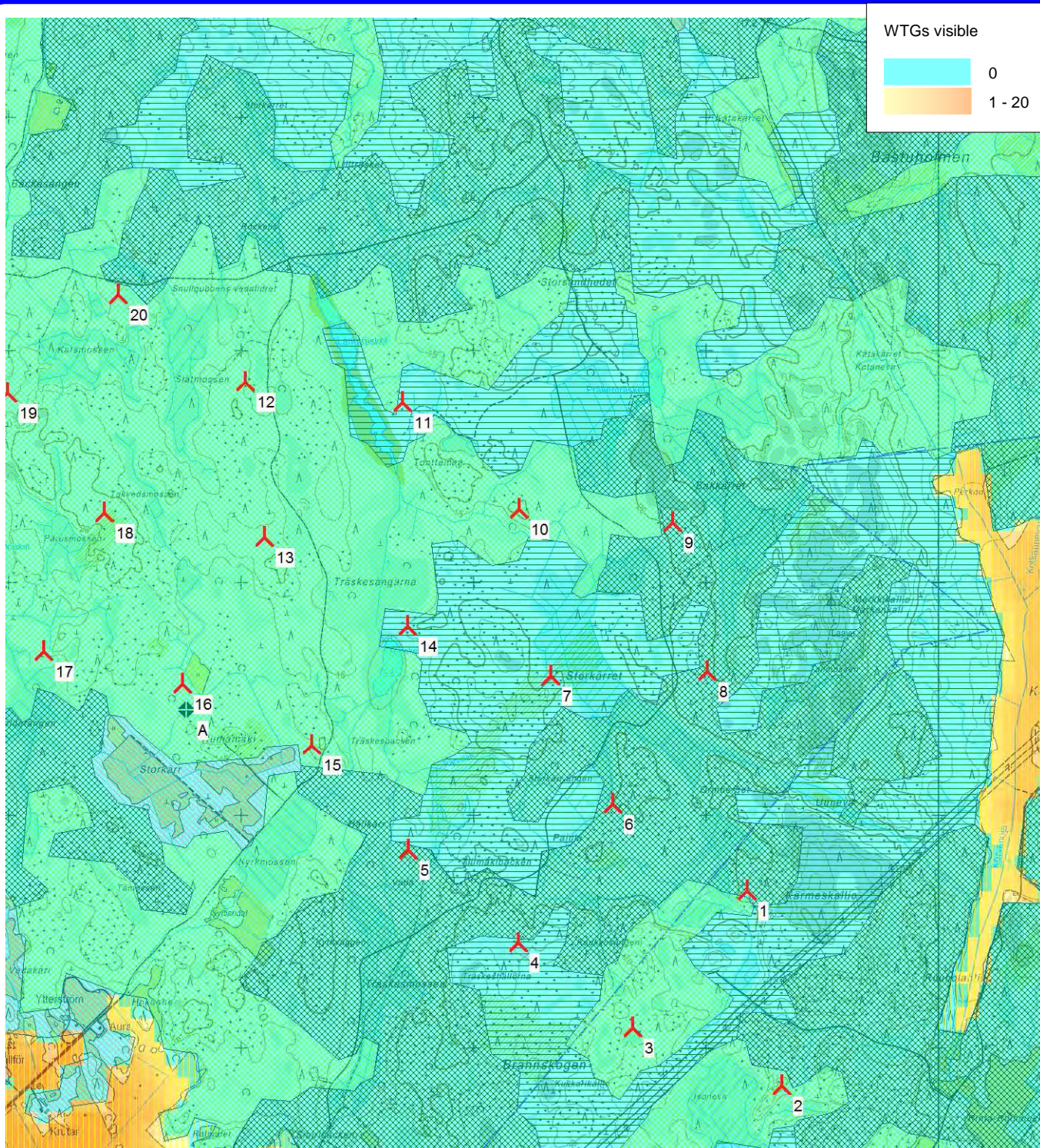
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ZVI - Map

Calculation: G132-5000 x 20 x HH149

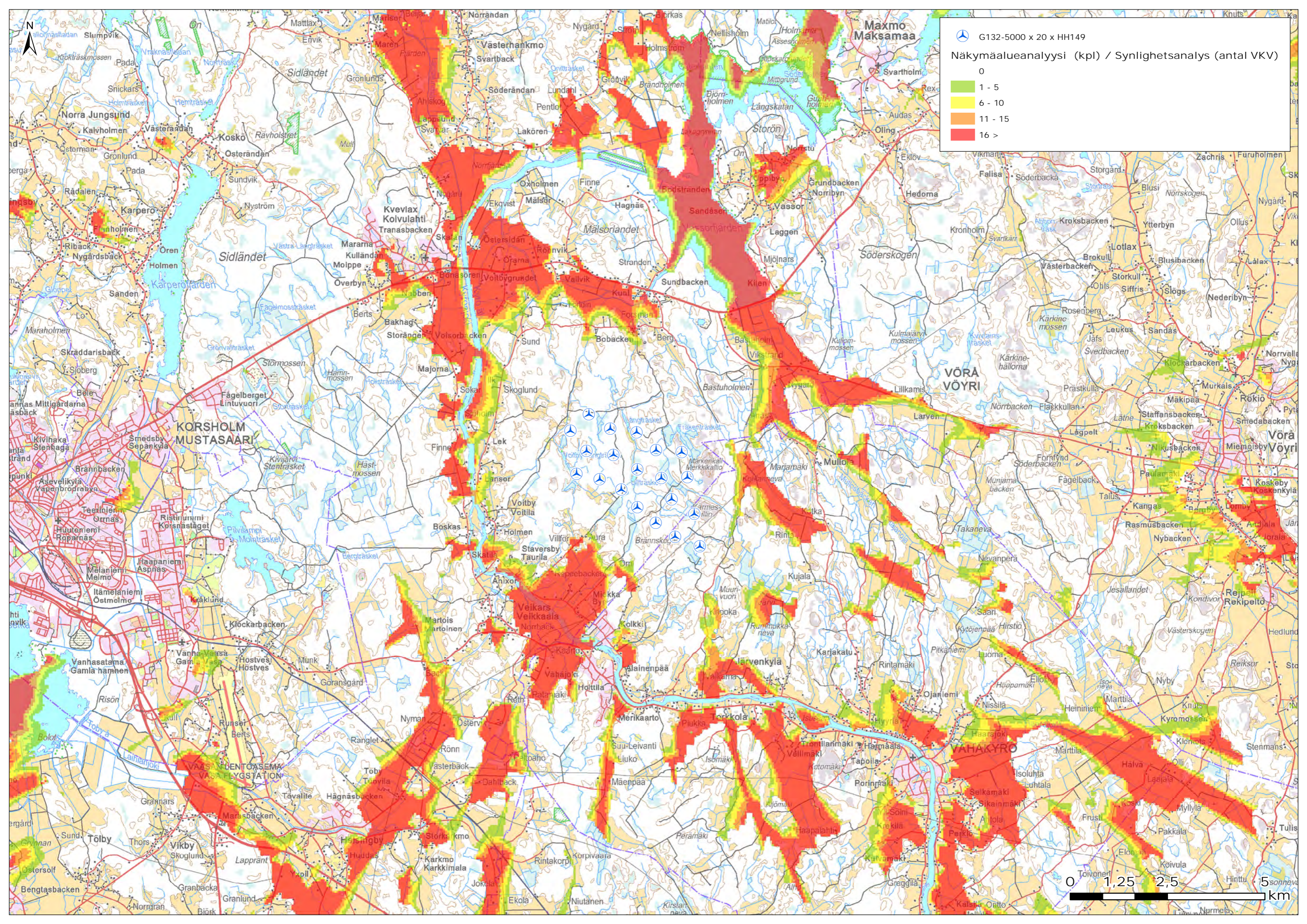


0 250 500 750 1000m

Map: Peruskarttarasteri , Print scale 1:25 000, Map center Finish TM ETRS-TM35FIN-ETRS89 East: 245 987 North: 7 008 792

⚡ New WTG

⊕ Area object (Roughness, ZVI): REGIONS_Merikkiallio_0.w2r (1)

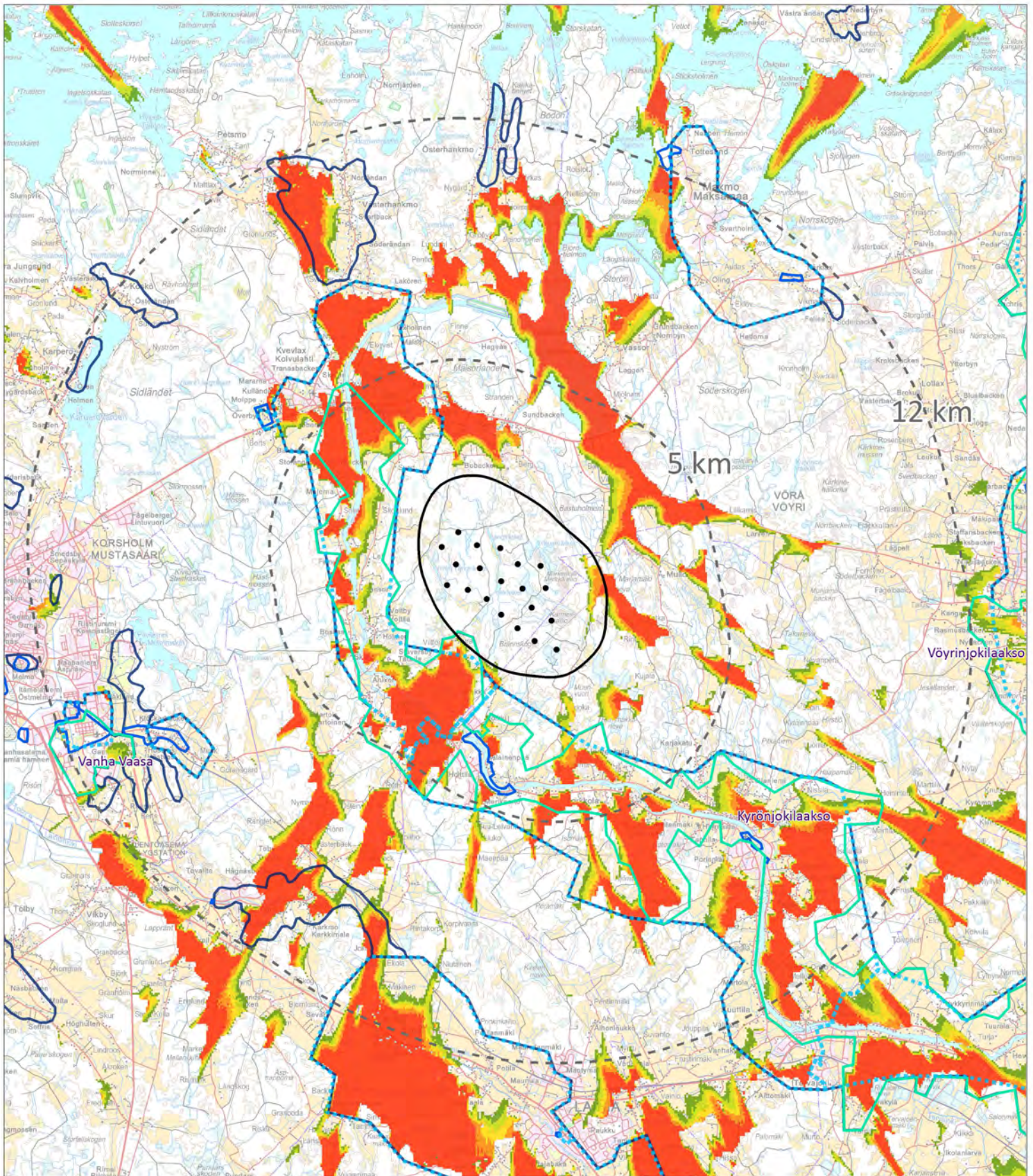


📍 G132-5000 x 20 x HH149

Näkymäalueanalyysi (kpl) / Synlighetsanalys (antal VKV)

- 0
- 1 - 5
- 6 - 10
- 11 - 15
- 16 >





- Tuulivoimalaitos VE1
Vindkraftverk ALT1

□ Hankealue
Projektområde

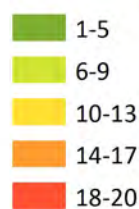
□ Arvokas rakennettu kulttuuriympäristö RKY 1993
Värdefulla byggda kulturmiljöer RKY 1993

□ Valtakunnallisesti arvokas maisema-alue
Nationellt värdeful landskapsområde

□ Valtakunnallisesti merkittävä rakennettu kulttuuriympäristö RKY 2009
Byggda kulturmiljöer av riksintresse RKY 2009

□ Kulttuuriympäristön tai maiseman vaalimisen kannalta tärkeä alue
Landskapsområden eller byggda kulturmiljöer som är värdefulla på landskapsnivå

Tuulivoimaloiden näkyvyys (kpl)
Vindkraftverkens synlighet (st)



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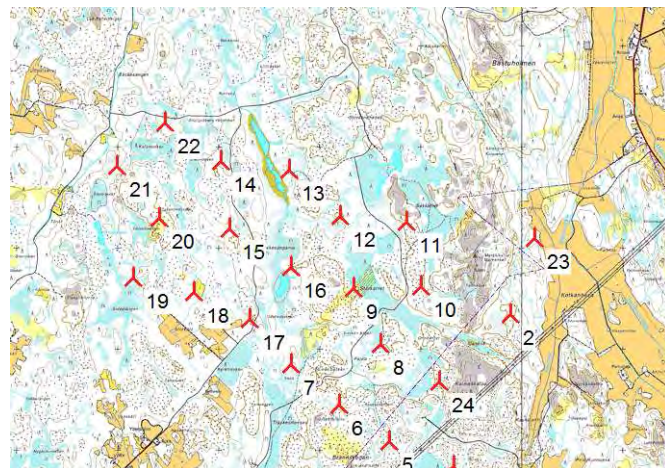
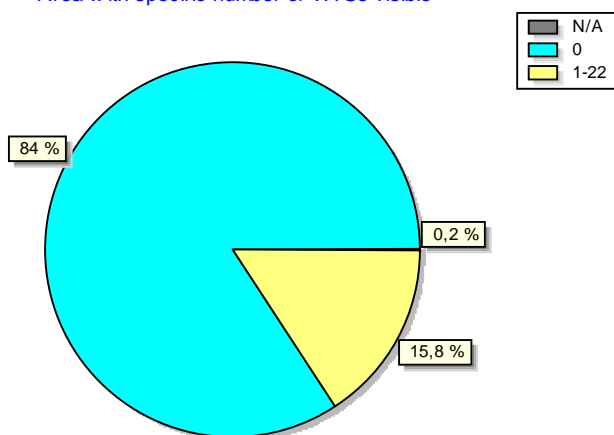
Calculated:

10.11.2014 12:56/2.9.269

ZVI - Standard ZVI summary

Calculation: N131-3000 x 22 x HH144

Area with specific number of WTGs visible



⚡ New WTG

Assumptions for ZVI calculation

Center for calculation
 Width of calculation area
 Height of calculation area
 Calculation step
 Eye height
 Calculation area
 Highest relevant visible part of a WTG
 Obstacles used in calculation
 DHM object
 Area object(s) used in calculation
 Height of background area type
 New WTGs used in calculation
 Existing WTGs used in calculation

Finish TM ETRS-TM35FIN-ETRS89 East: 245 987 North: 7 008 792
 35 000 m
 35 000 m
 50 m
 1,5 m
 122 501 ha
 Hub height
 0
 Height Contours: Merkkikallio_height contour lines.wpo (1)
 Area object (Roughness, ZVI): REGIONS_Merkkikallio_0.w2r (1)
 0,00 m
 22
 0

No maximum distance to WTG

ZVI Results

WTGs visible	Area [ha]	Area [%]
N/A	289	0,2
0	102 893	84,0
1	1 010	0,8
2	875	0,7
3	652	0,5
4	629	0,5
5	545	0,4
6	486	0,4
7	482	0,4
8	522	0,4
9	439	0,4
10	470	0,4
11	513	0,4
12	464	0,4
13	407	0,3
14	440	0,4
15	414	0,3
16	424	0,3
17	465	0,4
18	516	0,4
19	513	0,4
20	800	0,7
21-22	8 253	6,7

WTGs

Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	East	North	Z
1 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	248 124	7 009 098	11,2
2 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	247 891	7 008 346	20,0
3 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	247 179	7 007 678	23,1
4 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	247 326	7 006 839	30,0
5 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	246 686	7 007 088	29,0
6 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	246 193	7 007 452	25,0
7 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	245 719	7 007 851	15,0
8 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	246 599	7 008 050	20,0
9 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	246 333	7 008 602	20,0
10 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	247 005	7 008 619	23,7
11 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	246 857	7 009 262	20,4
12 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	246 197	7 009 318	20,0
13 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	245 695	7 009 777	15,6
14 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	245 020	7 009 865	15,0
15 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	245 102	7 009 197	18,4
16 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	245 718	7 008 815	15,0
17 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	245 303	7 008 303	15,0
18 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	244 750	7 008 566	15,0
19 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	244 153	7 008 706	12,9
20 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	244 411	7 009 302	20,0
21 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	243 995	7 009 816	14,3
22 Yes	NORDEX	N131/3000-3 000	3 000	131,0	144,0	244 472	7 010 240	16,7

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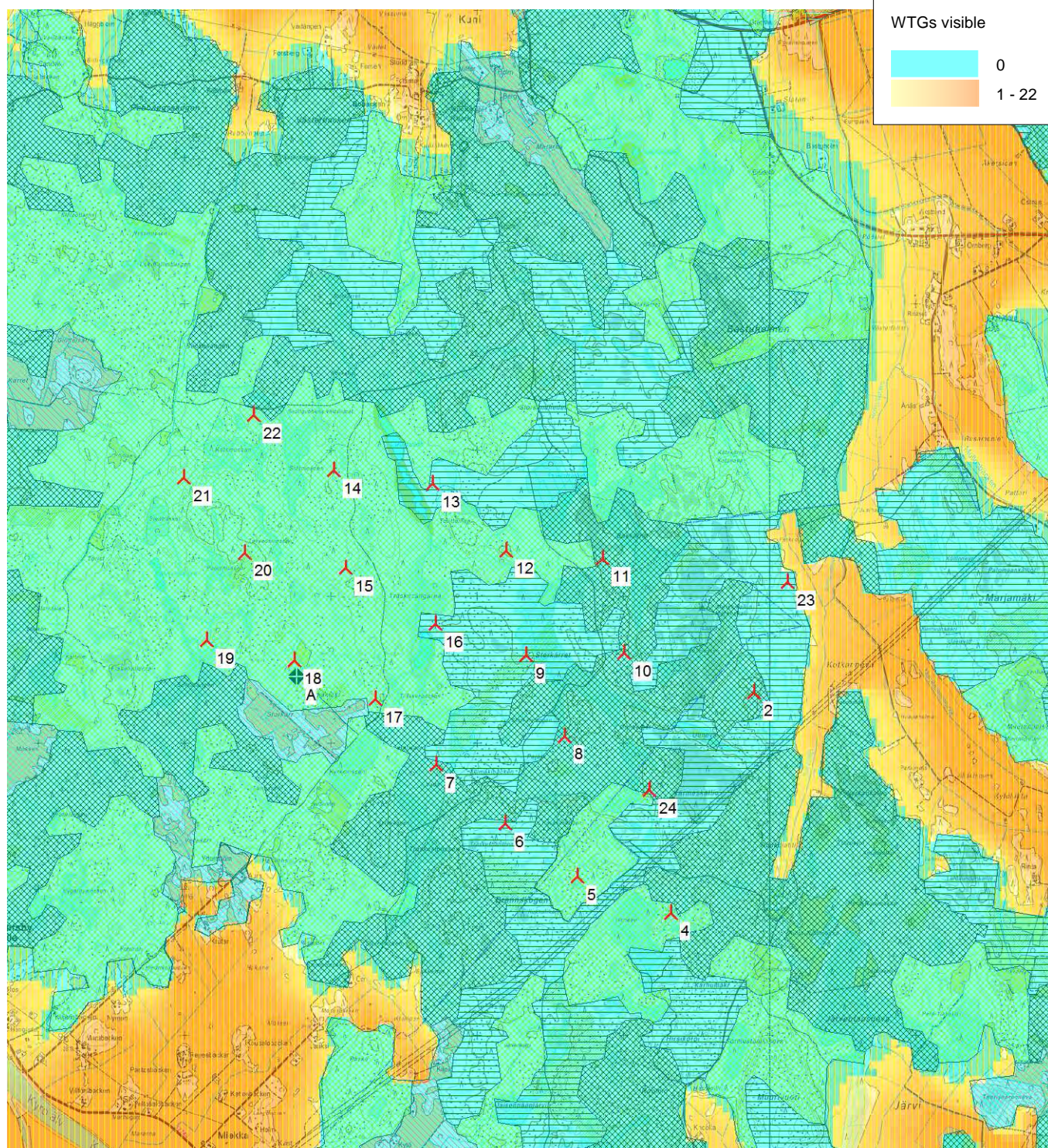
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ZVI - Map

Calculation: N131-3000 x 22 x HH144



WTGs visible

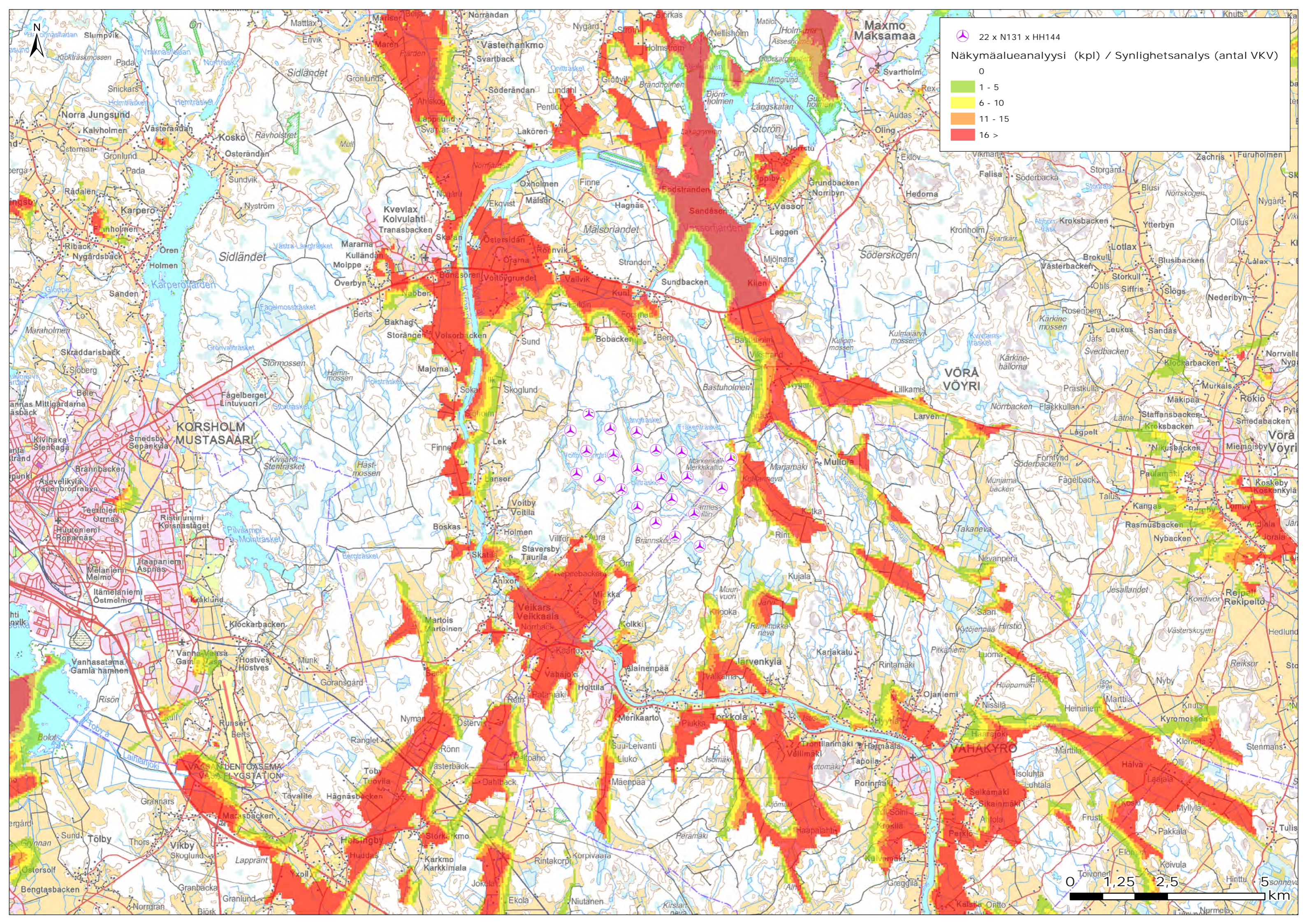


0 500 1000 1500 2000 m

Map: Peruskarttarasteri , Print scale 1:40 000, Map center Finish TM ETRS-TM35FIN-ETRS89 East: 245 987 North: 7 008 792

⚡ New WTG

⊕ Area object (Roughness, ZVI): REGIONS_Merikkikallio_0.w2r (1)

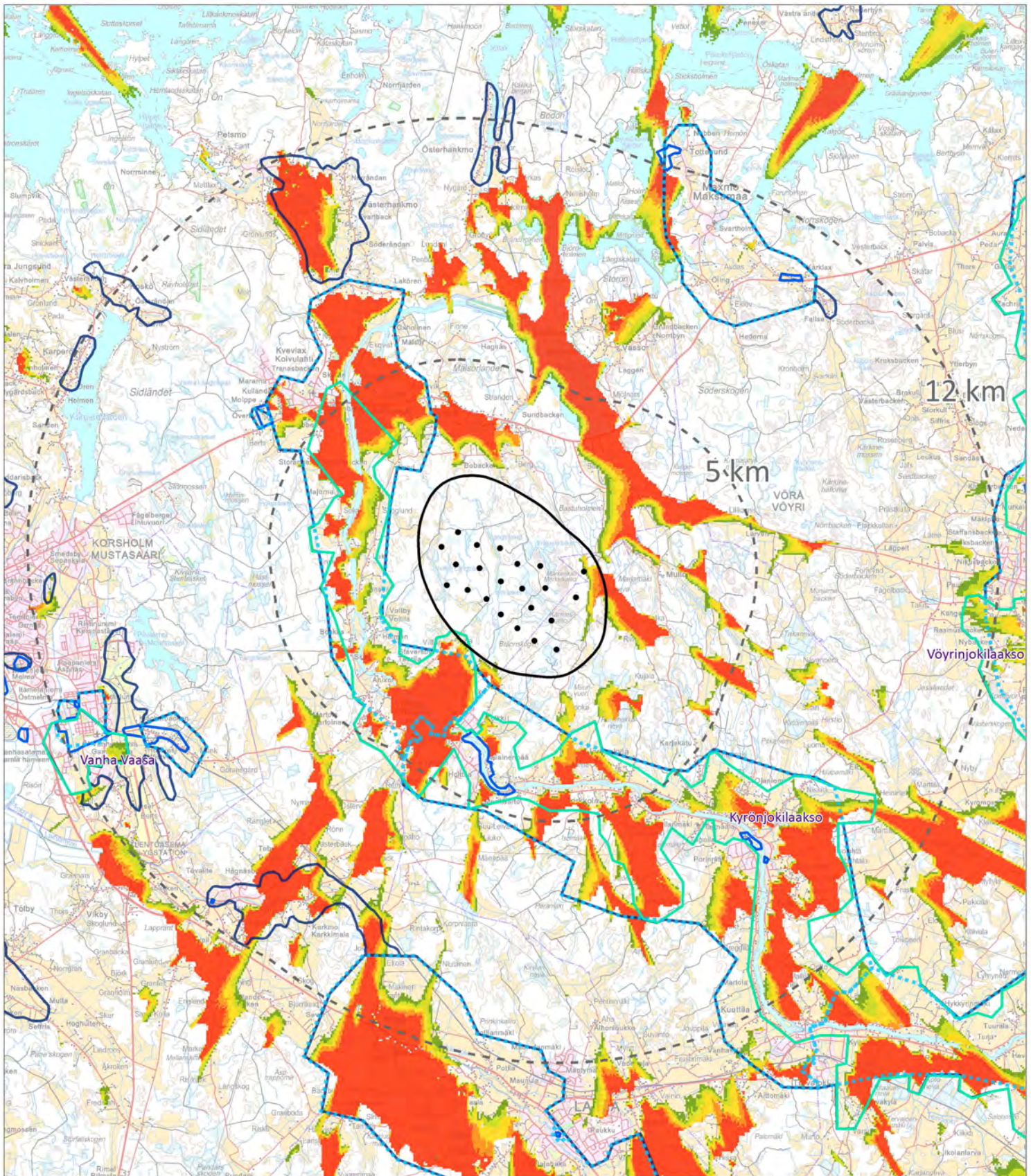


22 x N131 x HH144

Näkymäalueanalyysi (kpl) / Synlighetsanalys (antal VKV)

0
1 - 5
6 - 10
11 - 15
16 >





- Tuulivoimalaitos VE2
Vindkraftverk ALT2

□ Hankealue
Projektområde

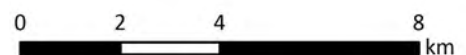
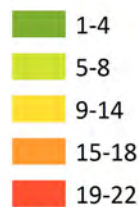
□ Arvokas rakennettu kulttuuriympäristö RKY 1993
Värdefulla byggda kulturmiljöer RKY 1993

□ Valtakunnallisesti arvokas maisema-alue
Nationellt värdeful landskapsområde

□ Valtakunnallisesti merkittävä rakennettu kulttuuriympäristö RKY 2009
Byggda kulturmiljöer av riksintresse RKY 2009

□ Kulttuuriympäristön tai maiseman vaalimisen kannalta tärkeä alue
Landskapsområden eller byggda kulturmiljöer som är värdefulla på landskapsnivå

Tuulivoimaloiden näkyvyys (kpl)
Vindkraftverkens synlighet (st)



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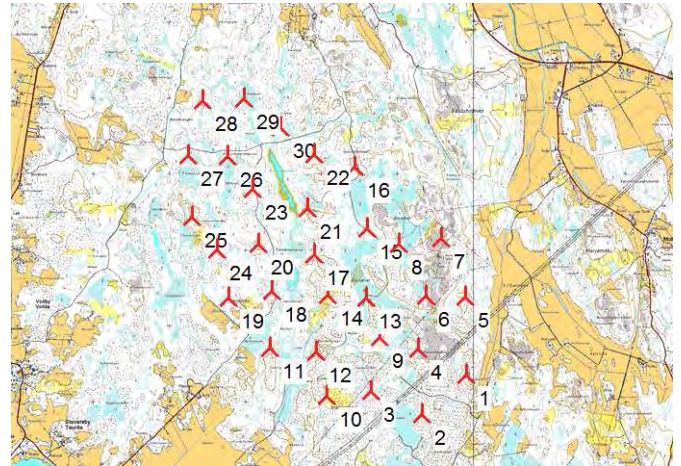
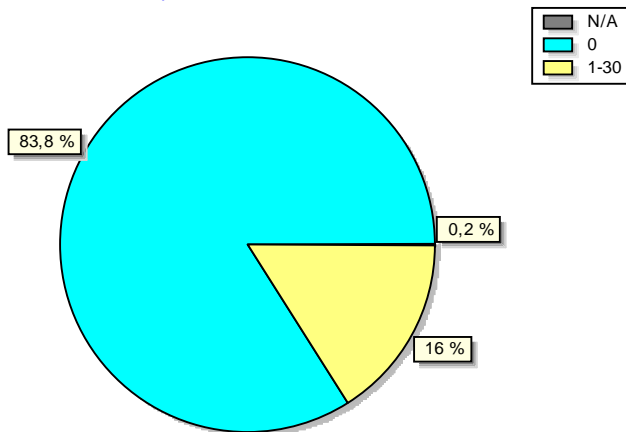
Calculated:

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ZVI - Standard ZVI summary

Calculation: N117-3000 x 30 x HH141

Area with specific number of WTGs visible



⚓ New WTG

Assumptions for ZVI calculation

Center for calculation
 Width of calculation area
 Height of calculation area
 Calculation step
 Eye height
 Calculation area
 Highest relevant visible part of a WTG
 Obstacles used in calculation
 DHM object
 Area object(s) used in calculation
 Height of background area type
 New WTGs used in calculation
 Existing WTGs used in calculation

Finish TM ETRS-TM35FIN-ETRS89 East: 245 987 North: 7 008 792
 35 000 m
 35 000 m
 50 m
 1,5 m
 122 501 ha
 Hub height
 0
 Height Contours: Merkkikallio_height contour lines.wpo (1)
 Area object (Roughness, ZVI): REGIONS_Merkkikallio_0.w2r (1)
 0,00 m
 30
 0

No maximum distance to WTG

ZVI Results

WTGs visible	Area [ha]	Area [%]
N/A	289	0,2
0	102 611	83,8
1	901	0,7
2	667	0,5
3	579	0,5
4	493	0,4
5	530	0,4
6	475	0,4
7	417	0,3
8	415	0,3
9	372	0,3
10	366	0,3
11	356	0,3
12	375	0,3
13	361	0,3
14	365	0,3
15	361	0,3
16	328	0,3
17	331	0,3
18	339	0,3
19	312	0,3
20	338	0,3
21-30	10 922	8,9

WTGs

Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	East	North	Z [m]
1	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	247 904	7 007 365	27,5
2	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	247 326	7 006 838	30,0
3	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	246 653	7 007 146	30,0
4	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	247 273	7 007 706	30,0
5	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	247 892	7 008 386	20,0
6	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	247 378	7 008 398	26,0
7	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	247 581	7 009 156	27,5
8	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	247 015	7 009 079	20,4
9	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	246 761	7 007 851	20,0
10	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	246 068	7 007 085	30,0
11	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	245 321	7 007 713	20,0
12	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	245 933	7 007 667	20,0
13	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	246 583	7 008 373	20,0
14	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	246 082	7 008 407	25,0
15	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	246 594	7 009 288	18,6
16	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	246 437	7 010 102	20,0
17	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	245 903	7 008 944	19,5
18	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	245 349	7 008 468	14,8
19	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	244 782	7 008 372	15,0
20	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	245 172	7 009 082	20,0
21	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	245 818	7 009 556	20,0
22	Yes	NORDEX N117/3000-3 000	3 000	116,8	140,6	245 907	7 010 264	21,1

To be continued on next page...

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Calculated:

24.10.2014 9:08/2.9.269

ZVI - Standard ZVI summary**Calculation:** N117-3000 x 30 x HH141

...continued from previous page

	Valid	Manufact.	Type-generator	Power, rated [kW]	Rotor diameter [m]	Hub height [m]	East	North	Z [m]
23	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	245 097	7 009 800	15,0
24	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	244 631	7 009 006	17,5
25	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	244 302	7 009 432	20,0
26	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	244 759	7 010 242	13,8
27	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	244 242	7 010 245	14,3
28	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	244 435	7 010 971	19,2
29	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	244 977	7 011 001	12,5
30	Yes	NORDEX	N117/3000-3 000	3 000	116,8	140,6	245 464	7 010 613	14,7