

**Consumer Protection and Technical Regulatory Authority**

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**Application for a superficies license to encumber a public water body with the Saare-Liivi 5 offshore wind park**

OÜ Utilitas hereby submits an application for a building permit for the development of offshore wind farms in the Gulf of Riga. This is the construction of a structure which is not permanently connected to the public water body and therefore, in accordance with subsection 217 (1) of the Water Act, a building permit must be applied for from the Consumer Protection and Technical Regulatory Authority.

In accordance with the subsection 218 (2) of the Water Act, the application for the building permit must include the following data:

- 1) the purpose of use of the construction works;
- 2) the maximum height and depth of the construction works and other important technical data;
- 3) the number of construction works on the encumbered area, and the ground projection area;
- 4) the coordinates of the encumbered area of the public water bodies and the size in square metres of the encumbered area;
- 5) a description of the investigation specified in clause 219 (7) 3) of this Act if the competent authority requires the conduct such a survey;
- 6) the applied term of the superficies licence.

Subsection 218 (4) of the Water Act stipulates that a map of the location of the planned construction works and of the civil engineering works required for servicing the construction works, including submerged cable lines, and other documents relevant to encumbering a public water body with the construction works shall be annexed to the application for a superficies licence.

Subsection 218 (3) of the Water Act stipulates that if there are additional requirements for holders of superficies licences are provided by law, the application shall also include the confirmation of the applicant that he or she complies with the requirements. Documents certifying compliance with the requirements shall be annexed to the application

Subsection 92<sup>1</sup> (2) of the Electricity Market Act stipulates that in addition to information and documents required by the Water Act, a superficies licence application must include information concerning the potential capacity of the wind power plant and must be accompanied by an endorsement from the network operator regarding the technical conditions for connection to the transmission network.

Section 92<sup>2</sup> of the Electricity Market act stipulates that a superficies licence to build a wind power plant on a public water body may only be granted to an electricity undertaking for the purposes of this Act or to an undertaking which belongs to the same group with an electricity undertaking for the purposes of subsection 2 (3) of the Competition Act. OÜ Utilitas hereby confirms that OÜ Utilitas Tallinna Elektrijaam belongs to the same group and complies with the conditions referred to in section 922 of the Electricity Market Act and is an electricity undertaking within the meaning of section 6 of the Electricity Market Act (producer), holding electricity production licence ELT000028

Attached to this application are the site plan of the proposed offshore wind farm and other information relevant to the encumbering of the public water body. The further process will specify the technology and specific equipment to be used, as well as their dimensions and other technical specifications. After the environmental impact assessment decreed by the competent authority has been carried out, the applicant shall submit the environmental impact assessment report to the competent authority. The applicant shall resubmit the documents initially attached to the application if they have been clarified following the studies and the environmental impact assessment. The present application has been prepared in accordance with the requirements set out in subsection 218 (2) of the Water Act.

### **General information**

The priority of OÜ Utilitas is to invest in renewable energy with a clear desire to help the Estonian State achieve its renewable energy goals. Accordingly, OÜ Utilitas is keen to establish an offshore wind farm in the Gulf of Riga to produce electricity and/or hydrogen in a sustainable way.

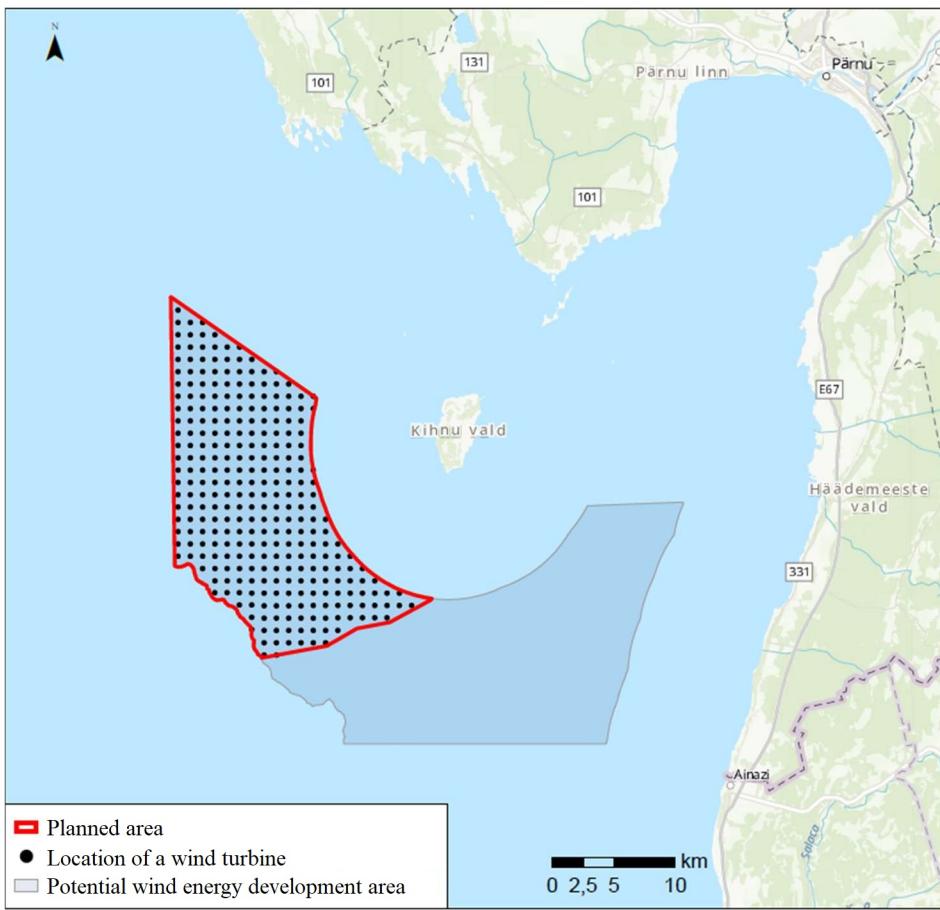
The proposed offshore wind farm is planned to be located in the Gulf of Riga (Figure 1). The location of the proposed activity is in an area suitable for the development of wind energy in accordance with the regional plan for the maritime area bordering Pärnu County.

The number of wind turbines planned for the site will be up to 299, with a unit capacity of up to 20 MW per wind turbine, depending on technological developments. The final total installed capacity of the wind farm and the number of wind turbines will depend on the choice of wind turbine manufacturer and the location of the wind turbines in the wind farm.

The establishment of an offshore wind farm requires:

- A building permit for the construction in a public water body. The decision is made by the Consumer Protection and Technical Regulatory Authority.
- Environmental impact assessment (clause 6 (1) 5) of the Environmental Impact Assessment and Environmental Management System Act – installation of wind farms in water bodies).
- The environmental permit for special use of water (subsection 2 (2) of the Water Act). The decision is made by the Environmental Board.

If dredging is necessary, an assessment will be made of how much dredged soil remains and where it will be placed. The use or disposal of dredged soil remaining after construction must be in accordance with sections 96 and 97 of the Earth's Crust Act.



**Figure 1. Location of the proposed offshore wind farm based on the regional plan of the maritime area bordering Pärnu County with the preliminary layout of the wind turbines.**

## 1. Use of the building

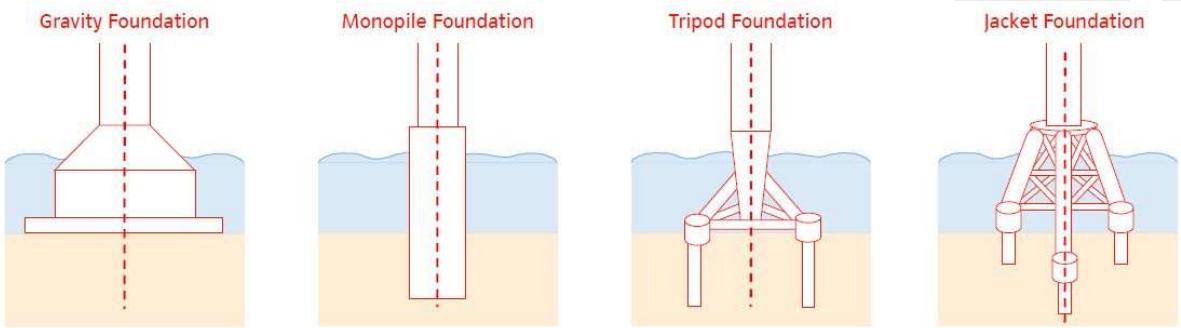
The structure subject to the building permit is an offshore wind farm with up to 299 wind turbines. The use of the structure subject to the building permit is the production of electricity and/or hydrogen through offshore wind farm facilities.

## 2. Maximum height and depth of the building and other relevant technical data

The planned offshore wind farm will include wind turbines with a total height of up to 400 m above sea level, with an electric wind turbine tower height of up to 250 m and a rotor diameter of up to 300 m. The nominal capacity of a wind turbine of this size is up to 20 MW. The exact type of wind turbines to be used will be determined during the project design phase. As the depth of the sea in the planned area varies between 10 and 30 m, it is likely that different types of foundations will have to be used.

The four main types of offshore windmill foundations in use today (Figure 2) are:

1. Gravity foundation
2. Monopile foundation
3. Tripod foundation
4. Jacket foundation



**Figure 2. Types of foundations for offshore wind turbines**

- 1) Gravity foundation does not involve any drilling or ramming of the seabed and it is the preferred solution for offshore wind turbine installation under Estonian marine planning. However, this type of foundation may require prior preparation of the seabed. That is because this type of foundation can sink into sediments with reduced controllability (askew) in the case of soft bottom sediment. Gravity foundation is mostly used in depths up to 30 m.
- 2) Monopile foundation is an easy-to-install foundation that does not require prior seabed preparation. The depth of the foundation can be up to 15–20 m, depending on the seabed, but this type of foundation is not suitable for use in areas where the seabed is covered by large boulders. Ramming the foundation into the ground may not be feasible in the case of hard bottom sediment, nor is the foundation technically suitable for use in regular ice conditions. Traditionally, monopile foundation is used in areas where the sea depth is up to 25 m.
- 3) Tripod foundation is suitable for use in deeper waters – up to 35 m – and it needs minimal seabed preparation. The ‘legs’ of the tripod foundation are rammed into the seabed in depths of up to 10 m. This type of foundation is not suitable for use in areas where the seabed is covered by large boulders.
- 4) Jacket foundation foundations are anchored to the seabed by steel piles and this type of foundation is used in areas where the sea depth exceeds 40 m. It is the more complex of the above foundation types and is generally not preferred in regular ice conditions.

As with the type of wind turbines, the type of foundation to be used for the proposed wind turbines will be determined after more detailed studies have been carried out and will depend in particular on the geology of the seabed.

In order to feed the electricity produced into the grid, a cable route will have to be built – the possible locations of which are shown in Figure 3. In addition, the Estonian Maritime Spatial Plan defines tentative locations for the cable route, which will be followed where possible, but the exact location of the cable route will also be determined after the surveys. The locations of the substation(s) and the system of internal submerged cable lines within the offshore wind farm will be specified during the process.

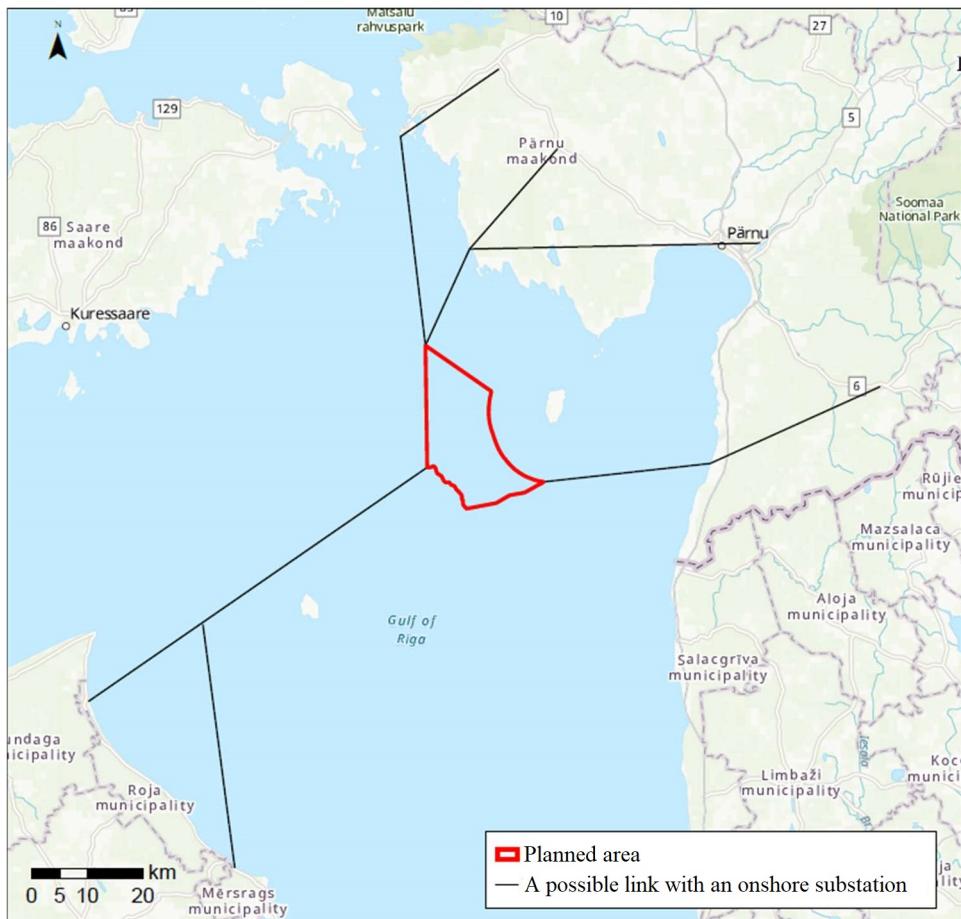


Figure 3. Possible links between the planned area and onshore substations

### 3. Number of structures in the area to be encumbered and their surface area

The proposed complex will consist of up to 299 wind turbines, with a distance of 1 km between the turbines. The exact location, siting, and spacing of the wind turbines will depend on the exact type and size of the wind turbines and the outcome of the environmental impact assessment, once the environmental measures to be implemented and the capacity of the site and the affected sites to withstand the environmental pressures are known. The total number of wind turbines and the size of the site area may also change as a result of the environmental impact assessment if it becomes clear that it is not feasible to develop the desired scale of activity on the sites. If necessary, the layout will be modified in accordance with the needs of the site and the associated constraints or environmental conditions.

In addition to the wind turbines, the offshore wind farm will also include a substation on a platform on a foundation similar to that of the wind turbines. From the wind turbines to the substation, a system of submerged cable lines will be installed inside the offshore wind farm. The electric cables inside the wind farm will be buried in the seabed, if necessary.

The foundation of each wind turbine is currently estimated to have an area of around 500 m<sup>2</sup>. Consequently, the area of seabed covered by up to 299 wind turbines is 149,500 m<sup>2</sup>, plus the construction area of the substation, which is 500 m<sup>2</sup> on a foundation similar to that of the wind turbine. The total initial construction area is therefore 150,000 m<sup>2</sup>, or 0,15 km<sup>2</sup>.

#### **4. Coordinates of the area of the public water body to be encumbered and the size of the area to be encumbered in square metres**

The maximum area covered by the application for a building permit for the offshore wind farm is estimated at 301,008.373 m<sup>2</sup> or 301,01 km<sup>2</sup> and the coordinates of the area were given on 30 March .2021.

The size of the area of the public water body to be encumbered can be considered as the area under construction, which is 150,000 m<sup>2</sup> or 0,15 km<sup>2</sup>.

#### **5. Description of the investigation specified in clause 219 (7) 3 of the Water Act if the competent authority requires the conduct of such investigation**

An environmental impact assessment must be initiated if a wind farm is installed in a water body (section 6 of the Environmental Impact Assessment and Environmental Management System Act). The list and scope of the studies to be carried out as part of the environmental impact assessment will be specified during the preparation of the environmental impact assessment programme, based on feedback from relevant authorities and stakeholders.

The additional conditions of the environmental impact assessment are:

1. As part of the studies and environmental impact assessment, it is necessary to assess the interactions with the proposed adjacent wind farms.
2. When determining the area of influence in the course of the environmental impact assessment, consideration must be given to the planned activities in the potential development area of wind energy in the entire Pärnu maritime area, as defined in the MP, including the interactions of the development activities in the area, the areas affected by substations and cables, visual effects, etc. The anticipated area of impact should be identified at the stage of the environmental impact assessment programme.
3. The environmental impact assessment concerns the area of submerged cables, especially in locations where they are buried in the soil. The environmental impact assessment process will identify the indicative volumes of dredging, filling, and placement of solids to also enable an assessment of the impact of the special use of water.
4. In addition to the location of the proposed marine wind park and its area of impact, where appropriate, the area where submerged cables connecting the wind turbines to the onshore electricity grid are installed will be considered an area of impact as well. As an area of impact, including as an area of survey, the effects of constructing power lines onshore, where protected species live and protected areas are also present, must also be considered.
5. The environmental impact assessment will include, where appropriate, an assessment of the impacts of onshore substations and power lines.
6. Impacts on nearby nationally protected areas must be identified within the environmental impact assessment: the Pärnu Bay SPA, the Sorgu Nature Reserve, the Kihnu Nature Reserve, the Manija Landscape Reserve, the Kihnu Islets Nature Reserve; Natura 2000 network sites: the Pärnu Bay Bird Area, the Sorgu Nature Reserve, the Kihnu Nature Reserve, the Manilaiu Hanilaiu Nature Reserve. For Natura 2000 network sites, a preliminary Natura assessment must be carried out in the environmental impact assessment programme and, depending on its results, an appropriate Natura assessment in the environmental impact assessment report.

7. The assessment of the state of the marine environment has to take into account the state of the marine environment data provided in the various reports of the Estonian Marine Strategy (<https://www.envir.ee/et/eesmargid-tegevused/merekeskonna-kaitse/merestrateeegia>).
8. The environmental impact assessment will assess the impacts during construction (on fish and fisheries, birdlife, vessel traffic, etc.), including the impacts of onshore activities (transport of wind turbines and foundations to and from the harbour, installation of cables, construction of the substation), the impacts during operation (including maintenance) and develop appropriate mitigation measures. For the construction of the wind farm, the best possible realistic solution must be chosen, including the exclusion of any potential damage to fish stocks from the submarine cables (e.g. the electrical field above the cables on the seabed must be without negative impact – close to zero).
9. A submarine archaeological survey must be carried out in the area of the offshore wind farm, the cable corridor and their areas of impact as a part of the environmental impact assessment.
10. In order to facilitate the assessment of visual impacts during the environmental impact assessment, the study 'Guidance material on methodological recommendations for visual impact assessment to promote the development of marine parks', or at least an equivalent methodology, will be used.
11. The socio-economic impacts (including on fisheries) will be assessed and the necessary mitigation measures will be proposed.

Possible surveys needed:

1. Bird survey. As regards the bird fauna, a migration analysis and a survey of migratory and offshore birds (feeding areas, migration corridors, etc.) is necessary. A radar survey of birds (covering at least two years of migration periods) must be carried out in parallel with visual surveys.
2. Seabed engineering geological survey
3. Seabed biota survey
4. Benthic habitat survey
5. Artificial substrate colonisation tests survey
6. Fish survey. Fish surveys need to map fish stocks in the area, fish nursery areas, seabed biota and habitats, fish migration routes, and the impact of the wind farm on fish populations. The impact of the proposed activities on fish migration and spawning (by specifying the possible locations of the deep-set breeding grounds identified in the Pärnu Marine Area Plan within the wind farm development area and determining the conditions for maintaining the breeding grounds), birds (including specifying the habitats of the long-tailed duck and the scoter) will be studied. An analysis of the construction and operational impacts will also be carried out, including an examination of the potential impact of the electromagnetic field of the submarine cable on fisheries. The impact of wind turbine operating noise on the movement of Atlantic herring shoals will also need to be investigated as part of the fisheries survey.
7. Marine mammal survey
8. Seawater quality survey
9. Marine sediment survey

10. Modelling of the distribution of infrasound and suspended sediment to assess the impact of the wind farm on fish spawning areas, spawning, and migration.
11. Survey on bats and their migration (corridor). In consultation with a bat expert, the effects on bats must be clarified in the light of the scale, exact location, and technical design of the proposed activity.
12. Navigation risk assessment analysing the impact of the wind farm on vessel traffic and possible mitigation measures. Issues to be addressed should include, e.g. locations and widths of possible shipping corridors, the impact of the wind farm on marine communication systems, AIS equipment, ship radars, and the potential impact on shipping traffic due to changes in ice conditions.
13. Aviation safety expertise-risk analysis on the width of the air traffic corridor to be left in the centre of the wind farm, taking into account different possible weather conditions, aircraft types and airspeeds.
14. In the case of operations in the vicinity of the wreck, assess the impact on the cultural heritage, carrying out surveys if necessary. Prior to the relocation of wrecks, carry out a preliminary underwater archaeological survey to determine the condition of the wreck, the extent of the archaeological layer and the feasibility of removal.
15. If there is a party interested in the development of aquaculture, the co-development of the wind energy development site with aquaculture will be considered/analysed at their initiative.
16. Assess the impacts on seals at the local level, including potential impacts from ice breaking, and identify any necessary mitigation measures.

The surveyed area shall include, where appropriate and relevant, the area where the submerged cables connecting the wind turbines to the onshore electricity grid will be installed.

## **6. Duration of the building permission applied for**

OÜ Utilitas is applying for a building permit for a period of 50 years.

## **Appendices**

Appendix 1. Coordinates of the encumbered area.

Appendix 2. Technical conditions of Elering AS.