



## ENVIRONMENTAL PROTECTION AGENCY

Budget authority, A. Juozapavičiaus g. 9, LT-09311 Vilnius, mob. phone: +370 682 92653, e-mail: [aaa@gamta.lt](mailto:aaa@gamta.lt),  
<https://aaa.lrv.lt/> Data are collected and stored in the Register of Legal Entities, code 188784898

TO: VšĮ “Pajūrio tyrimų ir planavimo institutas” (Public Institution Coastal Research and Planning Institute)  
 e-mail: [info@corpi.lt](mailto:info@corpi.lt)

To: No S23-216 of 9 October 2023

TO: Addressees according to the list

### DECISION

#### REGARDING THE ENVIRONMENTAL IMPACT OF THE INSTALLATION AND OPERATION OF THE OFFSHORE WIND FARM IN LITHUANIA’S TERRITORIAL SEA

No (30-2)-A4E- of 2023

**1. Organiser (Customer) of the proposed economic activity (legal entity, person of contact, address, phone).**

Ministry of Energy of the Republic of Lithuania, Gedimino pr. 38, Vilnius, LT 01104, phone: +370 602 47 359, e-mail: [info@enmin.lt](mailto:info@enmin.lt).

Designated institution: Public Institution Lithuanian Energy Agency, Gedimino pr. 38, Vilnius, LT 01104, phone: +370 619 69 044, e-mail: [info@ena.lt](mailto:info@ena.lt).

**2. Developer of the Environmental Impact Assessment documents (legal entity, person of contact, address, phone).**

Public Institution Coastal Research and Planning Institute, V. Berbomo g. 10-201, LT-92221, Klaipėda, phone: +370 46 390818, e-mail: [info@corpi.lt](mailto:info@corpi.lt), [www.corpi.lt](http://www.corpi.lt).

**3. Name of the proposed economic activity, legal grounds of the environmental impact assessment according to Article 3(1) of the Law of the Republic of Lithuania on Environmental Impact Assessment of the Proposed Economic Activity, with indication of clause (clauses) of Annex 1 of the Law of the Republic of Lithuania on Environmental Impact Assessment of the Proposed Economic Activity and/or indication of a selection conclusion made by the designated authority that the environmental impact assessment is mandatory (letter number and date) or a significant conclusion of the protected areas authority that the impact may be significant (letter number and date).**

The proposed economic activity (hereinafter referred to as the PEA) is installation and operation of the offshore wind farm in Lithuania’s marine territory.

The PEA corresponds with Sub-Clause 3.8.1 of Annex 2 to the Law of the Republic of Lithuania on Environmental Impact Assessment of the Proposed Economic Activity (summary edition of 1 January 2021 to 19 January 2021) (hereinafter referred to as the Law on EIA): installation of 3 wind turbines, one of which is 50 m high (measured from the highest point of the structures) or more. Pursuant to Article 7(11) of the Law on EIA, the PEA organiser conducts the assessment of the environmental impact of the PEA with no selection regarding the environmental impact assessment procedure.

**4. Site for the proposed economic activity location (county, municipality, township; city, town, village, or farmstead; street).**

Baltic Sea area in the Lithuanian Exclusive Economic Zone approved by the Resolution of the Government of the Republic of Lithuania No. 697 of 22 June 2020 “On the Identification of the Priority Parts of Lithuania’s Territorial Sea and/or the Lithuanian Exclusive Economic Zone in the Baltic Sea Where a Tender (Tenders) for the Development and Operation of Power Plants Using Renewable Energy Sources is (are) Expedient and on the Measurement of the Installed Capacities of Such Power Plants”

The Engineering Infrastructure Development Plan for Marine Areas of Lithuania’s Territorial Sea and/or the Exclusive Economic Zone of the Republic of Lithuania in the Baltic sea, Designed for the Development of Renewable Energy (hereinafter referred to as the Development Plan) was approved by the Order of the Minister of Energy of the Republic of Lithuania no. 1-377 of 18 November 2022. The territory proposed in the specified solutions of the Development Plan, which is defined in the Comprehensive Plan of the Territory of the Republic of Lithuania as a potential territory for the development of renewable energy, is divided into separate areas where the development of the renewable energy sources facilities will be carried out in stages. The PEA territory is marked in the Development Plan as the area under wind power development in Phase I.

The key characteristics of the PEA area: area occupied - 137.5 km<sup>2</sup>, depth of 25 to 45 m; average depth – 35 m; distance to Klaipėda Seaport – at least 38 km; the shortest distance from the proposed territory to the shoreline of the town of Palanga is approx. 29.5 km.

#### **5. Description of the proposed economic activity (key technical and economic indicators, alternatives considered, etc.).**

The Environmental Impact Assessment Report (hereinafter referred to as the EIA Report) is developed in the early phase of the project implementation when the exact wind turbine (hereinafter referred to as the WT) models proposed to be installed are not known. The Report has evaluated offshore WT models with a preliminary power of 20 MW or more. The maximum number of WTs to be installed is up to 90, the maximum height to the highest blade point is 350 m, the rotor diameter is 320 m. The maximum power permitted to be generated of the proposed offshore WT farm will be 700 MW, the installed capacity will be 700 MW or more.

Considering that the site of the offshore WT farm joint bay corridor is currently not defined, the power export joint bay between the offshore transformer substation (hereinafter referred to as the TS) and the mainland power grid is not evaluated in this Report. The site of this joint bay corridor with the mainland will be defined pursuant to the Law on Territorial Planning by developing a territorial planning document and conducting its strategic environmental assessment. Once the site of the joint bay corridor is defined, the selection for the environmental impact assessment will be conducted in accordance with the procedure stipulated by the Law on EIA and enforcing legislation.

Considering the solutions under the Development Plan and with a view of using the entire territory most efficiently, peripheral wind turbines are planned to be constructed at the cable protection zone (100 m) from the boundaries of the territory, by planning the entire power plant layout grid, accordingly. WT locations and their number will be specified at the technical design phase, with regard to the selected (specified) WT model/s and technical parameters thereof. It is envisaged that the PEA developer will be able to choose the most suitable WT model and its capacity, WT layout, as well as the technical parameters of the offshore substations and their number, the technical parameters of the connection cables to the land network and their number at own discretion.

The main stages of WT farm installation: installation of foundation, tower, and offshore substation; installation of nacelle and blades; installation of cables inside WT farm; connection of WT to the power transmission system.

Foundation installation consists of the transport and fixing of foundation in position. Monopiles and jacket structures are possible. The foundation is typically around 20m above water level. The specific WT foundation design will be selected by the developer after considering the results of comprehensive geotechnical studies in the PEA area.

WT tower sections are preassembled onshore with any internal components and the completed structure, along with nacelle and blades, is transported to site for final installation. Offshore tower installation is undertaken by jack-up vessels. The nacelles are placed on the assembled tower with the pre-assembled rotor in one piece. Then the hub and blades are mounted.

Offshore substation installation is typically carried out on the same foundation design as such of WT. Offshore TS is used to collect the entire WT farm generating assets, transform and transmit to the

onshore transmission grid.

The proposed laying of power cables inside the WT farm is array cables used to connect WTs with the offshore TS and export cables to connect offshore and onshore TS.

During the WT farm operation, access to WT farm for maintenance operations can be achieved by small vessels that can directly approach and moor at WT and ensure safe transfer of the maintenance personnel to the WT maintenance platform.

At the end of the operation life of the offshore WT farm, the developer will evaluate the existing situation, conduct the possibilities study to assess the legal grounds valid at the time, the technological parameters and other factors and, based on the study, will make a decision whether to repower the existing WT farm by replacing with new design turbines; or otherwise upgrade the WT or foundation structures and the related infrastructure; or continue the WT operations; or, nonetheless, fully decommission the WT farm, including disconnection and/or demounting of cables. For WT decommissioning, the process will be a reverse of the installation process, such as individual blades being removed, then hub and nacelle, then finally tower and, partially, foundations (it is possible that some components could be left in position on the seabed where they support secondary areas for biodiversity spread). For monopiles or jackets, all elements above the seabed will need to be removed with piles cut off (typically about 1m). Cables will be disconnected, dismantled, and handed over to secondary industry. All wind turbine components are to be transported onshore and handed over for reuse, recycling, or disposal.

#### ***Information on materials to be used***

Offshore WT construction will employ new, European Union certified products. The installation sites will only host the assembly and installation of individual devices. It is recommended to prioritize the components manufactured from recyclable materials when choosing wind turbine components.

Wind power facilities use lubricating and transformer oil and cooling liquids. Transformers use approx. 6,500 l of transformer oil (biodegrading ester transformer oil Midel 7131 or analogous is usually used) and cooling liquid based on ethylene glycol (approx. 1,800 l). Ethylene glycol is fast-soluble and biologically degradable substance, its higher concentration in the water medium is therefore short-term.

#### ***Information on waste generation and management***

Small amounts of waste can be generated during the installation of WT foundations as well as transportation and assembly of WT component parts. All waste generated during WT farm construction and operation/repair will be delivered to ports of service and handed over to waste management companies.

The technological equipment dismantled during decommissioning as well as separate parts of the equipment will be delivered by ships to port of service, warehousing, and processing site or and handed over to waste management companies that have a license to manage such wastes.

#### ***Information on PEA impact on water***

The impact of WT farm installation on hydrodynamic status will largely depend on the method of the proposed anchoring of the wind turbines to the seabed and the size of the foundations. Mono-pile structures with foundation diameter reaching 10–12 m and turbine towers more than 1 km away from each other typically have no significant impact on changes in water current regime.

Since the WT farm territory is proposed at the depth of more than 30 m, the impact on hydrodynamic environment is insignificant considering that the WTs be installed away from the coastline in a stable geological site, i.e., on a solid moraine bed rather than on mobile sandy one. To select the due technological solutions of the WT farm development and assess the impact on the proposed WT structures on hydrodynamic environment, current measurements are carried out at the approaches to the proposed farm (two meteorological station FLS200, E01 and E06 installed). The monitoring of the current regime will also be carried out after construction is completed.

During the installation of WT (cable laying, installation of foundation), secondary water pollution with chemicals such as heavy metals and organic compounds is possible due to moving the seabed sediments. According to the data of the state environmental monitoring and natural observation, the sediments accumulating in the territory of the proposed farm show no significant chemical pollution and therefore the secondary water pollution is not expected.

#### ***Information on PEA impact on ambient air***

During electricity production at WT, stationary sources of ambient air pollution and pollutant emissions are not expected. The main ambient air pollution sources are vessels and construction

equipment in operation at the offshore wind park during construction, operation, and dismantling stages. In the open sea, away from the shore and residential or public environment, there are conditions favourable for pollution dispersion; therefore, pollution emitted by mobile pollution sources will be easily dispersed and have no significant negative impact on the environment.

#### ***Information on underwater noise induced by PEA***

The primary source of underwater noise during the offshore wind farm development is fortification of foundation structures during construction. It should be noted that geological seabed conditions in the PEA area, i.e., relatively solid soil, and small distance to the shore create especially favourable underwater sound propagation conditions in the winter season and relatively most unfavourable sound propagation conditions in the summer season.

At the present time, the developers comply with the dual noise mitigation threshold values established by the German Federal Maritime and Hydrographic Agency (BSH) to be observed during pile-driving works to mitigate impact of underwater noise during the WT installation. The requirement is not to exceed 160 dB<sub>SEL</sub> (to be met by the Sound Exposure Level) and 190 dB<sub>Lp,pk</sub> (to be met by the zero-to-peak Sound Pressure Level) of underwater noise at a distance of 750 m from the pile-driving location. The modelling of noise propagation from one monopile driving showed that the noise level at the 750 m distance to the pile-driving location significantly increases the limit values established, i.e., reaching up to 170 dB. It is thus recommended to refrain from operations while using pile-driving technologies generating high-level underwater noise or limit them during winter and to select suitable sufficient noise mitigation measures.

#### ***Information on PEA impact on seabed***

The PEA territory is consistently fragmented into a shallower (28–36 m) north-eastern and a deeper (36–46 m) south-eastern area. The northern part morphologically is the western segment of the Klaipėda-Ventspils Plateau, while the south-western part is a slope of the Gdansk Basin, which evenly deepens southward. Seabed sediment samples were taken at ten measurement stations in the proposed WT farm area for geochemical studies. Based on the analysis of concentration of heavy metals and arsenic carried out in the current seabed sediments in the proposed WT farm territory, no traces of significant pollution were established.

Concentrations of the priority dangerous heavy metals, i.e., mercury (Hg) and cadmium (Cd), in the seabed sediments of the area under study are lower than quantitation limit. The same is true for zinc (Zn) concentration. Concentrations of other heavy metals (Cr, Cu, Ni, Pb) and arsenic (As) do not exceed the established limit values, which proves the good environmental status of the sea waters under study. No oil products (C10–C40) were found in seabed sediments of the PEA area.

Side scanning was carried out to complete an acoustic survey of the seabed surface and develop a catalogue of acoustic reflections off seabed objects and a scheme of distribution limits of geologic structures and different types of sediments. 858 objects were selected, which are recommended to consider during the next stage, the stage of engineering geological and liquidation of unexploded ordnance (UXO) and cleaning of cable trenches from dangerous objects organised by the developer, before the future WT developer begins the drilling or installation of foundations. It is recommended either to avoid the sites with the identified objects or to conduct additional studies prior to commencing the seabed dredging and foundation installation to make sure that the identified objects cause no hazard for the performance of economic activity.

Potential negative impact on the objects of cultural heritage is possible in sites where potentially anthropogenic remains are identified. To remove them or to conduct a seabed disturbance in their vicinity (at the distance of up to 10 m) requires additional archeologic studies to identify potentially anthropogenic objects. No potentially archeologic findings were reliably detected in the PEA area. Therefore, no additional archeologic studies and/or measures for the protection of objects of maritime cultural heritage are required.

With consideration of seabed structure, type and distribution of surface sediments and the formation of the related valuable seabed habitats, it can be stated that the impact on seabed essentially can only be local and relatively low. Predominantly, the negative impact is related only to the partial disturbance of the seabed and secondary sedimentation in the sites of installation of foundations and cable trenches. Damages to value seabed habitats are also possible provided that there is land disturbance are scheduled in the area during construction design.

Since the PEA territory does not coincide with areas of occurrence of oil, sand or other valuable

mineral resources, no negative impact on natural resources is expected, as well.

For laying high-voltage cables on the seabed, two main technological methods are used: Inside the trench or covering the cable laid directly on the seabed with massive concrete covers or a sand or gravel cover. Subject to geologic conditions and soil characteristics, it is possible to dig the trenches using special marine plough or a high-pressure water jet. In all cases, the impact on seabed is local and minimum. The trenches are dug up to 2-3m deep, subject to the equipment used, and up to 2-3 m wide at the most. When cable-laying plough is used, the impact is especially short-term since the trench is filled at the same time with the same sediments that were dug while laying the cable. The cable laying technology is used only under specific conditions when the trench digging is not possible or expensive in terms of technology.

#### ***Information on PEA impact on landscape***

The proposed wind turbines will directly affect the area where they will be built, and they will have an indirect or visual effect also on the sea areas eastwards from the PEA area throughout the entire Lithuanian contiguous zone, the territorial sea, the nearshore, the coast, parts of the Curonian Lagoon, and parts of the coastline, in particular the western part of in Palanga Town, Kretinga District, Klaipėda District municipalities.

The PEA area does not fall within the highly protected areas or sites of aesthetic potential defined in the National Landscape Management Plan (approved by Order No D1-703 of the Minister for the Environment of 2 October 2015) (hereinafter referred to the National Landscape Management Plan). However, it can potentially be observed from the Curonian Spit, which is located between the NLMP-designated areas and sites of highly protected visual aesthetic potential of Lithuania, highly and moderately distinct landscape complexes of very high and high aesthetic potential (AI, AII, AIII landscape visual structure types) (hereinafter referred to the HPL areas), Klaipėda Old Town (an HPL area) and the Akmena-Danė valley.

The map of the most valuable panoramic viewpoints of the Lithuanian landscape shows the HPL area in Klaipėda Old Town, the landscape of open and semi-open spaces of particularly distinct and medium vertical fragmentation in the Akmena Valley (9 viewpoints) and the further visually significant area in the Minija Valley, but their aesthetic values are not associated with marine panoramas (the direction of monitoring is not specified).

The PEA area (the nearest boundary) will be located between 35 km (Kopgalis) and 70 km (at the Ventė Cape headland) away from observation sites of the Curonian Lagoon and the Curonian Spit and will not be visible from the Curonian Lagoon in the direction of the Curonian Spit, with the exception of the port entry channel in Klaipėda City. The 350 m high WT will be visible in good visibility conditions in Smiltynė, from the eastern shore of the Curonian Lagoon in Klaipėda City (considering their location, the WTs will be projected on the background of Klaipėda rather than Neringa skyline).

Pursuant to the provisions stipulated in Article 49 (18) of the Law of the Republic of Lithuania on Energy from Renewable Sources, the impact of installation of a 350 m high WT at the distance of 29.5 km away from the coast and the important observation sites located therein on the landscape is considered to be insignificant.

According to the overall assessment of visual impact, Palanga Central Beach observation site and Juodkrantė Beach observation site located in the Lithuanian landscape reserve with a special protection regimen are assigned to the category of significant visual impact. To determine the maximum WT height for the visual impact of on the above-mentioned observation sites becoming insignificant, it was determined that the visual impact category shift from significant to insignificant when the total height of WT is under 280 m.

#### ***Information on impact of PEA on protected areas and biological diversity***

The PEA territory borders the biosphere reserve of the Klaipėda-Ventspils Plateau and important habitat and bird protection areas of “Natura 2000”, the Klaipėda-Ventspils Plateau.

Potential impact on the protected species of birds is due to disturbance and eviction from habitat with proper feeding grounds. It is estimated that the impact of eviction from habitat and scaring away is potential for sea ducks feeding on benthic organisms - velvet scoter and long-tailed duck. The scaring away effect during bird wintering is potential due to the increase in the shipping intensity during construction or regular transportation of the servicing personnel by vessels or helicopters at the stage of WT operation.

No direct impact on the reefs identified in the protected area is provided. However, the studies

identified that the valuable reef habitats also suitable for feeding of the protected species of birds spread to the PEA area, as well. A significant physical decay of the seabed due to irreversible changes of seabed substrate or morphology and a destructive impact on the seabed biotopes are probable during the wind farm installation, operation, and dismantling phases in the identified sites of circalittoral boulders and biogenic reefs. The most valuable is the *Mytilus trossulus-Crustacea* community, which forms on a solid ground (boulders, rock bedding) that is common at the north-eastern border of the proposed area. According to the European Union (EU) Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC), the benthic habitat of biogenic reef (1,170) is important for the EU countries.

To mitigate the impact of installation of offshore WTs on the protected benthic habitat and to ensure that the spread and participation of valuable seabed molluscs in the general food chain remains uninterrupted, it is recommended not to plan WT foundations and cable routes in the area of high distribution of *Mytilus trossulus-Crustacea* abundance zone while planning the installation of WT farm.

#### ***Information on PEA impact on fish***

Three main species of commercial fish are predominant in the PEA area. These are Baltic herrings, Baltic cods, and Baltic flounders. Also, shorthorn sculpins seasonally generating biomass can be attributed to the dominating fish species. The noise impact on fish is possible during the installation of pile-driving foundations into the seabed. It is therefore planned to reduce the intensity of noise emitted by impulse noise sources, as well as to apply audible deterrence measures. After completion of the installation work, the fish will return to the feeding grounds, so only short-term insignificant effects are expected.

Water turbidity and increased sediment concentration in the water column can be caused by digging and drilling works. As a result, fish larvae or juveniles may first be affected. Fish at these stages of development are the most vulnerable. Turbidity can not only complicate the feeding of fish in the area but can also affect fish spawning grounds. However, sediments suspended in the water persist for a relatively short period of time, and their spread depends on the type of sediment, the directions of currents and the strength of the sediment. Given the limited duration and the local significance of these negative effects as well as the fact that the fish spawning grounds concentrate in the coastal zone where the installation of WT farms is not planned, the report states that these negative effects will not be significant. Some surveys show that during cable installation, water turbidity can attract potential predators (Baltic cods and flounders) that take advantage of the conditions created by hunting plankton-feeding fish juveniles.

Part of the feeding grounds of benthophages such as Baltic flounder, Baltic cod or shorthorn sculpin will be destroyed when installing the foundations of the WT. However, given the relatively small areas of individual WT foundation areas and the large distance between individual WTs, the negative local effects on the feeding grounds of benthophage fish will be insignificant. A positive impact on the fish community due to the creation of secondary habitats is possible during the WT operation.

Although it was established that cod can hear the WT noise at a distance of 13 km, yet a positive long-term impact is estimated for the Baltic cod, same as for the Baltic flounder, due to the restoration of the seabed integrity (if no trawling is carried out).

The greatest impact on individual fish species can only occur during the installation of WT farms and during the removal works of the structures. This impact on the fish community will be short-term and insignificant. However, some species with a large swim air bladder, such as Baltic cod, may withdraw from the area because of their sensitivity. Nevertheless, once the WT installation or removal work has been completed, the fish will return to the feeding grounds, so only a short-term impact is expected. The avoidance reaction is observed only at a distance of a few meters from WT and only at high wind speeds, which may result in a positive impact on fish populations due to newly emerging artificial reef habitats during the operation period.

#### ***Information on PEA impact on birds and bats***

The Lithuanian part of the Baltic Sea is most important for wintering seabirds. Abundant numbers of Velvet Scoters (*Melanitta fusca*), Long-tailed Ducks (*Clangula hyemalis*), Razorbills (*Alca torda*), Common Guillemots (*Uria aalgea*), Red-throated Divers (*Gavia stelatta*), Great Crested Grebes (*Podiceps cristatus*) and other species can be found not only in the coastal parts, but also in the open sea. Birds, which feed on benthos (diving sea ducks), are found in depths from 5 to 35 m. Their abundance in suitable feeding habitats is high. Pelagic birds, such as Divers and Razorbills, can dive to depths of up to 50–60 m and they are regularly feeding in depths of 20–30 m, therefore suitable feeding habitats are located further from the shore.

According to the surveys performed, the highest density of the wintering seabirds, such as red-throated divers, long-tailed ducks, velvet scoters, razorbills, was recorded from December to March in the PEA area. It is therefore important to avoid disturbing the birds during those months, i.e., from the beginning of December to the end of March, during the construction of WT farm and later, if required, apply the impact mitigation measures during operation. The biggest distribution of velvet scoters and long-tailed ducks was observed in the Natura 2000 territory to the east of the PEA area where waters are shallower, and it is easier to find food for these birds. They were also found in the part of the PEA area closes to “Natura 2000” territory.

It is likely that the proposed WT farm may disturb and scare sea ducks wintering in the “Natura 2000” area. As a result, the decrease in the number of sea ducks may be observed in the protected area, as the ducks would move away from the proposed WT farm. The distance that long-tailed ducks and velvet scoters avoid from WT structures is not specifically determined from literature sources, but according to similar species, decrease of up to 50% or more individuals has been observed at a distance of 1 km from the WT farm. At a distance of 5 km from the WT farm, the decrease in density is smaller. The proposed WT farm borders the “Natura 2000” territory, so it is likely that it would cause displacement of birds from feeding territory, also would have scaring effects to the species that are protected there. In order to reduce the potential negative impact of the WT farm and to preserve the important feeding valuable seabed biotopes and accumulations of protected birds in the protected territory, it is recommended to move the proposed WT farm away from the “Natura 2000” territory at a distance of 1 km (applying of part of the temporary WT shutdown during bird wintering) or 2 km (without applying WT activity restrictions).

When moving the sites of WT installation at the distance of 1 km away from the border of the protected territory, the impact, i.e., displacement or scaring away, of the bird species protected in the “Natura 2000” territory can be registered at up to 1 km within the borders of the “Natura 2000” IBPA territory. The birds will avoid the territory in the vicinity of the proposed WTs; it is estimated that their density at a distance of up to 1 km from the WTs in the protected area would reduce down to approx. 50%. When moving the sites of WT installation at the distance of 2 km away from the border of the protected territory, the displacement impact on the bird species protected in the “Natura 2000” territory is estimated to be minimal and there will be no impact on the “Natura 2000” IBPA territory, i.e. the birds should not avoid feeding within the borders of the protected territory.

During winter, besides sea ducks, the territory is moderately intensively used by common guillemots, razorbills, and various types of gulls. Birds of this group react differently to operating WT farms, some of them show strong avoidance, others tend to ignore existing WT farms and continue to feed near WTs. Red-throated and black-throated divers are among the most sensitive species that respond strongly to WTs by avoiding areas where WT farms operate: Displacement from habitat is recorded more than 5 km from WT. In the analysed case, the location of the PEA territory is not important for these species and does not stand out from the surrounding other areas, so even if this area would be lost from the feeding grounds by divers, the birds could find enough suitable and ecologically similar habitats in other parts of the Baltic Sea. No significant impact is expected in this aspect.

Migration of various groups of birds through the proposed WT farm is not intensive during both autumn and spring. Therefore, no significant effects are expected on other wintering, breeding, or migrating bird species.

A very intense migration of bats takes place on the coast close to the shoreline, but when moving away from the shore to the open sea at the distance of about 5-7 km, it decreases very strongly (more than 10 times) and reaches only 9.6% of that registered above the sea near the shore. In the spring, there were no ultrasound recordings of bats registered. The probability that there will be an intensive migration of bats over the PEA territory is very doubtful and the proposed WT farm will not have an impact on bats.

#### ***Information on PEA impact on marine mammals***

During the warm season, mammals were observed in the area of PEA together with bird censuses from the vessel and during the cold period from the plane. Also, the data were collected from mammal-emitted sound monitoring stations installed at sea. Only one grey seal was observed in the PEA area in the spring. All other seals were identified in adjacent areas during other seasons. Six porpoises were noticed visiting the PEA area during winter.

During construction, the most significant impact on marine mammals is the underwater noise that occurs during the installation of foundations. This impact can be particularly significant in winter when

natural conditions cause the greatest underwater noise dispersion. If possible, the construction of the foundations should be planned in such a way that in the winter season, when there is the highest probability of detecting sea porpoises migrating after fish in the LIEZ, the piles would not be driven in, or respective impact mitigation measures would be applied.

#### ***Information on PEA impact on cultural heritage***

The PEA area contains no registered cultural valuables. The distance to the closest registered marine cultural valuable, i.e., the vessel 38471 “L-14” sunken in the Baltic Sea, is approx. 24 km. According to the charts of the Lithuanian Transport Safety Administration, there are several dozen sunken objects marked in the Lithuanian EEZ that are not included in the Cultural Heritage Register. Most of the sunken objects are industrial ships; though, remains of wooden vessels of great scientific value were discovered, too. There were also several valuable habitats of cultural underwater seascape with natural relics and tree remains found. One discovery site is marked near the PEA territory but does not fall within it.

The seabed studies performed in the PEA area analysed acoustic data. Eight objects were selected that are potential tree remains (loose tree remains occurring here and there and bottom part of the trunk, i.e., stump). Beside potential remains of tree trunk, 58 potential anthropogenic, 2 especially similar to anthropogenic and 24 typical linear objects, which are likely to be unnatural, although could also be a result of specific natural structures, were identified in the PEA area. No prehistoric settlement artefacts were detected in the PEA area. Despite that small objects related to human activities were identified at the seabed, no historic findings were detected in the area under study.

At the stage of designing the scheme of WT and connecting infrastructure, it is recommended, if possible, to consider, i.e., to leave undisturbed at the location of detection, the potential archeologic monuments (or remains thereof), to avoid their potential destruction and preserve them for future studies.

#### ***Information on PEA impact on public health***

Residential and public areas located the closest to the Baltic Sea are in Klaipėda City, Klaipėda District and Palanga Town municipalities. The minimum distance of approx. 29.5 km is up to Palanga Town municipality. Distances from the PEA area to residential and public areas and recreational territories on the shore are 29.5 to 29.7 km. Physical pollution of the PEA, such as noise, shadowing, infrasound, electromagnetic radiation, that can affect public health is not predicted because there are no residents and other people, especially the most sensitive groups of the population (e. g. children, elderly people and sick people who have the most sensitive reaction to increased pollution) living in the affected area, in the vicinity of the offshore WT farm’s installation and operation solutions.

#### ***Information on PEA impact on material valuables***

The PEA area is outside the established international shipping routes, roadstead, or anchorage sites; neither is it bordering them. The existing offshore soil dumping sites are more than 20 km away from the PEA area. The PEA area does not fall within the areas of the existing and proposed engineering infrastructure (pipeline or underwater cables).

Part of the PEA area falls within dangerous territory of the sea, i.e., former zone of mine fields. Implementation of economic activities is possible in these territories. However, the requirement is the implementation of seabed surveys to detect dangerous objects and, if necessary, to perform demining of the identified dangerous objects before the solutions of the technical project are implemented.

The analysed territory of the offshore WT farm does not fall within the protection zone of military radars provided on the maps and within the proposed territories, which, considering the requirements of national security, are subject to construction restrictions. The PEA area is approx. 17 km away from the boundaries of the safety zone of Palanga International Airport, therefore, it will not create any obstacles for the aviation security of Palanga International Airport.

Based on the classification by the International Council for the Exploration of the Sea, Lithuania’s marine territory falls within statistical quarters 41H10, 40H10, 40G9, and 39H10 of subdivision 26 of ICES fishing area where fish is caught with trawls and trap nets. The PEA area falls within statistical quarters 41H10 and 40H10, which accommodate trawling areas.

Certain economic impact of PEA implementation on the fishing business is expected due to the emerging fishing restrictions in the areas of wind farms because after the installation of wind turbines, trawling will not be possible due to the risk of damaging the electric transmission cables laid on the bottom. It should be noted that the analysed area occupies fishing areas on the high seas that are not allocated to individual companies. Therefore, due to restrictions during the construction and operation of



the wind farm, fishing will be possible in adjacent areas and fishers will not suffer losses. However, offshore fishing companies can also claim compensation for lost fishing grounds, especially for trawling areas, which are not exceptionally large. Should fishers file a claim for compensation for losses related to the loss of fishing grounds, the procedure for compensation for losses shall be established by the Ministry of Agriculture. The PEA area is outside the boundaries of coastal fishing area and will have no effect on coastal fishing area.

The establishment of offshore wind farms may also have positive consequences for fish stocks. The foundation for wind turbine towers can function as artificial reefs and attract many fish species. At the beginning of the operation of the wind farm, fish are attracted from adjacent areas to the foundation of the wind farm, but eventually there is a possibility of increase of fish productivity in the wind farm itself if the park is large enough and fishing capacity is low. The locations of wind farms usually create favourable conditions for the formation of fish nutrient base and spawning and increase biodiversity. This circumstance and the restriction of fishing in park areas can contribute to the conservation and enhancement of fish stocks. A balanced approach to the conservation and enhancement of fish stocks and the resulting constraints and compensation can essentially reduce the adverse effects for the fishing industry and the potential for conflicts between the fishing industry and wind energy.

#### ***Information on PEA risk due to emergency events and situations***

During the construction and operation of the WT, possible emergency situations and the risks they pose to people and the social environment are related to rotating blades, assessing the possibility of their partial or complete flinging away, the collapse of the tower, and the effect of electric voltage on the service personnel. The risks of collision occur to aircraft, and ships moving near the wind turbines or offshore WT farms.

The probability of ship collisions with the proposed WT depends directly on the intensity of shipping. The shipping corridor is at a distance of 5.7 km (to the south) and 4.8 km (to the north) from the boundary of the PEA territory. In order to reduce possible collisions of vessels with WTs or to avoid cable damage, the developer shall impose restrictions on the access of vessels to the WT farm water area or the navigation in the water area or near it.

Collisions of planes with high structures of the WT farm are rare or exceedingly rare. Flights over the WT farm will be performed by the Air Forces of the Lithuanian Armed Forces, the Border Guard Department, as well as other rescue aircraft. Organizations conducting the flights shall inform the operator of the WT farm about the operations; if necessary, the rotation of blades shall be stopped during rescue operations.

The probability of fire in WT towers is low. Storing the required amount of primary firefighting in the towers or installing an automatic gas-extinguishing system is recommended.

Wind power facilities use lubricating and transformer oil and cooling liquids. Although these substances can contain dangerous components, none of them should be classified as dangerous for the water environment. All dangerous chemical substances will have to be used during the operation according to the requirements provided for in the safety sheets.

It is recommended to apply ALARP measures to mitigate risks in the course of the activities. These include the use of good practice, best available techniques and use of safe materials, additional training of personnel, determination of a safety zone and its marking with buoys fitted with radio navigational devices to inform passing ships, preparation of the Emergency Management Plan even if the company is not included in the list of objects for which such plans are required, taking into account the location of the sunk minefields near the PEA area and the information provided by the deminers that “migrating” mines may appear in the cleared areas, to carry out a periodic inspection of the bottom of the offshore WT farm territory.

#### ***Analysis of alternatives***

The following alternatives have been examined in the EIA report:

- The “zero” alternative, i.e., no ongoing activities, reflects the current situation and the state of the environment when the project is not being implemented. In such a case, changes in the environmental status of the Baltic Sea water area that belongs to Lithuania would not be linked to the development of the PEA;
- The project implementation Alternative I (technical): WT farm development, where WTs are installed in the entire area approved by the Resolution no. 697 of LRV using WT models with total height

of up to 350 m (hereinafter referred to as Alternative I);

- The project implementation Alternative II (balanced): WT farm development, where WT installation sites are located 1 km further away from the border of the biosphere reserve of the Klaipėda-Ventspils Plateau using up to 350 m high WT models (hereinafter referred to as Alternative II);

- The project implementation Alternative III (environment-friendly): WT farm development, where WT installation sites are located 2 km further away from the border of the biosphere reserve of the Klaipėda-Ventspils Plateau using up to 350 m high WT models (hereinafter referred to as Alternative III).

The conducted analysis of alternatives with consideration of impact mitigation measures revealed as follows:

- With application of all the recommended impact mitigation measures, including the temporary WT shutdown and additional surveys of seabed habitats, the most favourable are Alternative II, where the installation of WT would be at a distance of at least 1 km from the border of the “Natura 2000” IBPA area and with not harm to the zones of distribution of valuable benthic habitats as well as Alternative III, i.e. without planning the installation of WT at a distance of 2 km from the border of the “Natura 2000” IBPA area. Relocating WT installation sites further 1 km away from the border of the protected area (Alternative II), the impact on valuable benthic habitat and on the protected species of birds remains.

- In case of not conducting any additional surveys of seabed biotopes and providing for a partial WT shutdown during the most vulnerable wintering period of the protected bird species, the most favourable is Alternative III of the PEA implementations, i.e., without planning the installation of WT at a distance of 2 km from the border of the “Natura 2000” IBPA area.

**6. The measures to avoid, mitigate and compensate the potential significant adverse impact on the environment or to liquidate consequences thereof are provided for. Below is a description of such measures, with the indication of specific stage of the proposed economic activity when such measures will be provided for and implemented, e.g. stage of issue construction permit, permit to use underground resources or cavities, permit for integration prevention and control of pollution, pollution permit or other statutory permits, operation stage, operation termination stage).**

#### **6.1. Before commencing the operation:**

6.1.1. A part of the PEA territory, where the significant adverse impact can occur, borders with “Natura 2000” IHPA biogenic reef (1,170) area. The most valuable is the *Mytilus trossulus*-Crustacea community, which forms on a solid ground (boulders, rock bedding) that is common at the north-eastern border of the proposed area. To mitigate the impact of installation of offshore WTs on the protected benthic habitat and to ensure that the spread and participation of valuable seabed molluscs in the general food chain remains uninterrupted, the sites of valuable reefs must not have WT and/or TS foundations and the cables installed there when planning the WT farm installation. The WT and/or TS foundations and cable routes will not be installed in the area of high distribution of *Mytilus trossulus* abundance zone as marked on Fig. 4.6.2.11 of the Report.

6.1.2. To protect the “Natura 2000” territory, the seabed habitats important for bird feeding against the significant adverse impact of the WT farm and to reduce the impact of wintering bird disturbance, the sites of WT installation are to be moved away at a distance of 2 km from the border of the protected area of „Natura 2000“ IBPA Klaipėda-Ventspils Plateau (the moving is not applied for the seabed infrastructure, i.e. WT and TS connecting cables, and the foundations structures intended for TS). This would allow minimizing the impact of the direct negative impact of wintering bird disturbance for all the protected bird species.

6.1.3. Prior to commencing the detailed WT and cable trenches design, the activity developer organizes the unexploded ordnance (UXO) studies, which would also allow assessing the site and danger of unidentified historical cable.

6.1.4. It is recommended not to plan cable trenches in the areas of high-amplitude seabed relief (steep slopes or deep ravines) changes to avoid potential damages to the electricity transmission system, also to provide for the procedures of partial equiplanation in the sites of cable trenches.

6.1.5. The following is proposed to minimize the potential impact on the landscape: paint the WTs in light colours creating a minimal colour contrast, avoiding white colour contributing to a greater contrast; use paint with special ingredients that would allow avoiding glance and gleam of the structures; assess the possibility of positioning the WT farm perpendicular to the coast (in parallel to the Palanga Peer axis) and/or position individual WTs in lines (arches); with consideration of the established fact that lower WTs

(up to 280 m high) would have a lower visual impact, it is proposed for the developer to assess the technical possibilities of choosing lower (up to 280 m) WT models, if such choice would ensure that the WT farm could generate an optimum amount of electricity, which is necessary to ensure the objectives of the Lithuanian Energy Independence Strategy.

6.1.6. During the design, it is recommended to avoid the identified potentially anthropogenic objects or to provide for the seabed cleaning at the sites of construction in compliance with all work safety principles. At the time of WT and TS foundation design and installation of cable routes, to 'isolate' the identified potentially anthropogenic objects, i.e., not to plan any seabed excavation (installation of foundations and cables) in the sites such objects where identified (including the safety zone of 10 m diameter). After surveys identified or denied the archaeological value of the identified objects and verified the origin of the dangerous obstacles, the entire territory can be used for the construction of WTs.

## **6.2. During operation stage:**

6.2.1. During the construction and operation of the WT farm, all waste generated will be delivered by ships to the ports of service and handed over to waste management companies.

6.2.2. Observations of current modes will be conducted at the access points of the WT farm during installation and after the completion of construction.

6.2.3. Studies of polluting substances before construction (background concentrations), during construction (installation of foundations, cable laying) and after completion of construction (3 to 6 months after completion of works) will be conducted.

6.2.4. During the construction and operation stage of the WT farms, more environmentally friendly corrosion control methods will be used to reduce or prevent the release of heavy metals into the water.

6.2.5. To reduce the impact on marine mammals and fish, noise-impact mitigation measures and audible deterrence measures must be applied before commencing the construction, e.g., pile-driving operations:

6.2.5.1. Use of technical means to reduce underwater noise during pile-driving, e.g., bubble curtains, soundproofing hoods, and silencers, etc. The use of bubble curtains can reduce the distance of extreme impact on harbour porpoises by up to 90 %. In the PEA area, with the use of these means, installing the bubble curtain at a 50 m radius around the pile driving site as well as ensuring the air supply of at least 1 m<sup>3</sup>/m/min is recommended. Another measure is pile "sleeves" made of various materials or a steel pipe, which is pulled on the pile and the pile does not come into contact with water during pile driving, and the impulse noise loses most of its energy when moving to another medium. Also, one of the possible options is the Noise Mitigation System (NMS) under constant development which also suppresses low-frequency noise.

6.2.5.2. Repelling animals acoustically before starting to drive piles: 1) The use of additional audible repellent devices, by which marine mammals are scared off from the pile-driving area; and 2) The soft start of pile-driving, i.e. during diving, the impact energy is strengthened gradually, thus simultaneously scaring off the animals and not causing sudden, extremely harmful, potentially injurious noise pulses.

6.2.5.3. In order to assess/control the effectiveness of noise reduction measures at the construction stage, when the WT foundations are being installed, the developer must implement the monitoring of underwater noise during the installation of the foundations. The objective of the monitoring is to determine whether the generated noise does not exceed the set limit values (i.e., at a distance of 750 m from the pile being driven in - shall not exceed the levels of 160 dB<sub>SEL</sub> and 190 dB<sub>LP,pk</sub>). If noise is found to have exceeded the limits set, the works must be stopped, and other/additional noise reduction measures must be applied.

6.2.5.4. If possible, the installation of the foundations should be planned in such a way that in winter the piles would not be driven in, because of the highest probability of detecting sea porpoises migrating after fish in Lithuanian IEZ.

6.2.6. To reduce the potential impact on marine mammals, the use of only common navigation routes and designated navigation corridors for navigation to and from the PEA area during the construction and maintenance of the WT farm is recommended, if possible. This would allow concentrating the noise in a given area and reducing possible disturbances in the feeding of marine mammals.

6.2.7. In order to avoid excessive fragmentation of bottom sediment and the emergence of new lithological types due to secondary sedimentation in areas of damaged soil, it is recommended to use

environmentally friendly technologies during the excavation of cable trenches, allowing to minimize the impact on the seabed, and to use the original soil excavated from these trenches as much as possible for backfilling trenches (if construction technologies allow this).

6.2.8. In order to reduce the potential risk to foundations and cables due to seabed washouts, it is proposed to carefully assess the lithological conditions of surface sediment and, if necessary, it is recommended to apply additional reinforcement around the foundation piles during construction.

6.2.9. At the time of construction, if the works are carried out during the wintering of birds (in the beginning of December to the beginning of March), to reduce the impact on wintering birds in protected areas, the routes of vessels installing the WT farm should be selected to avoid the „Natura 2000“ IBPA areas. The priority period for the installation of WT foundations is April to November, when there is no impact on the wintering birds.

6.2.10. The monitoring of birds and bats will be carried out during construction and three years after construction. Thereafter, monitoring will be repeated every five years over a period of two years. If a more significant negative impact on birds and bats is identified than was foreseen during the EIA procedure, additional impact-mitigating measures will be taken, subject to the impact. If such a significant impact is identified, the WTs that produce such impact are to be shut down during the period of impact until the impact mitigation measures are introduced as agreed with the Environmental Protection Agency and the State Service for Protected Areas under the Ministry of Environment. If necessary, such measures as temporary shut-down of part of WTs for the most intensive period of bird migration in autumn or spring and/or wintering (the number and sites of WTs to be shut down will be verified based on monitoring results, is to be applied). Once additional measures are introduced, their efficiency is to be monitored until it is made sure that the additional measures applied to avoid the significant impact are effective. If the impact remains significant after all the additional measures to minimize the impact were tried, the operation of WT is impossible during the period when it can have a significant impact on biological diversity. The impact (scaring away of the protected area) is to be considered significant when the abundance of birds protected in the “Natura 2000” IBPA area, i.e. the number and/or density of protected bird species individuals in the monitored area, reduces by more than 20% from the natural long-term (10 year) population fluctuation (according to the long-term study data collected in the course of the program of national environment monitoring).

### **6.3. Stage of operation termination:**

6.3.1. Following the dismantling of the WT farm, the majority of the components of the WT farm will be adapted for secondary use and the remaining waste will be recycled or recovered in designated recovery areas in accordance with the requirements of the legislation of the Republic of Lithuania. During the preparation of the WT dismantling project, a waste-generating management plan will be submitted.

6.3.2. During operation, a positive impact on fish due to secondary habitats forming on the foundations of the WTs is expected. During the operation of the farm and the monitoring of fish and seabed communities, having ascertained that the formed secondary habitats have had a significant positive impact, compensatory measures will be applied during the WT dismantling stage: Such measures would include the installation of artificial habitats of an analogous area, using boulders of 0.1-1 m near the WTs being dismantled. Habitats should be installed at a distance of at least 50 m from the WTs being dismantled and within two years after the WTs dismantling date at the latest. The shape of the habitat is not fixed and must be selected considering the possible intensity and the direction of fishing with the seabed trawls.

6.3.3. Given the historical importance of the PEA area for fishing, and considering that the operation of the WT is temporary, at the end of the operation of the WT farm, the impact of the dismantling of the WTs on the environment and fishing possibilities will be evaluated considering the possibility of losing fishing equipment (e.g. caught by the structures remaining after the dismantling) in the area of the former WT farm, which may become a secondary source of pollution at sea.

### **7. Brief description of the environment observation (monitoring) measures, if applicable.**

The application of observation (monitoring) measures is appropriate for the implementation of the PEA. Chapter 6 of the Report provides the monitoring dimensions.

It is expected that the observation program will have to be prepared and agreed with the Environmental Protection Agency and the State Service for Protected Areas under the Ministry of Environment prior to the onset of the offshore WT farm construction and it will also have to include the monitoring of WT and TS construction and cable laying impact on the seabed, water quality and living

nature. During the preparation of the monitoring plan and selection of monitoring methods, the Helsinki Commission (HELCOM) guidelines must be considered.

*Monitoring of underwater noise.* The observation of underwater noise must be carried out during the construction phase when WT foundations are installed. The purpose of the monitoring is to monitor whether the generated noise does not exceed the limit values (laid down in section 4.3.4 of the Report) in order to control negative impact on marine organisms (sea mammals, fish) as well as to evaluate / control the effectiveness of the measures taken to reduce the noise.

*Water monitoring.* In order to choose the right technological solutions for WT farm development and to evaluate the impact of the proposed WT constructions on hydrodynamic environment, it is reasonable to provide current measurements in the vicinity of the proposed farm prior to the onset of construction for the purpose of evaluation of background conditions and after the construction is completed.

At the time of WT farm installation, local and temporary impact on water quality is possible due to additional water pollution with chemical substances, such as heavy metals, petroleum hydrocarbon, polyaromatic hydrocarbons, which happens due to intensified shipping. In order to evaluate the compliance of polluting substance concentrations with the values of good environmental status, it is reasonable to incorporate the studies of polluting substances into the environment monitoring program by planning their performance prior to construction (background concentrations), at the time of construction (the installation of foundations, laying of cables) and after the completion of construction (3 to 6 months after the completion).

*Zoobenthos monitoring.* At the time of WT farm construction, the monitoring of zoobenthos habitats must be carried out immediately after the WT installation in order to evaluate the impact of construction on different habitats (infauna, epibenthos).

*Seabed monitoring.* Detailed seabed surveys will be carried out prior to the WT farm construction at the specific cable laying routes and at the sites of foundation installation. At the time of operation, the developer will carry out the planned monitoring of foundation constructions and cable routes in order to ensure that there is no physical damage, cables are not exposed to the surface or otherwise physically affected (by anchors, at the time of trawling, etc.), therefore no other, additional seabed observation measures are required. However, seabed surveys (in addition to other environmental components) must be carried out before and after WT farm dismantling. It is recommended to carry out complete seabed morphology and side-scan sonar investigations at installed / dismantled cable routes and separately at the sites of each foundation installation.

At the time of WT farm installation, local and temporary impact on seabed sediment quality is possible due to additional accidental pollution with chemical substances, such as heavy metals, petroleum hydrocarbon, polyaromatic hydrocarbons, which happens due to intensified shipping. In order to evaluate the potential impact of WT farm construction and operation on changes in the geochemical situation and to ensure the compliance of seabed sediment quality with the values of good environmental status, after the completion of WT farm construction, it is reasonable to provide for the planned (taking place during the entire operation) studies of polluting substances (every 6 to 12 months, or less frequently if study results show no substantial contamination) in the seabed sediments, as well as immediately after WT farm dismantling. The sites of sediment sample collection to be provided in the vicinity of installed / dismantled cable routes and the sites of each foundation construction.

*Seabird and bat monitoring.* Bird and bat observation should be carried out for two full years until the onset of WT farm construction (including at the time of EIA development), during the construction and three years after the onset of WT farm operation. Throughout the whole WT farm operation period, full two-year studies are conducted, at least every five years from last observations according to the scale of study applied before construction. The study objectives include the determination of species composition and abundance of migratory and passage migrant, also resting, feeding, and forming aggregations birds in the territory; also, to evaluate the significance of investigated territory for the birds and the potential impact of WT farm.

*Marine mammal monitoring.* The parameters monitored at different WT operation stages: seal and porpoise observation to determine the occurrence and prevalence of different species, and possible seal species diversity in the PEA and adjacent areas; the total and relative abundance of seals and porpoises in the PEA area; habitat usage by seals and porpoises in the PEA and adjacent areas; noise level of

anthropogenic origin in the PEA area.

*Fish monitoring.* The parameters monitored at different WT construction stages: total and relative abundance as well as community structure of different species in the PEA and adjacent areas; fish species occurrence, prevalence, species diversity in the PEA and adjacent areas; prevalence and condition of seabed habitats in the PEA area, including formation of secondary habitats potentially important for fish feeding on the WT foundations; noise level in the PEA area; concentrations of pollutants in fish detectable in the PEA area; observation of invasive species in the areas of potential impact in the PEA area.

## **8. Submitted conclusions of the subjects of the Environmental Impact Assessment (nature, date, letter no.).**

8.1. The Mayor of the Klaipėda City Municipality has sent the letter no. (4.36E)-R2-1555 of 23 June 2023 to approve the Report and the PEA Alternatives I and II analysed in the Report.

8.2. The Administration of Palanga Town Municipality has sent the letter no. (4.21 E) D3-2476 of 20 July 2023 to approve the Report with a note as follows: To avoid a significant visual impact of the landscape of Palanga, which has a special importance for its recreational potential, the Administration approved the construction of wind turbine arm with wind turbines below 280 meter in total height.

8.3. The Mayor of the Klaipėda City Municipality has sent the letter no. T17-396 (5.1.23 Mr) of 15 June 2023 to approve the Report and the PEA.

8.4. The Administration of Neringa Municipality has sent the letter no. V15-1887 of 13 June 2023 to approve the Report and the PEA.

8.5. The Klaipėda Department of the National Public Health Centre under the Ministry of Health has sent the letter no. (3-11 14.3.3 Mr)2-28730 of 14 June 2023 to approve the Report and the PEA.

8.6. Klaipėda County Fire and Rescue Department of the Fire and Rescue Department under the Ministry of the Interior has sent the letter no. 9.4-3-1847 /2023(11.3.135 E) of 7 June 2023 to approve the Report and the PEA.

8.7. The Department of Cultural Heritage under the Ministry of Culture, Klaipėda Division, has sent the letter no. (9.38-KI E)2K1-976 of 27 September 2023 to indicate that it had no remarks regarding the Report and did not object the PEA.

8.8. The State Service for Protected Areas under the Ministry of Environment (hereinafter referred to as the Service) has sent the letter no. V3-1564 of 24 August 2023 to approve the quality of the Report and state that it had no objections regarding the implementation of the PEA Alternative III (environment-friendly), which is most favourable in regards of the impact on the “Natura 2000” territories and the national protected territories and the protected species, i.e. the WT farm development, where WT installation sites are moved at a distance of 2 km away from the border of the biosphere reserve of the Klaipėda-Ventspils Plateau (the Klaipėda-Ventspils Plateau, which is the territory important for the protection of the “Natura 2000” habitats and birds) using up to 350 m high WT models. The Council also indicated that the implementation of the PEA must be in compliance with the measures to avoid, mitigate and compensate the adverse impact on the environment and the measures of observation (monitoring) as provided for in the Report. The program of observation (monitoring) measures must be coordinated with the Council.

8.9. SE Klaipėda State Seaport Authority 2023-07-31 has sent the letter no. UD-10.1.5E-1398 of 31 July 2023 indicating that it had no remarks regarding the Report and during the meeting indicated that it approved the PEA.

8.10. The Lithuanian Geological Survey under the Ministry of Environment has sent the letter no. (5)-1-7-4350 of 25 September 2023 indicating that it approved the quality of the Report and did not object the implementation of the PEA Alternative III.

8.11. The Fisheries Service under the Ministry of Agriculture of the Republic of Lithuania has sent the letter no. 2E/2023-446 of 19 June 2023 indicating that that it had no remarks regarding the submitted Report and the PEA impact on the environment.

## **9. Public information and participation (where, when, and how the public was informed and participated, summarized nature of the proposals of the public concerned by topics).**

Information of the public presentation of the Environmental Impact Assessment Report was published on the website of the Environmental Protection Agency (17 March 2023), the bulletin-board and website of Palanga Town Municipality (17 March 2023), the Šventoji Township bulletin-board of Palanga Town Municipality Administration (17 March 2023), the bulletin-board and website of the

Klaipėda District Municipality Administration (16 March 2023), the website of Klaipėda City Municipality Administration (16 March 2023), the bulletin-board and website of Neringa Municipality Administration (20 March 2023), Palanga newspaper “Palangos tiltas” (17 March 2023), Klaipėda daily newspaper “Vakarų ekspresas” (17 March 2023), on the website of the drafter of the environmental impact assessment documents Public Institution Coastal Research and Planning Institute at <http://corpi.lt/> (17 March 2023).

Information of the public presentation of the Environmental Impact Assessment Report took place on 19 April 2023, 16:00hr in a hall of the Palanga Resort Museum (“Anapolis” Villa) at Birutės al. 34A, Palanga as well as via Internet live video. The representative of the drafter of the EIA documents, the representatives of the PEA organizers, the representative of Palanga Town Municipality Administration, residents of Palanga, members of the press, online participants and other individuals concerned too part in the public meeting both live and online. 120 participants (38 live, 82 online) too part in the meeting in total.

During the public meeting, the public asked questions regarding the PEA impact on birds, animals, noise generated, size of WT foundations, visual impact of the PEA, restriction of fishing in the PEA area, economic assessment of the PEA, solutions for connection to mainland power grid. All the questions of the public were answered during the meeting.

Prior to the start of the public meeting, two public letters (e-mails) with comments and proposals regarding the EIA Report were received. On 14 April 2023, a grounded proposal of Vestas Central Europe A/S was received offering not to include the recommendations regarding the use of direct drive WT models into the Report. On 18 April 2023, UAB Ignitis renewables, UAB, comments regarding the Report were received in respect of WT impact on material valuables, seabed, underground resources, marine mammals, materials to be used, climate conditions, potential impact of underwater noise during WT operation, WT dismantling stage, and impact mitigation measure. On 28 July 2023, proposals of Lithuanian Association of Manufacturers of Fishing Products regarding the Report were received in respect of potential impact on fish and fishing, including a request to obligate the WT farm developers and operators to provide for compensation for the fishing industry.

The proposals of the public concerned regarding the Report were registered and evaluated pursuant to the requirements of Clauses 78, 80 and 81 of the Regulations on Environmental Impact Assessment of the Proposed Economic Activity<sup>1</sup> (hereinafter referred to as the Regulations). The registration form for the proposals of the public concerned and the evaluation of the proposals of the public concerned is submitted in Annex 6 to the Report. The proposals were considered, partially considered, or were rejected with submitting grounds for rejection.

On 29 August 2023, the Environmental Protection Agency announced to the public on its website at [aaa.lrv.lt](http://aaa.lrv.lt) about the Environmental Impact Assessment Report received. Over the designated period of time, the Environmental Protection Agency has received no proposals of the public concerned regarding the Environmental Impact Assessment Report and the PEA impact on the environment.

Pursuant to Clause 42 of the Regulation, on 21 September 2023, the Agency has prepared minutes no. A7-19 of the meeting regarding the report of the environmental impact assessment of the economic activity proposed by the Ministry of Energy, i.e., installation and operation of the offshore wind farm. The minutes were announced on the website of the Agency, along with the decision adopted.

#### **10. Transboundary consultations (where, when, and how the transboundary consultations took place, nature of the proposals received).**

The distance from the PEA territory to the Latvian EEZ is about 2.8 km, to the Swedish EEZ – about 77 km, and to the Russian EEZ – about 40 km.

On 9 December 2021, the Ministry of Environment, in accordance with Article 3 of the Convention on Environmental Impact Assessment in a Transboundary Context (hereinafter referred to as the Espoo Convention), at the stage of preparation of the EIA program, notified Poland, Latvia, Estonia, Finland, Sweden, Denmark and Germany. The notification also included the summary of the program of the environmental impact assessment.

---

<sup>1</sup> Approved by the Order of the Minister of Environment of the Republic of Lithuania No. D1-885 of 31 October 2017 “On Approval of the Regulations on Environmental Impact Assessment of Proposed Economic Activities” (summary edition of 1

August 2021 to 30 November 2021).

In January and February 2022, the responses of the notified foreign countries were received. Denmark, Latvia, Poland, Sweden, and Finland expressed their wish to participate in the transboundary environmental assessment procedures. Estonia informed that it would not participate in the transboundary environmental assessment procedures, yet submitted its proposals and a request to receive the Report indicating that such information and document sharing would be important in assessing the overall impact of the WT projects in development in the Baltic Sea on the environment. Germany did not respond to the notification.

On 5 April 2023, the Ministry of Environment has submitted the Report and a summary thereof to Denmark, Latvia, Poland, Sweden, and Finland. The documents were submitted to Estonia for information. On 18 April 2023, a public presentation of the Report to the foreign public. Considering the fact Latvia has requested for a public presentation and Poland expressed its interest in it, the presentation took place in English with translation into Latvian and Polish. After the meeting, Poland and Latvia received the presentation videos, notification, and the presentation minutes.

In May and June 2023, the comments of all the countries who took part in the transboundary environmental assessment procedures were received.

Denmark has submitted its opinion and proposals regarding the possible damage to marine mammals and birds. Latvia has submitted its opinion and proposals regarding the impact on fish and birds, as well as regarding the choice of WT colour. Poland has submitted its opinion and proposals regarding the impact on birds and marine mammals, the cumulative impacts of the WT farms proposed during the PEA and other WT farms proposed or already in operation in the Baltic Sea on the migration of birds and mammals at sea, impact on the protected seabed habitats, usage of seabed trawls, the increase in the amount of fish caught, the choice of the foundation technology, impact on Poland's "Natura 2000" territory intended for bird protection. Sweden has submitted its opinion and proposals regarding the impact of underwater noise and vibration, electromagnetic fields, shifts in current, the cumulative impacts of the WT farms proposed during the PEA and other WT farms proposed or already in operation in the Baltic Sea, navigation routes and navigation conditions, location of WT farm on fishing and fish resources. Finland has submitted its opinion and proposals regarding the assessment of oceanic and atmospheric currents, cumulative impacts of the WT farms proposed during the PEA and other WT farms proposed or already in operation in the Baltic Sea, the secondary impact of the reduced atmospheric wind speed on ocean mixing.

The drafters of the environmental assessment documents have examined the remarks and proposals of the countries who took part in the transboundary environmental assessment procedures, i.e., Denmark, Latvia, Poland, Sweden, and Finland, regarding the Report, has evaluated them and considered them to the extent possible.

On 20, July 2023, the Ministry of Environment has sent the responses to the submitted remarks and proposals. In August and September 2023, the replies of the foreign countries who took part in the transboundary environmental assessment consultations, i.e., Denmark, Latvia, Poland, Sweden, and Finland, informing that the drafters of the environmental assessment documents had duly considered their remarks and proposals regarding the Report and that Lithuania fulfilled the obligations as provided for in the Espoo Convention.

The transboundary environmental assessment documents were announced on the website of the Ministry of Environment<sup>2</sup>.

## **11. Conditions of implementation of the proposed economic activity related to the conducted environmental impact assessment:**

11.1. The PEA customer is obligated to introduce and implement at own expense the measures to avoid, mitigate and compensate the adverse impact on the environment and to liquidate consequences thereof are provided for in Clause 6 of this Decision as well as the conditions of the PEA implementation related to the conducted environmental impact assessment as provided for in Clause 11 of this Decision.

---

<sup>2</sup> <https://am.lrv.lt/en/activities/environmental-impact-assessment-of-the-proposed-economic-activity/environmental-impact-assessment-in-a-transboundary-context/installation-and-operation-of-the-offshore-wind-turbine-farm-of-about-700-mw->



11.2. The proposed PEA territory borders the “Natura 2000” IBPA territory, where velvet scooters, long-tailed ducks and razorbills are under protection. Those species are sensitive to WT operation due to disturbance and potentially would be forced to avoid a part of this protected territory, which will be the closest to the WT farm. The eviction and scaring away effect is expected. Therefore, there is a great possibility of reduction in density of the protected bird species in the “Natura 2000” territory, i.e., birds that use the territory proposed for the WT farm or the adjacent protected territory for feeding will be forced to move to search other feeding grounds. It is estimated that the impact of eviction from habitat and scaring away is potential for sea ducks feeding on benthic organisms - velvet scooter and long-tailed duck. In order to reduce the potential negative impact of the WT farm and to preserve the important feeding valuable seabed biotopes and accumulations of protected birds in the protected territory, the proposed WT farm must be moved away from the “Natura 2000” territory at a distance of 2 km.

11.3. If the impact on biological diversity remains significant after all the additional measures to minimize the impact were introduced, the operation of WT is impossible during the period when it can have a significant impact on biological diversity. Also, once the significant impact is identified, the WTs cannot be operation until the provided impact mitigation measures are introduced.

11.4. The observation (monitoring) must be implemented in accordance with the monitoring programs coordinated with the Environmental Protection Agency and the Council.

11.5. Considering the results of the transboundary consultations and the information requested in the letters from Latvia and Poland regarding the environmental monitoring during operation, to implement environmental monitoring and submit a summary of environmental monitoring report to the Ministry of Environment in English language on annual basis.

11.6. Economic activity developer must evaluate all possibilities to choose the lowest possible, i.e., up to 280, wind turbine models to minimize the significance of visual impact, yet to ensure that the WT farm generates an optimum amount of power ensuring strategic objectives of the Lithuanian National Energy Independence Strategy.

11.7. If it turns out during the operation that the impact on the environment is greater than the indicators presented in the Report or established in legislation, the operator will be obligated to immediately apply additional measures to mitigate the impact on environment or reduce the operation volumes / terminate the operation.

## **12. Reasons used in adopting the decision regarding the environmental impact of the proposed economic activity:**

12.1. The subjects of the PEA environmental impact assessment that have analysed the Environmental Impact Assessment Report and submitted their conclusions: Klaipėda City, Palanga Town, Klaipėda District, Neringa Municipality Administrations, territorial department of the National Public Health Centre under the Ministry of Health, territorial department of the Department of Cultural Heritage under the Ministry of Culture, territorial department of the Fire and Rescue Department under the Ministry of the Interior, Lithuanian Geological Survey under the Ministry of Environment, the State Service for Protected Areas under the Ministry of Environment, SE Klaipėda State Seaport Authority, the Fisheries Service under the Ministry of Agriculture of the Republic of Lithuania has presented their positive conclusions regarding the Environmental Impact Assessment Report and the PEA impact on the environment.

12.2. The territory borders yet is outside the marked state-protected territories or the territories of habitat and bird protection of the European ecological network “Natura 2000”. The EIA phase identified the potential significant impact in the adjacent protected areas, i.e., biosphere reserve of the Klaipėda-Ventspils Plateau, “Natura 2000” IBPA Klaipėda-Ventspils Plateau, on the species of the protected birds in terms of scaring away and excluding from the feeding grounds, which requires mitigation measures. If one of the most effective measures for the protection of the wintering bird species, i.e., moving the WT installation sites away from the north-western border of the “Natura 2000” area at a distance at least 2 km, no significant impact on the protected territories, including “Natura 2000”, is expected.

12.3. The PEA area is within the priority territories proposed for the development of renewable energy facilities as marked in the solutions of the Comprehensive Plan of the Territory of the Republic of Lithuania. The Engineering Infrastructure Development Plan for Marine Areas of Lithuania’s Territorial

Sea and/or the Exclusive Economic Zone of the Republic of Lithuania in the Baltic sea, Designed for the Development of Renewable Energy was approved by the Order of the Minister of Energy no. 1-377 of 18 November 2022 for the PEA territory. The PEA corresponds with the solutions of valid documents of territorial planning.

12.4. Green power is an alternative of the use of non-renewable resources and environmental pollution reduction.

12.5. Pursuant to the provisions stipulated in Article 49 (18) of the Law of the Republic of Lithuania on Energy from Renewable Sources, the impact of installation of a 350 m high WT at the distance of 29.5 km away from the coast and the important observation sites located therein on the landscape is considered to be insignificant. According to the assessment of visual impact, reducing the total height of WT down to 280 m affects only Palanga Central Beach observation site and Juodkrantė Beach observation site, the visual impact on which would also be insignificant in case of installing a WT up to 280 high.

12.6. At the time of WT construction, the increase in turbidity in the demersal water layer will manifest only at the site of the installation of the foundations and the laying of the cables, so its effect is to be assessed as local (demersal layer) and temporary (only at the time of installation), without significant long-term impact on the hydro chemical parameters of water and the seawater quality of the Baltic Sea. The distance from the site of the proposed activities to the nearest recreational areas and beaches of Palanga Municipality is approx. 29.5 km. The significant impact of the installation and operation of the proposed wind farm on Palanga coastline will thus be avoided

12.7. The greatest impact on individual fish species can only occur during the installation of WT farms and during the removal works of the structures. This impact on the fish community will be short-term and insignificant. Although some species with a large swim air bladder, such as Baltic cod, may withdraw from the area because of their sensitivity to noise, however, once the installation (or WT removal works) are completed, the fish will return to the feeding grounds, so only a short-term impact is expected. The avoidance reaction is observed only at a distance of a few meters from WT and only at high wind speeds, which may result in a positive impact on fish populations due to newly emerging artificial reef habitats during the operation period. The termination of trawling and restoration of the seabed integrity are estimated to lead to the increase in both fish quality and fish resources.

12.8. There are no archeologic/historic/cultural heritage registered in the Cultural Heritage Register in the PEA area. Potential remains of sunken anthropogenic objects and old tree trunk relicts probably representing historical coastline, which are of potential importance for the exploration of seascape, were identified in the PEA area. With consideration of this fact, prior to designing the WT foundations and cable routes, additional archeologic studies of identified objects will be conducted in the proposed area of WT construction. Therefore, no adverse impact on potential cultural valuables is expected.

12.9. Distances from designated PEA area to the coastline and residential and public buildings and recreational territories on the shore are at a large distance of 29.5 to 33.7 km. Therefore, physical pollution of the PEA, such as noise, shadowing, infrasound, electromagnetic radiation, which can affect public health is not predicted.

12.10. All waste generating during the PEA operation will be collected, sorted, and transported in a way to avoid any adverse impact on public health of the environment. The technological equipment dismantled during decommissioning as well as separate parts of the equipment will be delivered to warehousing and processing site indicated by the organizer of activity or handed over to waste management companies that have a license to manage such wastes.

12.11. The PEA customer is obligated to introduce and implement at own expense the measures to avoid, mitigate and compensate the adverse impact on the environment and to liquidate consequences thereof are According to the information provided in the Report, when using the impact mitigation measures as provided for in the Report and Clause 6 of this Decision as well as the conditions as provided for in Clause 11 of this Decision, the PEA implementation will have no significant adverse impact on water, air, seabed, material valuables, cultural valuables, protected territories, biological diversity, landscape and the mutual interaction of these elements; no significant adverse impact of biological, chemical and physical factors induced by the PEA on public health; no significant adverse impact on the environment and public health due to the risk of PEA emergency events and situations.

**13. Nature of the decision regarding the environmental impact of the proposed economic activity (indicate whether the proposed economic activity corresponds/fails to correspond with the**

**requirements of environmental, public health, protection of cultural valuables, fire safety and civil safety legislation).**

Having analysed and evaluated the Environmental Impact Assessment Report, the assessment of proposals of the public concerned, based on the conclusions of the subjects of the environmental impact assessment regarding the Environmental Impact Assessment Report and the PEA impact on the environment, with consideration of the above-staged reasons and pursuant to Clause 2 of Article 11(1) of the Law on EIA, the decision is adopted as follows: The economic activity proposed by the Ministry of Energy, i.e. installation and operation of the offshore wind farm in Lithuania's Territorial Sea according to the project implementation's Alternative III (WT farm development, where WT installation sites are located 2 km further away from the border of the biosphere reserve of the Klaipėda-Ventspils Plateau using up to 350 m high WT models), once the measures and conditions referred to in Clauses 6 and 11 of this Decisions are implemented, **corresponds** with the with the requirements of environmental, public health, protection of cultural valuables, fire safety and civil safety legislation.

The Decision regarding the environmental impact of the PEA is adopted according to the submitted Report, which was published on the website of the Environmental Protection Agency at [https://aaa.lrv.lt/link Environmental Impact Assessment \(EIA\) > 2023 > 9. Information on the adopted decisions regarding the environmental impact of the proposed economic activity 2023](https://aaa.lrv.lt/link/Environmental%20Impact%20Assessment%20(EIA)%202023%209.Information%20on%20the%20adopted%20decisions%20regarding%20the%20environmental%20impact%20of%20the%20proposed%20economic%20activity%202023) and is an integral part of this Decision.

Pursuant to Article 11(10) of the Law on EIA, this Decision is valid for five years as of the day it is adopted, and its validity can be extended for a period of five years at the most.

**14. Procedure of appeal of the decision regarding the environmental impact of the proposed economic activity.**

You have a right to appeal this Decision to the Lithuanian Administrative Disputes Commission (Vilniaus g. 27, 01402 Vilnius) as per the procedure stipulated by the Law of the Republic of Lithuania on the Procedure for Pre-Trial Examination of Administrative Disputes or to the Vilnius Regional Administrative Court (Žygimantų g. 2, 01102 Vilnius) as per the procedure stipulated by the Law of the Republic of Lithuania on Administrative Proceedings within one month after the day this Decision was served.

Director

Milda Račienė

Laima Prudnikovienė, phone: +370 665 55456, e-mail: laima.prudnikoviene@gamta.lt

Skirmantė Stankevičienė, phone: +370 620 85561, e-mail: skirmante.stankeviciene@gamta.lt

**LIST OF ADDRESSEES OF THE DECISION OF THE ENVIRONMENTAL  
PROTECTION AGENCY REGARDING THE ENVIRONMENTAL IMPACT OF THE  
INSTALLATION AND OPERATION OF THE OFFSHORE WIND FARM IN  
LITHUANIA'S TERRITORIAL SEA**

Klaipėda City Municipality Administration

Palanga City Municipality Administration

Klaipėda District Municipality Administration

Neringa Municipality Administration

National Public Health Centre under the Ministry of Health

Fire and Rescue Department under the Ministry of the Interior

Department of Cultural Heritage under the Ministry of Culture

State Service for Protected Areas under the Ministry of Environment

Lithuanian Geological Survey under the Ministry of Environment

SE Klaipėda State Seaport Authority

Fisheries Service under the Ministry of Agriculture of the Republic of Lithuania

Ministry of Environment of the Republic of Lithuania

Ministry of Energy of the Republic of Lithuania

Copy to:

Environmental Protection Department under the Ministry of Environment

<b>DETAILED METADATA</b>	
<b>Author (s) of the document</b>	Environmental Protection Agency 188784898, A. Juozapavičiaus g. 9,LT-09311 Vilnius
<b>Document name (title)</b>	DECISION REGARDING THE ENVIRONMENTAL IMPACT OF THE INSTALLATION AND OPERATION OF THE OFFSHORE WIND FARM IN LITHUANIA'S TERRITORIAL SEA
<b>Document registration date and number</b>	No. (30-2)-A4E-10794 of 23 October 2023
<b>Date of receipt of the document and registration number of receipt of the document</b>	–
<b>Identification mark of the document specification</b>	ADOC-V1.0
<b>Purpose of the signature</b>	Signing
<b>Name and position of the person who created the signature</b>	Milda Račienė, Director
<b>Certificate issued by</b>	MILDA RAČIENĖ, Environmental Protection Agency LT
<b>Date and time of signature creation</b>	20 October 2023 16:50:40 (GMT+03:00)
<b>Signature format</b>	XAdES-X-L
<b>The time stamp indicates the time</b>	20 October 2023 16:50:46 (GMT+03:00)
<b>Information about the certification service provider</b>	ADIC CA-B, Identity Documents Personalisation Centre under the Ministry of the Interior of the Republic of Lithuania
<b>Certificate validity period</b>	9 May 2023 to 8 May 2026 10:02:43
<b>Information on the methods used to ensure the integrity of the metadata</b>	The integrity of metadata for the purpose of “Registration” is ensured by using the certificate “DBSIS, Information Technology and Communications Department under the Ministry of the Interior of the Republic of Lithuania, company code 188604955 LT” issued by RCSC Issuing CA, State Enterprise Centre of Registers, company code 124110246 LT, certificate is valid from 19 May 2022 16:48:06 to 18 May 2025 16:48:06
<b>Number of annexes to the main document</b>	–
<b>Number of documents attached to the main document</b>	–
<b>Author (s) of the attached document</b>	–
<b>Name of the attached document (title)</b>	–
<b>Date and number of the registration of the attached document</b>	–
<b>Name of the software used to create the electronic document</b>	DBSIS, version 3.5.74.2
<b>Information on the verification of the electronic document and the electronic signature (s) (date of verification)</b>	Meets the requirements of the specification. All electronic signatures in the document are valid (23 October 2023 08:25:52)
<b>Search link</b>	–
<b>Additional metadata</b>	Copy formed on 23 October 2023 08:25:52 DBSIS