

UNDER 18 WIND TURBINES PARK IN AKMENĖ DISTRICT MUNICIPALITY, KRUOPIAI WARD, ŠAPNAGIAI, BAMBALAI, PLEIKIAI AND KVIEČLAUKIS VILLAGES

Summary of Screening for Environmental Impact Assessment
Vilnius, 2019

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Proposed economic activity (PEA) – under 18 wind turbines park in Akmenė district municipality. 18 wind turbines are planned to be build in Akmenė district municipality, Kruopiai ward, Šapnagai, Bambalai, Pleikiai and Kviečlaukis villages, see figure 1.

Windfarm Akmenė One, UAB, the organizer of proposed economic activity, is planning to build 18 wind turbines with specifications as one of the following (table 1):

- Enercon E147;
- Siemens Gamesa 5.0-145 (hub height 127,5 m or 157,5 m);
- Vestas V150.

Table 1. Wind turbines specifications

	<i>Enercon</i>	<i>Siemens Gamesa</i>	<i>Siemens Gamesa</i>	<i>Vestas</i>
<i>Model</i>	E-147	S145-5.000	S145-5.000	V150- 5.6
<i>Capacity (MW)</i>	5,0	5,0	5,0	5,6
<i>Hub height (m)</i>	126	127,5	157,5	166
<i>Rotor diameter (m)</i>	147	145	145	150
<i>Generatoriaus tinklo dažnis (Hz)</i>	50/60	50/60	50/60	50/60
<i>Maximum Noise Emission level (dB(A))</i>	106,4	109,3	109,3	107,7

It is planned that during and after the implementation of the PEA, local roads will be used to access wind turbines and roads may be adapted or reconstructed as required. Electricity generated by wind power plants will be transferred via the underground power cable lines to the new 110 kV substation (WGS-84 coordinates is 56.3009863, 23.0295424).

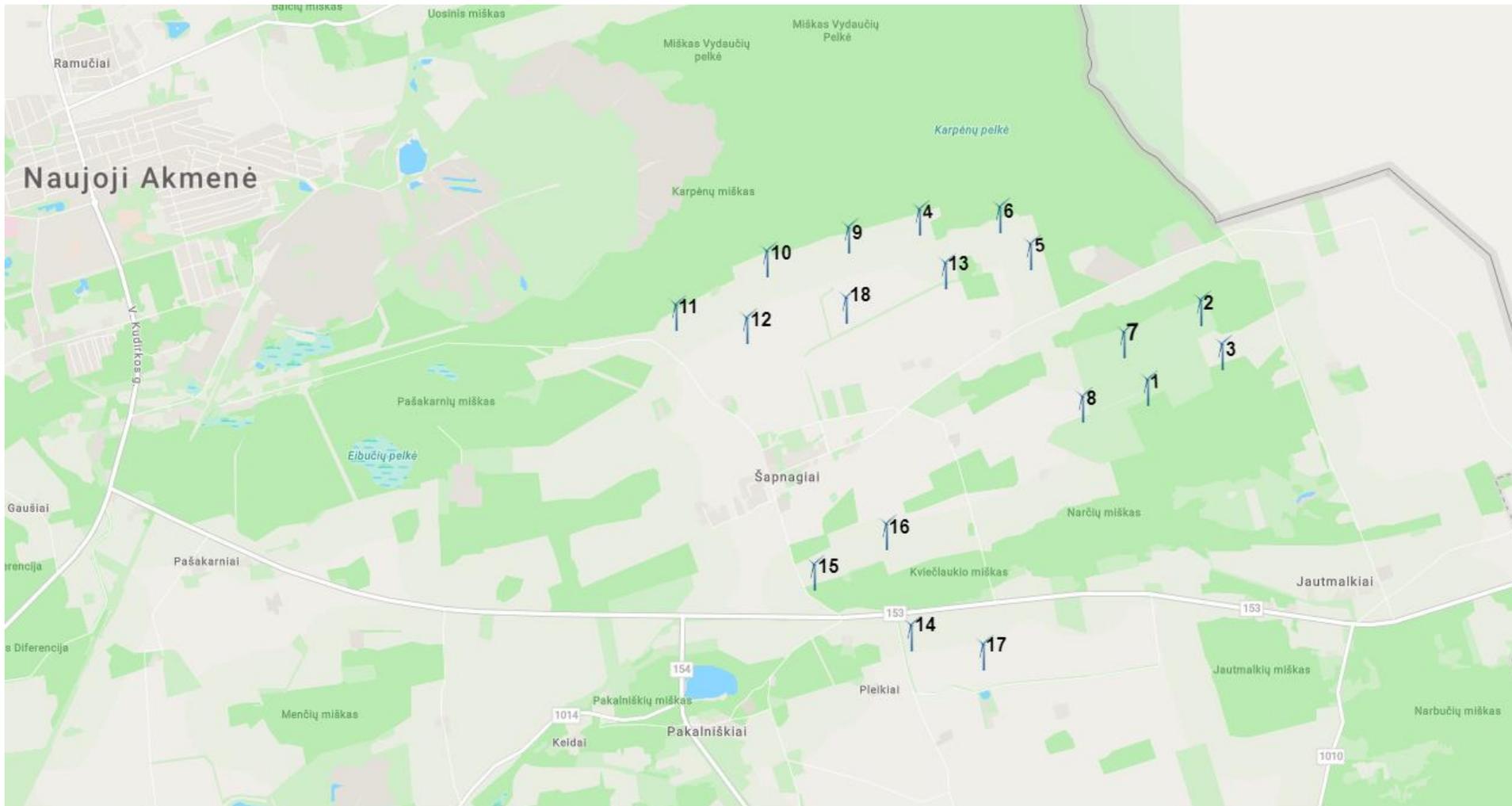


Fig. 1. 18 wind turbines location (www.maps.lt)

Location of the proposed economic activity

The areas of 18 wind turbines are located at a distance of approximately 2.8 km to the east from Naujoji Akmenė, about 1,0-1,4 km to west, south-west from the border of the Republic of Latvia and approximately 4,3 km to the north from Kruopiai village (figure 2).

18 wind turbines are planned in fifteen land plots (table 2) of agricultural purpose territories that unique No. are 4400-0598-0312 (111.0000 ha), 3235-0002-0001 (8.4900 ha), 4400-0827-4731 (18.2500 ha), 3235-0001-0033 (30.5900 ha); 4400-0827-4775 (29.9000 ha); 3235-0001-0009 (2.4600 ha); 4400-3151-2164 (22.0133 ha); 4400-0763-4299 (6.6000 ha); 4400-3151-1267 (24.2875 ha); 3235-0001-0007 (6.8300 ha); 4400-3824-1286 (8.4294 ha); 3235-0002-0009 (8.3800 ha); 3235-0002-0011 (27.0000 ha); 3235-0004-0056 (13.6600 ha); 4400-3835-5898 (1.1200 ha). Land ownership is currently private.

Table 2. Territories of 18 wind turbines

No.	Unique No. of plot	Coordinates (WGS-84)
1	4400-0598-0312	56.306433553379 23.035738873136
2	4400-0598-0312	56.313057742807 23.043152161958
3	3235-0002-0001	56.309247834768 23.046511902366
4	4400-0827-4731	56.320102238604 23.002368325342
5	3235-0001-0033	56.317133886992 23.019886933378
6	3235-0001-0033	56.320407369274 23.014678574286
7	4400-0598-0312	56.310265945949 23.031844415148
8	4400-0827-4775	56.304817188579 23.025486306974
9	3235-0001-0009	56.318475609217 22.991192347889
10	4400-3151-2164	56.316978434708 22.979496598854
11	4400-0763-4299	56.31254756488 22.967315195393
12	4400-3151-1267	56.311676663713 22.977116709432
13	3235-0001-0007	56.315596965445 23.005136621039
14	4400-3824-1286	56.287151004764 23.00227373054
15	3235-0002-0009	56.291872928965 22.987483250876
16	3235-0002-0011	56.295143814646 22.997542100067
17	3235-0004-0056	56.285319352391 23.011349742286
18	4400-3835-5898	56.313063704797 22.991803733653

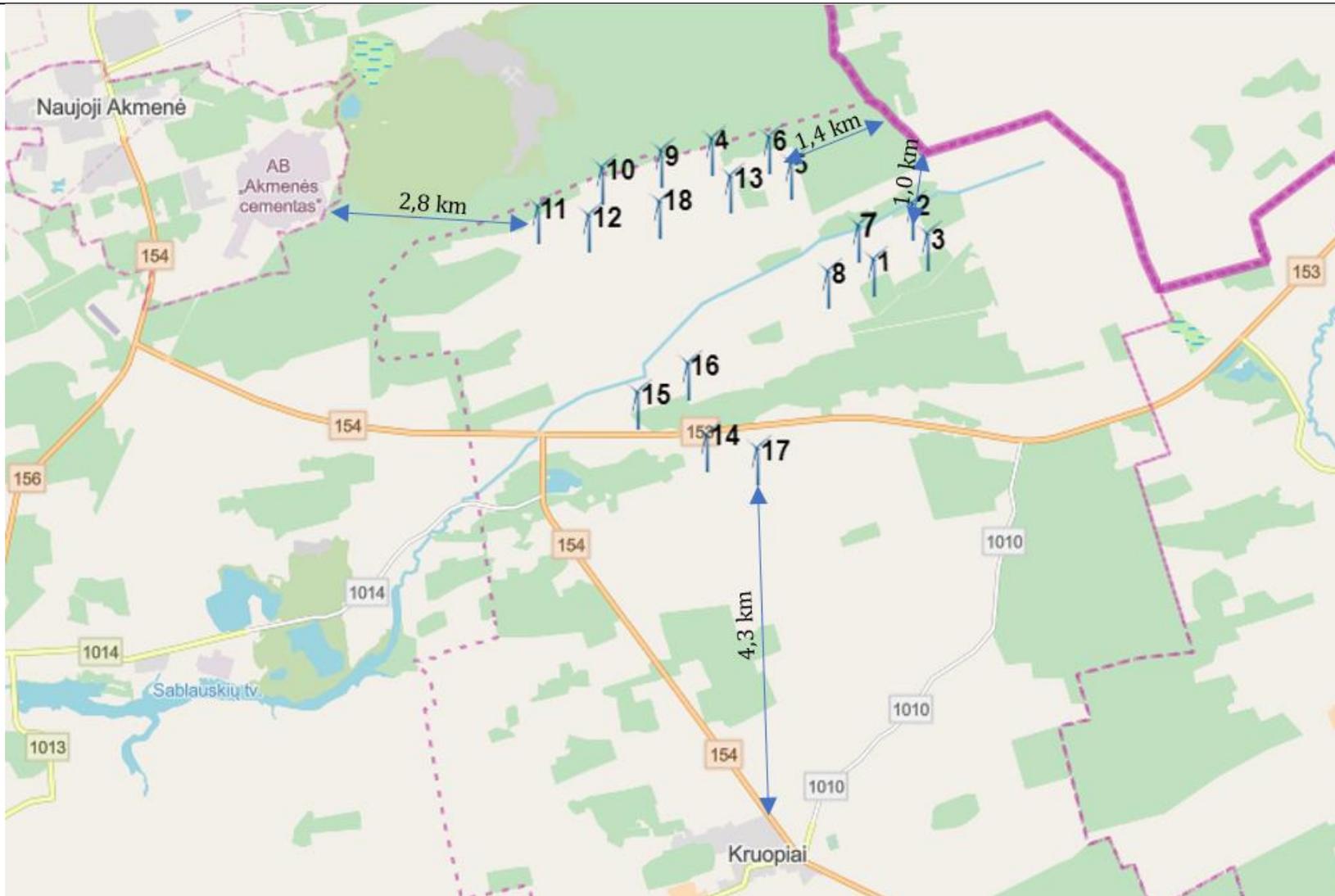


Fig. 2. 18 wind turbines locations and distances to Republic of Latvia, Naujoji akmenė and Kruopiai (www.maps.lt)

Wind turbines will be brought to the construction site, unloaded and installed with the help of special cranes. Due to the weight of the wind power plant and safety requirements, steel bars and special-purpose concrete will be used during the construction phase of a wind turbine foundation. Once the foundations are formed, the wind power towers, rotor, blades will be installed.

After the construction of 18 wind turbines, the remaining excavated soil will be distributed within the site, forming wind farm service sites. The fertile soil layer will be returned to the PEA areas. The layer of soil excavated during the cable installation will also be returned to the excavation lines - the lines will be leveled and the lawn restored. Surface (rain) water from wind power service sites is expected to be discharged to adjacent surfaces.

No water, earth, soil and / or biological variety resources will be used during and after the implementation of the PEA. It is planned to use one of the alternative sources of energy that are everlasting – wind power. The beginning of the preparatory and construction works of the planned wind turbines is foreseen in 2020.

Pursuant to the solutions of the special plan of the territory of Akmene District approved by Akmene District Municipality Board, the territory in which wind turbines are planned is designed for wind energy infrastructure.

Impact on the environment of the proposed economic activity

The proposed economic activity of 18 wind turbines will not have any influence on the pollution of surrounding air, soil or water.

Noise. During the noise emission assessment, the worst-case scenario was chosen to simulate the noisiest PEA wind turbines Siemens Gamesa (see table 1) with a maximum noise level of 109.3 dB (A). According to the information published on the website of the Environmental Protection Agency (www.gamta.lt), UAB „Vėjo parkai“, UAB „Santix“, UAB „Vėjo technologijų projektai“ ir UAB „Saulės vėjo energija“ also have prepared Screenings for Environmental Impact Assessment in the surrounding area. Therefore the noise emission assessment was performed using background noise data based on these documents (see table 3).

Table 3. Background data on noise sources

<i>No.</i>	<i>Organizer of PEA</i>	<i>Coordinates (WGS-84)</i>	<i>Model</i>	<i>Maximum noise emission level (dB(A))</i>
19	UAB „Saulės vėjo energija“	56.307641323302 22.969306006388	REpower MD 77	103,5
20		56.307641323302 22.969306006388	REpower MD 77	103,5
21		56.31236783316 22.965154296088	REpower MD 77	103,5
22		56.306686971855 22.964742290655	REpower MD 77	103,5
23	UAB „Santix“	56.312994747109 22.98008771216	VESTAS V150-4.2	104,9

<i>No.</i>	<i>Organizer of PEA</i>	<i>Coordinates (WGS-84)</i>	<i>Model</i>	<i>Maximum noise emission level (dB(A))</i>
24		56.308545379943 22.985232245418	VESTAS V150-4.2	104,9
25		56.31412542536 22.993117289934	VESTAS V150-4.2	104,9
26		56.318391541182 22.993005022525	VESTAS V150-4.2	104,9
27		56.317564137534 23.010726855825	VESTAS V150-4.2	104,9
28	UAB „Vėjo technologijų projektai	56.311626483997 22.973223013863	ENERCON E-66/18.70	103,0
29	UAB „Vėjo parkai“	56.294564114608 23.010351814199	NORDEX N131/3000	104,5
30		56.2900153581 23.036136095381	NORDEX N131/3000	104,5
31		56.284797563717 23.040951035495	NORDEX N131/3000	104,5
32		56.273257395765 23.0298409796	NORDEX N131/3000	104,5
33		56.269417220928 23.026999953695	NORDEX N131/3000	104,5

The results of noise dispersion calculations have shown that after the implementation of the PEA including the assessment of already planned wind turbines in the surrounding area, the noise level in the closest residential environment will reach 38.5-43.7 dB (A) and will not exceed the 45 dB (A) limit value. Therefore, it is concluded that no significant negative impact on public health is expected from the implementation of the PEA. The results of noise dispersion are presented in figure 3.

Shading. During the wind turbines shading assessment, the worst-case scenario was chosen to simulate the highest Vestas V150-5.6 wind turbines with maximum rotor diameter (150 m) and hub height (150 m) (see table 1). Also, the shading assessment was performed using background shading data based on prepared screenings for Environmental Impact Assessment (see table 3). The results of shading calculations have shown that after the implementation of PEA, the shading will not exceed the 30 h/year limit value in the closest residential environment and the border of Republic of Latvia and therefore, it is concluded that no significant negative impact on public health is expected from the implementation of the PEA (see figure 4).

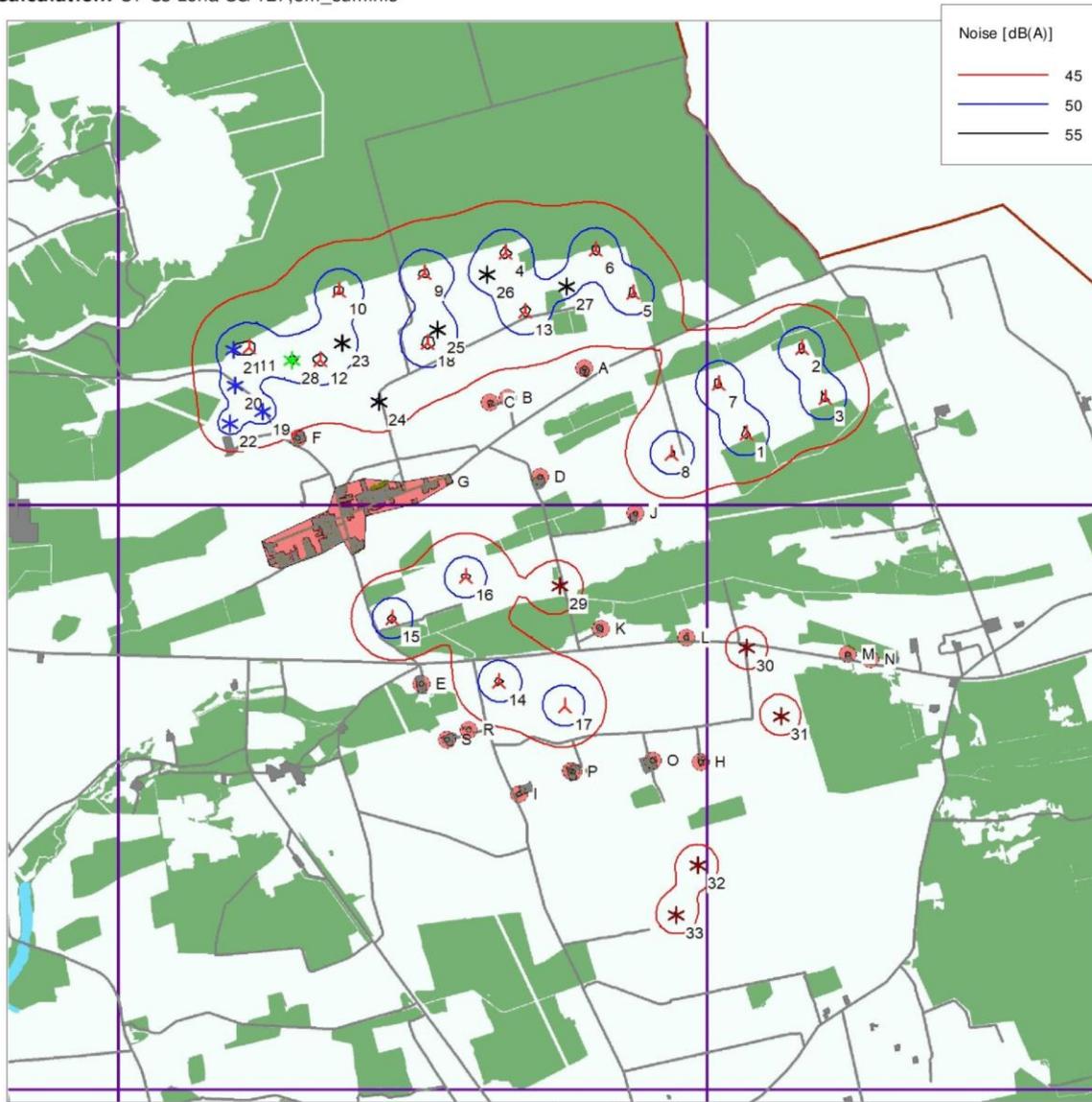
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Project:
Nomine Consult 20 WT_Zona C1-C3

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 2019.09.16 11:48/3.0.654

DECI BEL - Map 10,0 m/ s

Calculation: C1-C3 zona SG 127,5m_suminis



Map: Akmene 20 WT large background , Print scale 1:50.000, Map center Lithuanian TM LKS94-LKS94 (LT) East: 438.466 North: 6.240.582
 ▲ New WTG * Existing WTG ■ Noise sensitive area
 Noise calculation model: ISO 9613-2 General. Wind speed: 10,0 m/s
 Height above sea level from active line object

Fig. 3. Noise dispersion modelling results

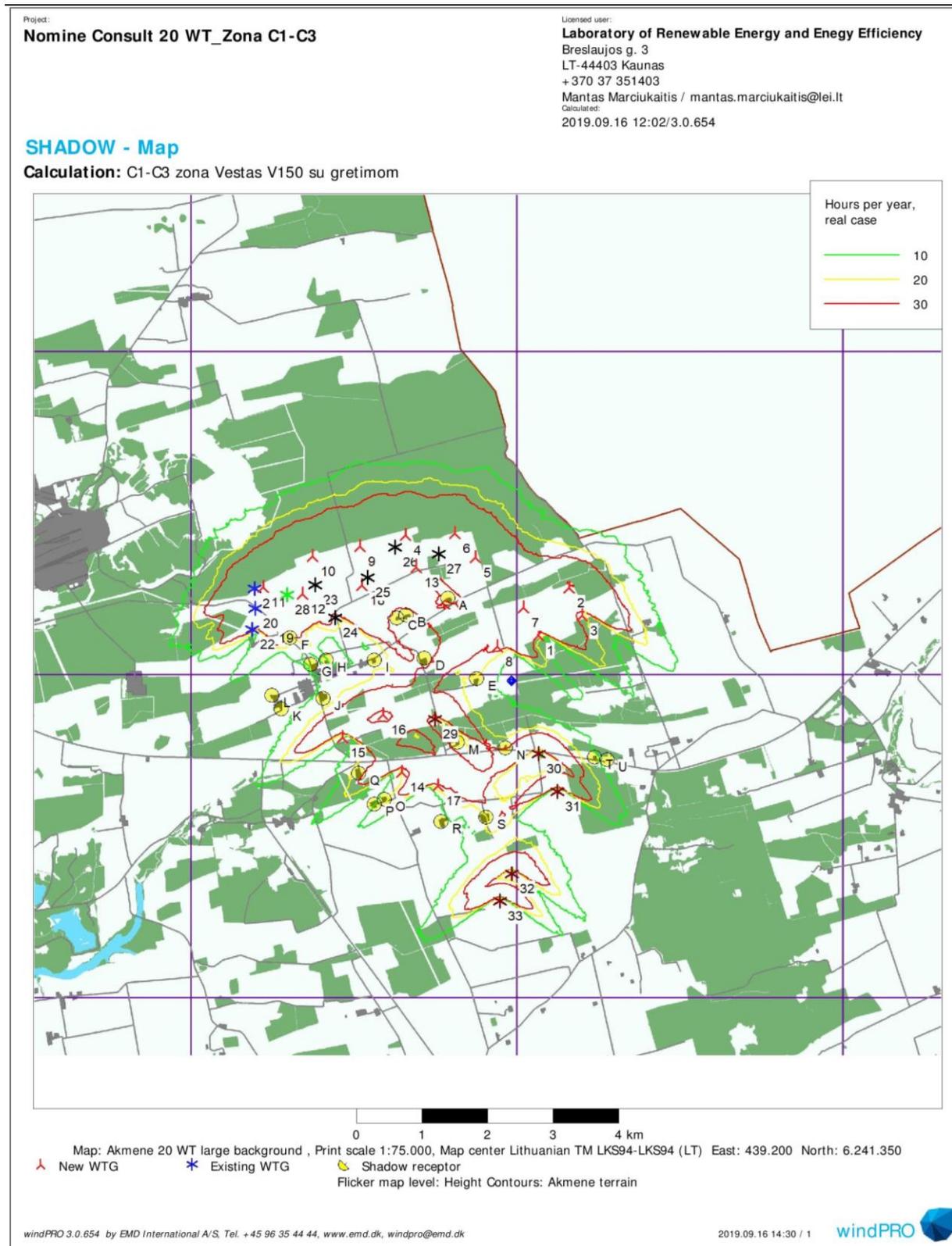


Fig. 4. Shading modelling results

Habitants sites and birds sites. There are no protected areas (state reserves, national or regional parks, nature reserves, biosphere polygons) within the territory of PEA.

It is known that near the territory of PEA, a common kestrel (*Falco tinnunculus*) and a white stork (*Ciconia ciconia*) are observed. The last information about these species in the territory near planned wind turbines was received in 2016. It is equally likely that birds in this area hatch or no longer breed, or after a while will hatch. The maximum height of the flight of the common kestrel is 10-20 meters, so the hunting bird should not fall into the rotation space of 145-150 m blades mounted at 126-166 m height. Potentially, wind turbines are a threat to young white storks, but the risk of killing native birds is minimal. They quickly learn to avoid rotating blades. In addition, given the density and distribution of white storks in Lithuania and Latvia, it is impossible to find a place for the construction of wind farms that would not have white storks in their neighborhood.

The location of the planned 18 wind turbines is not in the path of birds migratory flows as the area does not have any migration lines (e.g. sea coast and valley of large river). Birds migration here takes place on a wide front, as in most of the continental Lithuania and Latvia. Therefore, the threat to migratory birds in the PEA location would be no greater than anywhere else on the mainland of Lithuania and Latvia and far less than that of offshore wind farms.

The closest “Natura 2000” areas that are located in the territory of the Republic of Lithuania are:

- Miškas prie Dilbinėlių (site code: LTJOI0003) which is about 8 km away from PEA territory;
- Žagarės miškas (site code: LTJOI0004) which is located about 10 km away from PEA territory;
- Mūšos Tyrelio pelkė (site code: LTJONB001) which is located about 13 km away from the PEA site;
- Kamanų pelkė (site code: LTAKMB001) which is located about 15 km away from the PEA site.

The closest “Natura 2000” territory „Ukru garsa“ that is located in the territory of the Republic of Latvia is 7,0 km away from PEA territory and is located more to the northeast (see fig. 5). Ukru garsa (site code: LV0523200) is a territory significant for the protection of habitants sites and birds sites. The proposed economic activity (18 wind turbines park in Akmenė district municipality) is far away from this territory and it will not have any national and international influence on environmental impact for the protected sites and species.

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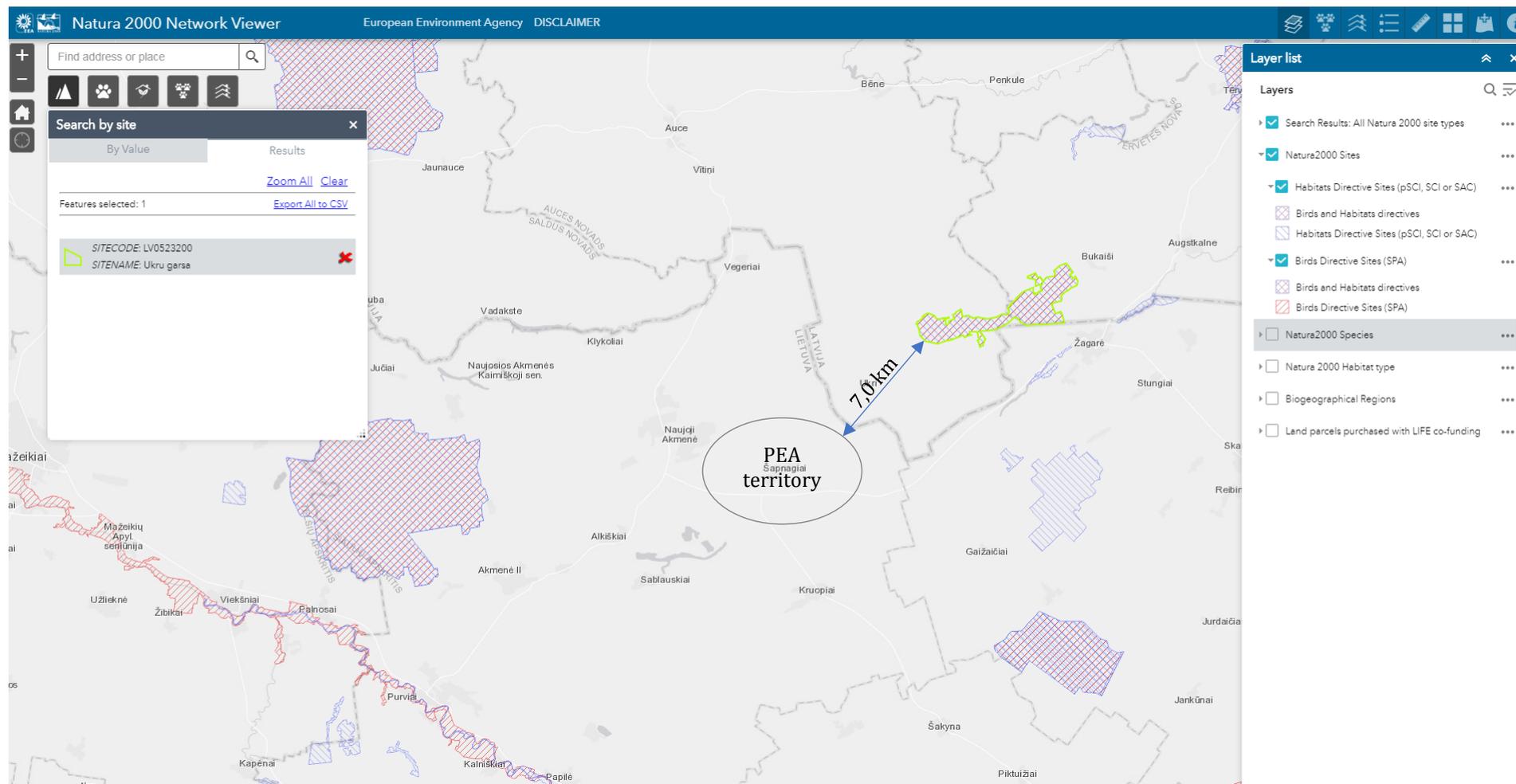


Fig. 5. Position of the proposed economic activity and the protected territories in the Republic of Latvia (<http://natura2000.eea.europa.eu/>)

Landscape. The wind turbines will not have any negative influence on the visual-esthetic quality of the landscape. As it was mentioned earlier, the territory of planned 18 wind turbines is surrounded by previously planned wind turbines (see table 3) and also by large areas of forest (see figure 1). The nearest populated area in the Republic of Latvia is Ukri parish which is about 3 km away from PEA territory. Therefore the visibility of the wind turbines at the direction of the Republic of Latvia will be reduced by the forest array.

It is noteworthy that the potential impact was taken into account during the stage of wind turbines locations planning in order to ensure as minimal negative impact on the environment and public health as possible. In conclusion, it is estimated that no significant negative environmental impacts in a transboundary context of the proposed economic activity are expected.