



SKEPAST & PUHKIM

DO WIND TURBINES LOOK NICE OR NOT?

Together we Build the Future!

OUR COMPETENCE

HISTORY



We have been operating for more than 15+ years in the Estonian market and since 2021 in Latvia. The Company has emerged from Ramboll Eesti AS in 2015.

EXPERIENCE



There are more than 45+ professionals in our team, with respective educational backgrounds and extensive experience in their respective field. 400+ references.

OUR TEAM



We are a good employer, and we want to be the best in our field. We know that true values are born in co-operation!

SUCCESS



Turnover of 4,2 MEUR in 2023.

OUR EXPERIENCE

200+

ENVIRONMENTAL
CONSULTATIONS

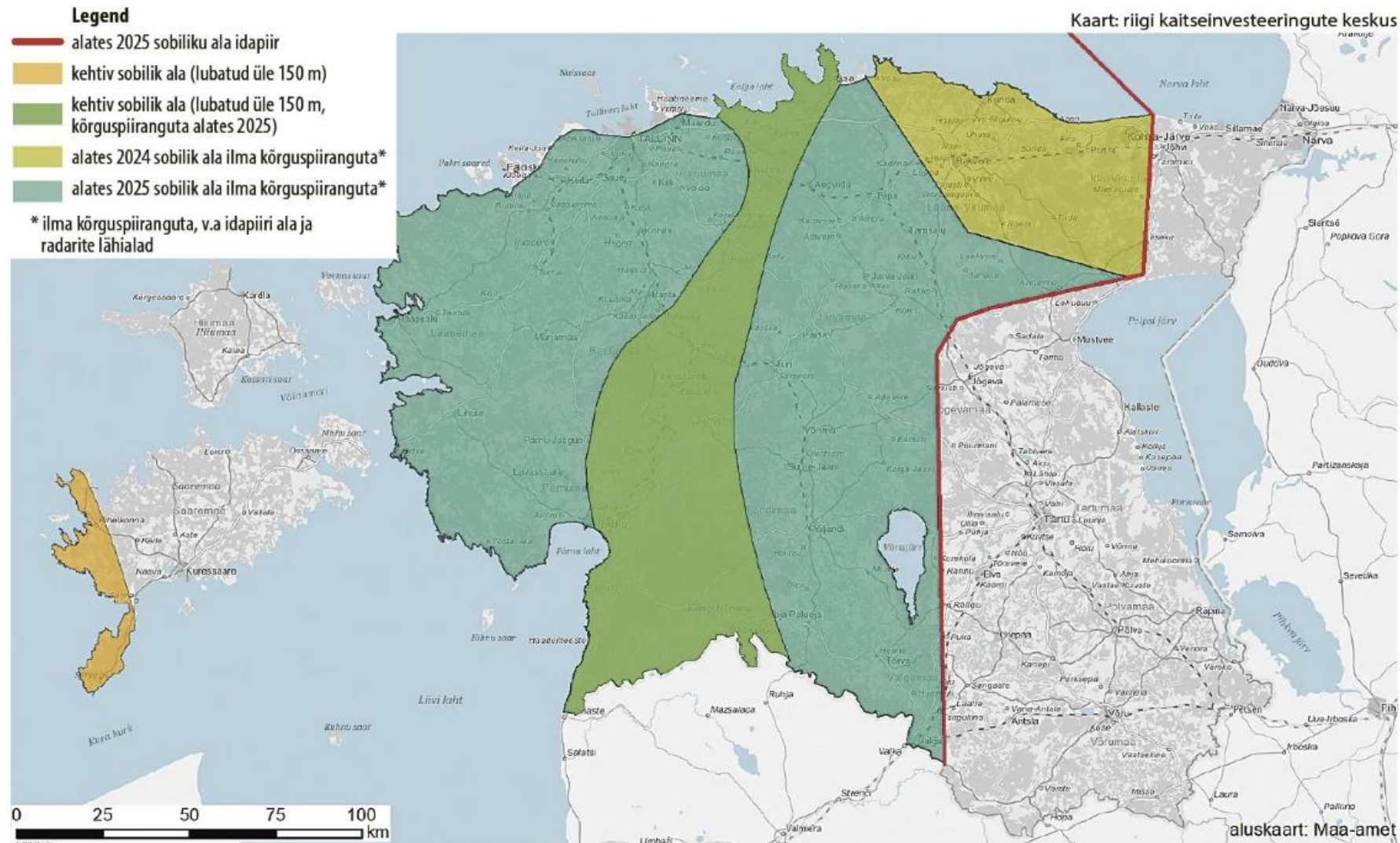
100+

SPATIAL AND
MUNICIPAL PLANS

150+

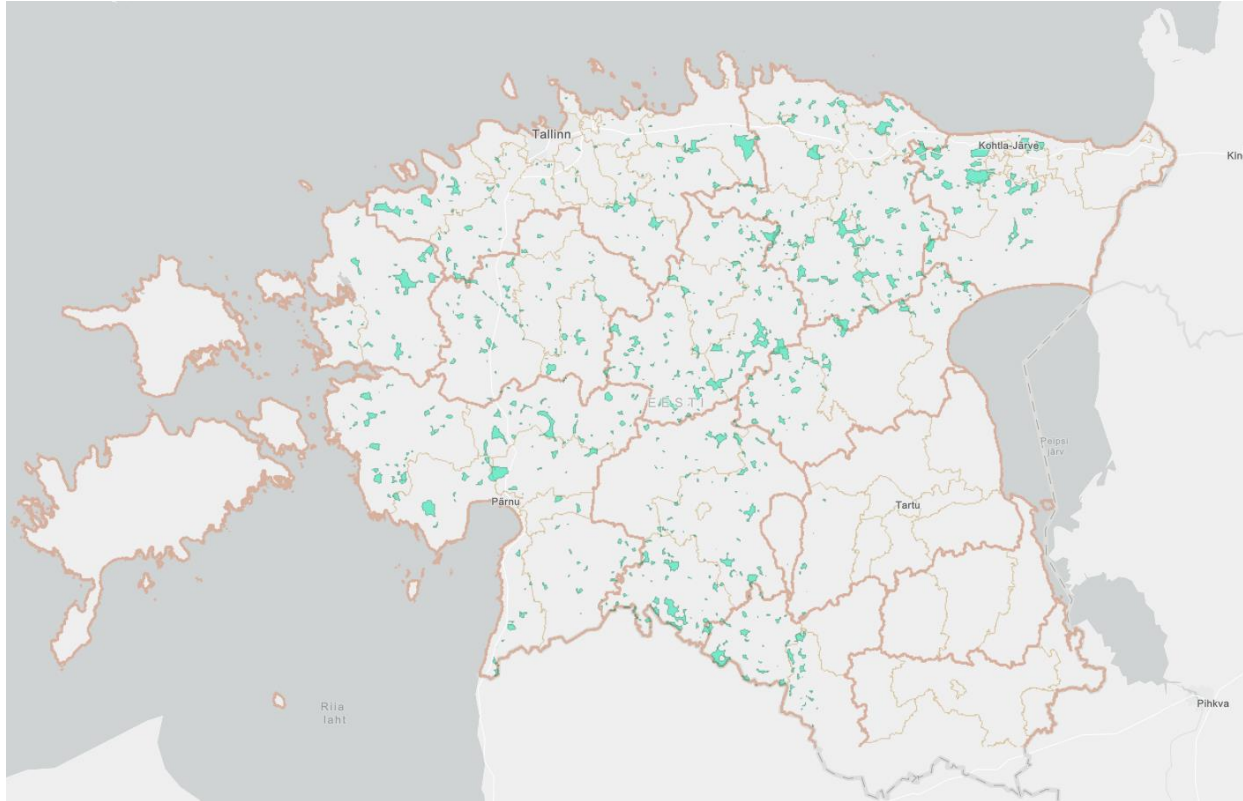
INFRASTRUCTURE
ENGINEERING

MINISTRY OF DEFENSE REQUIREMENTS FOR HEIGHT RESTRICTIONS



SPATIAL ANALYSIS OF AREAS SUITABLE FOR THE CONSTRUCTION OF WIND FARMS

Site selection is based on multi-criteria analysis including environmental, social, cultural, technical, military, land ownership etc information. There is almost always no ideal location. A compromise between different aspects and stakeholders must be made.



We have made high-level multi-criteria spatial analyse for potentially suitable wind farm areas for all Estonia.

Following the spatial analysis, it is possible to prepare applications for initiating a detailed plan or a special plan+ strategic environmental assessment of a local government.

Regarding the environmental buffers Estonia has made a significant progress in recent years to determine the most sensitive species for wind farm development and has prepared guidelines regarding birds. Amongst others, the largest exclusion buffers for birds are 4,8km for black stork and 3km for greater spotted eagle.

The permissible distance between wind turbines and residential buildings in Estonia is normally 1000 m as a benchmark. In case where noise assessments allow, the distances can be reduced upon private agreement of the residents.

SOFTWARE USED:



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VISUAL IMPACT ASSESSMENT - VIA

Visual Impact Assessment (VIA) – analysis of potential visual impacts to the landscape and change of landscape views resulting from proposed development. VIA helps to define the visual effects by considering the built, natural and cultural character or sense of place.

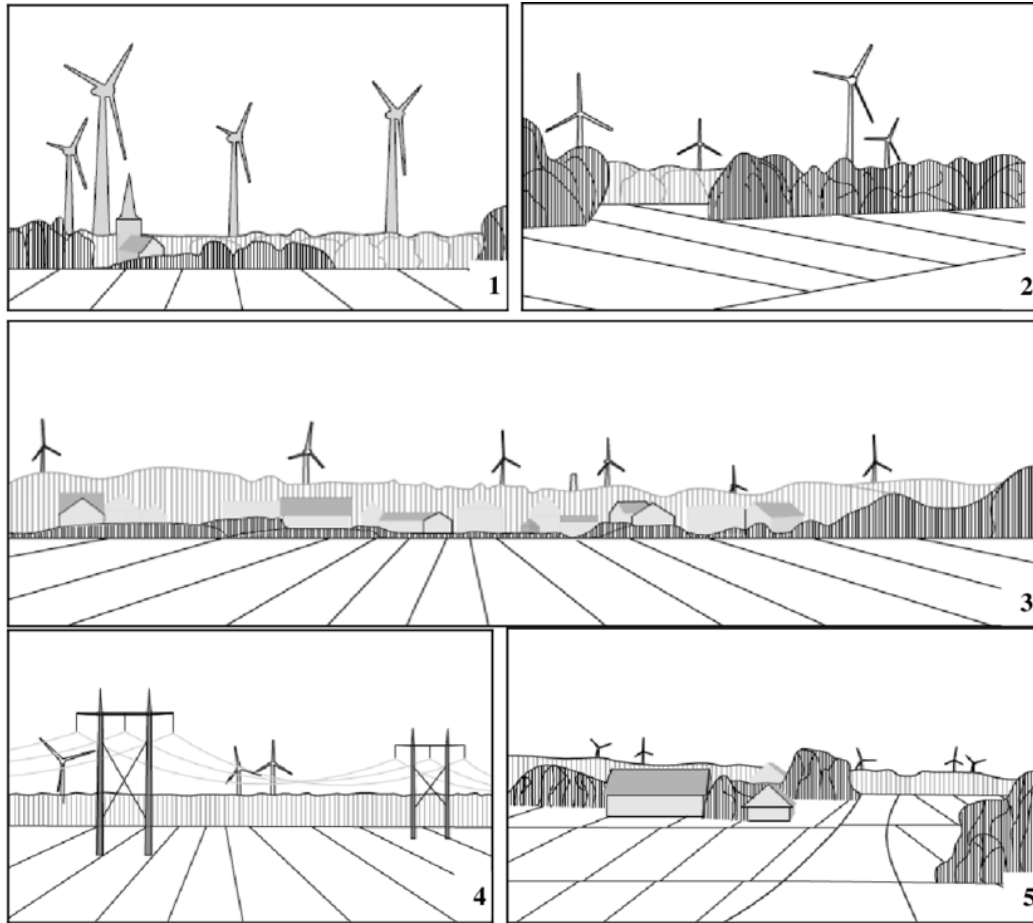
In the Landscape Convention of the Council of Europe, the landscape is defined as a characteristic area perceived by humans, formed by the action and interaction of natural and/or man-made factors. The landscape is an important part of the living environment of an individual as well as the entire society and has a significant impact on people's quality of life and identity.

Stages of VIA work:

1. **Determining the scope of work** – describing the planned wind farm; wind farm visibility survey is carried out in the study area.
2. **Describing an existing situation** – includes determining location of affected observers; describing landscapes and observers and determining their sensitivity; fieldwork and setting and photographing viewpoints; consultation with various parties.
3. **Impact assessment** - includes landscape and visual impact assessment of the proposed development based on the magnitude of the impact on sensitive landscapes and observers; also a cumulative assessment is given if the proposed park interacts with existing and/or planned wind farms.
4. **Mitigating measures** – preparing solution options, limitations and mitigations for the layout.

VISUAL ASSESSMENT METHOD OF POTENTIAL WIND PARKS VIEWED FROM THE SCENIC LOCATIONS

Visual impact assessment relies on a relative assessment, where visualisations are to be made from different locations up to 50km maximum around the perspective area of interest.

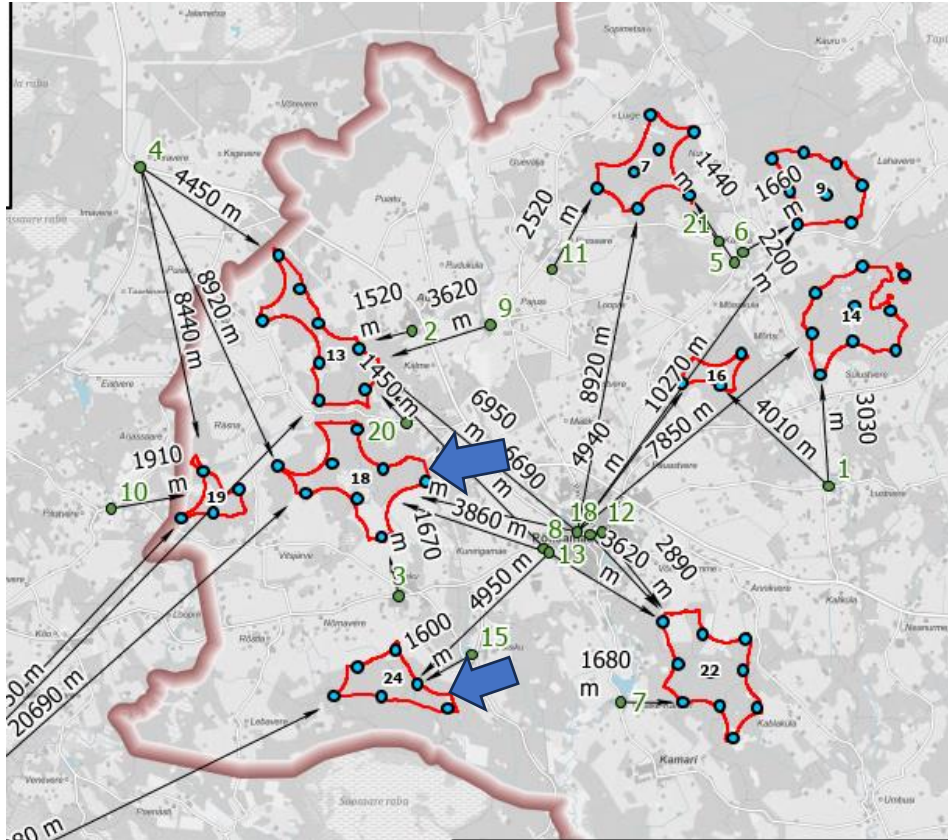


Abromas J. 2015

1. **Visually dominant** – wind turbines dominate the view due to their dimensions. The movement of the rotor blades is clearly visible. The change in the landscape is high.
2. **Overwhelmingly dominant** – wind turbines seem large and are important objects in the landscape picture, but they are not necessarily dominant. The movement of the rotor blades is clearly distinguishable.
3. **Clearly noticeable** – wind turbines are clearly visible, but they can be treated as part of the landscape. Blade movement is visible in clear weather.
4. **Less noticeable** – the wind turbines are no longer so clearly visible and do not seem so big anymore. Rotor blade movement may be noticeable in clear conditions. Wind farm seem part of the landscape.
5. **Background element** – wind turbines are no longer clearly distinguishable and do not seem important in the view. Impeller movement is generally not noticeable.

VISUAL ASSESSMENT EXAMPLE OF POTENTIAL WIND PARKS VIEWED FROM THE SCENIC LOCATIONS

Attractive nature sites and beautiful sections of road up to max 50 km around the planned wind farm area designated by the previous plans have been taken as the basis for the selection of locations for viewpoint assessments.



Scenic viewpoints around perspective wind farm areas in municipality designated spatial plan.

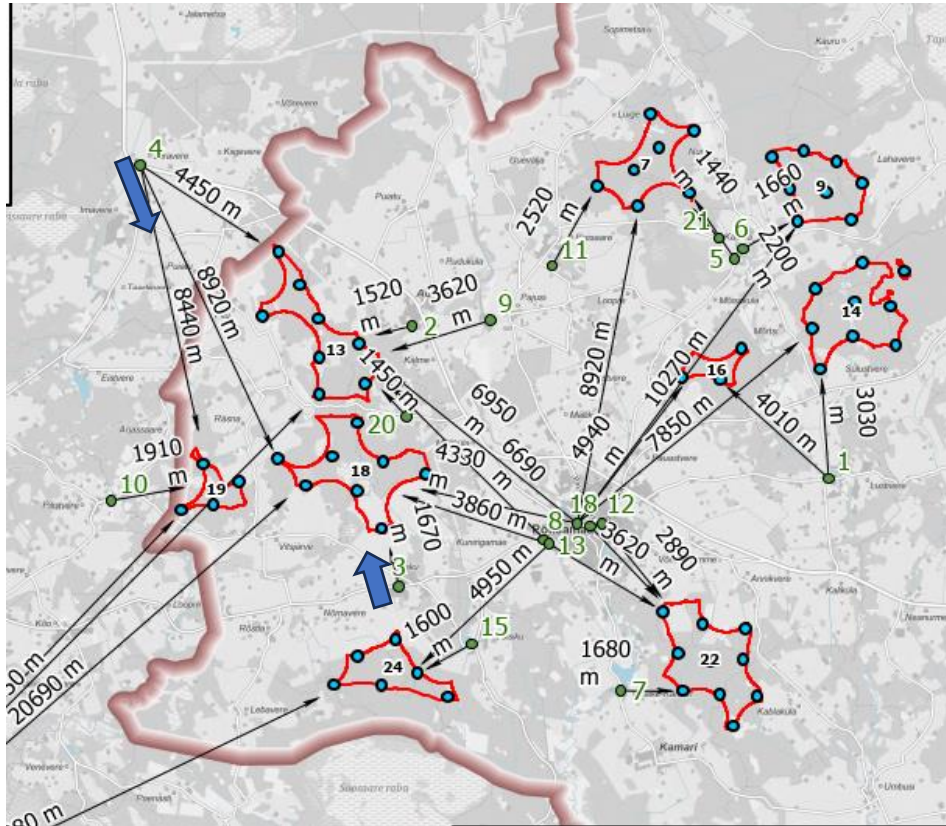


SOFTWARE USED:



VISUAL ASSESSMENT ANALYSIS OF POTENTIAL WIND PARKS VIEWED FROM THE ASSESSED LOCATIONS IN ACTIVE USE (LESS DOMINANT)

Within the fieldwork, also areas of dense use have been surveyed. In some locations the presence of wind turbines can be less dominant.



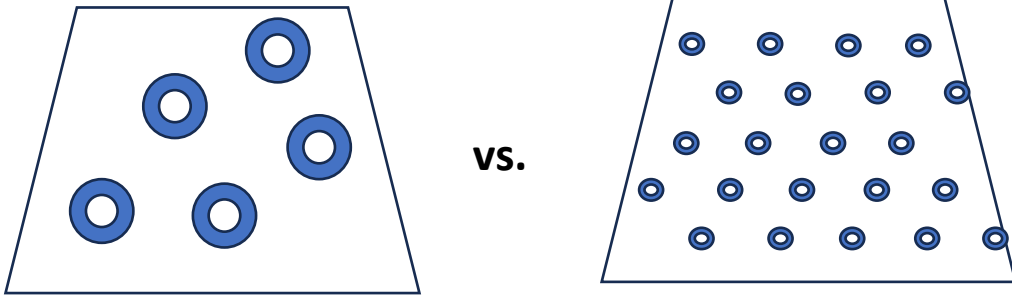
Viewpoints around perspective wind farm areas of local significance.



SOFTWARE USED:



GUIDELINES AND MITIGATION MEASURES FOR VISUAL ASSESSMENT



- Although Estonian main existing guidelines are for visual assessment for offshore wind farms, it's methodology has been derived for use also on onshore wind farm assessments.
- Since the dimensions of the planned wind turbines are part of the initial input, in practice, the dimensions of wind turbines are not limited when assessing visual effects, although this could be considered as a mitigation measure when critically necessary.
- The most important mitigation measure for visual impacts, which is highlighted in the plans today, is the regular placement of wind turbines, which can be difficult to implement due to other criteria: no-build zones, prevailing wind directions and wake losses, land agreements, etc.

VISUALISATIONS – WHAT IS THE BENEFIT?



Visualisations are useful for:

- the design of wind turbine parks, i.e. to present alternatives of the layout of wind turbines;
- consultations with municipalities and stakeholders;
- public displays of the project and impact assessment procedure;
- decision making

SOFTWARE USED:



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