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To the addressees according to the list

DECISION
ON THE ENVIRONMENTAL IMPACT OF THE INSTALLATION AND OPERATION OF THE
OFFSHORE WIND FARM IN LITHUANIA'S MARINE TERRITORY

___/___/2023 No. (30-2)-A4E-

1. Organiser of the proposed economic activity (name of legal entity, natural person, address, tel.).

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2. Drafter of environmental impact assessment documents (name of legal entity, natural person, address, tel.).

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3. Name of the proposed economic activity, legal basis of the environmental impact assessment in accordance with Article 3(1) of the Republic of Lithuania Law on Environmental Impact Assessment of the Proposed Economic Activity, indicating the paragraph(s) of Annex 1 to the Republic of Lithuania Law on Environmental Impact Assessment of the Proposed Economic Activity and/or the screening conclusion made by the competent authority that environmental impact assessment is obligatory (date, letter no.) or the conclusion on significance by the protected areas authority that the impact can be significant (date, letter no.).

The proposed economic activity (hereinafter – the PEA) is the installation and operation of the offshore wind farm in the marine territory of Lithuania.

The PEA corresponds to the activities referred to in sub-paragraph 3.8.1 of Annex 2 to the Republic of Lithuania Law on Environmental Impact Assessment of Proposed Economic Activity (consolidated version from 1 January 2021 to 19 January 2022) (hereinafter – the EIA Law): the installation of 3 wind power plants with the height of at least one of them being 50 metres (measured to the highest point of the structure) or more. The organiser of the PEA carries out an EIA of the PEA without the screening procedure concerning environmental impact assessment in accordance with Article 7(11) of the EIA Law.

4. Location of the proposed economic activity (county, municipality, sub-district; city, town, village or hamlet; street).

The territory in the exclusive economic zone of the Republic of Lithuania in the Baltic Sea as approved by Resolution No. 697 of the Government of the Republic of Lithuania of 22 June 2020 “On the Identification of the Parts of Territorial Sea of the Republic of Lithuania and/or of the Exclusive Economic Zone of the Republic of Lithuania in the Baltic Sea where (a) Tender(s) for the Development and Operation of Power Plants Using Renewable Energy Sources is/are Expedient and on the Determination of the Installed Capacities of Such Power Plants”.

The Engineering Infrastructure Development Plan for the Territorial Sea of the Republic of Lithuania and/or the Exclusive Economic Zone of the Republic of Lithuania in the Baltic Sea for the Development of Renewable Energy (hereinafter – the Development Plan) as approved by Order No. 1-377 of 18 November 2022 of the Minister of Energy. In the specific solutions of the Development Plan, the territory defined in the Comprehensive Plan of the Territory of the Republic of Lithuania as a priority territory for the development of renewable energy is divided into separate areas where the development of facilities using renewable energy resources will be carried out in stages. The PEA territory is marked in the Development Plan as the area to be developed for wind energy during the first phase.

The main characteristics of the PEA territory: area – 137.5 km²; depths – between 25 and 45 m isobaths; average depth – 35 m; distance from Klaipėda Seaport – 38 km; minimum distance from the proposed area to the coastline at Palanga – about 29.5 km.

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

The Environmental Impact Assessment Report (hereinafter – the Report) is prepared at an early stage of the project implementation when the exact models of the wind turbines (hereinafter – WT) to be installed are not known. The report for the installation of the proposed wind farm has assessed offshore WT models with a preliminary capacity of 20 MW or more, the maximum number of WT to be installed – 90, the maximum height to the highest point of the blade – 350 m, the maximum rotor diameter – 320 m. The maximum allowable generating capacity of the offshore WTs to be installed will be 700 MW and the installed capacity – 700 MW or more.

Given that the location of the corridor of the link of the offshore wind farm has not yet been selected, the electricity export link between the offshore transformer substation (hereinafter – TS) and the onshore electricity network is not assessed in this report. The location of the corridor of the electricity link to the land will be selected under the procedure set out by the Law on Territorial Planning as part of preparation of the territorial planning document and its strategic environmental assessment. Once the location of the link's corridor has been determined, a screening for environmental impact assessment will be carried out under the procedure set out by the EIA Law and its implementing legal acts.

Considering the solutions of the Development Plan and in order to maximise the use of the entire territory, it is planned to construct peripheral WTs at the cable protection zone (100 m) from the boundaries of the territory, by planning the entire power plant layout grid accordingly. During the technical design phase, the location and number of the WT installations will be adjusted taking into consideration the chosen (specified) WT model(s) and its/their technical characteristics: it is planned that the PEA developer will be able to choose the most appropriate WT model and its capacity, the layout of the WT, as well as the technical parameters and number of offshore transformer substations, the technical parameters and the number of the cables of the link to the onshore network.

The main phases of the installation of the wind farm: installation of foundations, a tower and an offshore substation; installation of a nacelle and blades; installation of power cable lines within the wind farm; connection of WTs to the electricity transmission system.

The installation of foundations consists of the transportation of foundations and their fixing on site. Foundations can be mono-pile or jacket. Normally, foundations are about 20 m above water level. The specific type of foundations for WTs will be chosen by the developer, taking into account the results of detailed geo-engineering investigations in the PEA area.

WT tower sections with internal components are pre-assembled on land and transported together with a nacelle and blades for final offshore assembly. The tower is installed at sea by jack-up vessels. The gondola with the pre-assembled rotor, hub and blades is mounted on top of the tower.

An offshore TS is normally installed on the same type of foundations as a WT. An offshore TS is designed to accumulate the power generated by the entire wind farm, to transform it and transmit the electricity to the land-based grid.

Foreseen cable line laying within the wind farm – an array cable connecting the wind farm with the offshore TS and an export cable to connect the offshore and onshore TSs.

During wind farm operation, small vessels can be used for wind farm maintenance works; the vessels can be conveniently moored at the wind farm and would be safe for maintenance staff to access the WT servicing platform.

At the end of the lifetime of the offshore wind farm, the developer will assess the current situation, carry out a feasibility study assessing the legal framework in force at that time, technological parameters and other factors and will decide on that basis whether to modernise the existing wind farm by changing the power plant designs or otherwise upgrade the WTs or foundation structures and related infrastructure, whether to continue the WT

operations or whether to carry out a complete dismantling of the WTs, including the disconnection and/or dismantling of the cabling. In the case of WT dismantling, the sequence of operations is opposite to that of the construction, i.e. removing the blades, then the hub and gondola, and finally removal of the tower and partial dismantling of the foundations (leaving in the bottom components that may have created secondary biodiversity hotspots). In case of mono-pile or jacket foundations, all foundation elements above the seabed (typically around 1 m) are cut off. The cables are disconnected, dismantled and reused. All parts of the WTs are shipped onshore and delivered for reuse, recycling or disposal.

Information on the supplies to be used

The construction of the WTs in the marine territory will use new, certified products that meet the European Union requirements. Only the assembly and installation of separate equipment will be performed on site. It is recommended that priority be given to components made from recycled materials when selecting components for wind turbines.

Lubricating and transformer oils and cooling fluids are used in wind energy installations. Transformer stations use about 6500 l of transformer oil (typically biodegradable ester transformer oil (Midel 7131 or equivalent) and ethylene glycol-based coolant (about 1800 l). Ethylene glycol is rapidly soluble and biodegradable, therefore, higher concentrations in aquatic environments are short-lived.

Information on waste generation and management

Small amounts of waste can be generated during the installation of the WT foundations, the transportation and assembly of the WT components. All the waste generated during the wind farm construction and operation/repair will be delivered by vessels to servicing ports and handed over to special waste managers.

The technological equipment and individual pieces of equipment dismantled during decommissioning will be transported by vessels to the service port, storage or recycling site specified by the activity organiser or will be delivered to a waste collection company authorised to manage such waste.

Information on the impact of the PEA on water

The impact of the wind farm installation on the hydrodynamic situation will largely depend on the planned method of attachment of the TWs to the bottom of the sea and on the size of the foundations. Single-pile structures with foundation diameters of up to 10-12 metres and turbine towers more than 1 km apart most often do not have a significant impact on the change of the water flow regime. As the wind farm area is planned in water depths of more than 30 m and its structures are built far from the shore, in a stable geological environment (not on mobile sandy but on solid moraine bedrock), the impact on the hydrodynamic environment is insignificant. In order to properly select the technological solutions for the development of the wind farm and to assess the impact of the planned WT structures on the hydrodynamic environment, measurements of currents are being carried out in the vicinity of the planned wind farm (two meteorological stations FLS200, E01 and E06 have been set up), and the current regime will also be monitored after the completion of the construction works.

During the wind farm installation (cables, foundations), the movement of seabed sediments can lead to secondary pollution of the water by chemical substances (heavy metals, organic compounds). According to the data of the state environmental monitoring and *in situ* observations, the sediments deposited in the area of the planned wind farm do not have any significant chemical contamination, therefore, no secondary water pollution is expected.

Information on the impact of the PEA on ambient air

During the power generation at the wind farm, no stationary sources of ambient air pollution and emissions are expected. The main sources of ambient air pollution during the installation, operation and dismantling of the offshore wind farm are vehicles and construction machinery. The offshore environment, far from the coast and residential or public environments, is favourable for the dispersion of pollutants, therefore, emissions from mobile pollution sources will be easily dispersed and will not have a significant negative impact on the environment.

Information on the underwater noise caused by the PEA

The main source of underwater noise during the development of the offshore wind farm is the attachment of foundation structures during the construction phase. The geological seabed conditions in the PEA area (relatively hard ground) and a short distance to the coast provide very good conditions for underwater sound to spread during winter period and it is relatively poor in summer.

In order to minimise the impact of underwater noise on marine animals, the developers are currently relying on the double thresholds set by the German Hydrographic Agency (BSH) to be complied with during pile driving. Underwater noise within 750 m of the pile driving is required not to exceed 160 dB_{SEL} (sound exposure) and 190 dB_{L_{p,k}} (sound pressure from zero to maximum). The modelling of the noise propagation from the driving of a single mono-pile has shown that, at a distance of 750 m from the pile driving, the noise level significantly exceeds the threshold values and reaches up to 170 dB, therefore, it is recommended that pile driving technologies that

generate high underwater noise should not be used or should be limited in winter and that appropriate mitigation measures be selected.

Information on the impact of the PEA on the seabed

The PEA area is divided into the shallower (28-36 m) north-eastern and the deeper (36-46 m) south-western zones. The northern part morphologically is the western part of the Klaipėda-Ventspils Plateau and the south-western part is the steadily deepening southward slope of the Gdansk basin. In the area of the proposed wind park, bottom sediment samples were collected for geochemical analyses in 10 survey stations. The analysis of the concentrations of potentially hazardous heavy metals and arsenic in the current seabed sediments in the proposed WT farm territory did not reveal any traces of significant pollution. Concentrations of the priority hazardous 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 threshold values, which proves the good environmental condition of the sea waters under study. No oil products (C10–C40) were found in seabed sediments of the PEA area.

The acoustic survey of the seabed surface was carried out during side scanning and a catalogue of acoustic reflections from objects on the seabed as well as a scheme of geological structures and the boundaries of distribution of the different types of sediment were drawn up. 858 objects have been selected to take into account during the next stages of project development – geoenvironmental and UXO survey, cleaning of cable routes from dangerous objects organised by the wind farm developer, before the future wind park developer begins the drilling or installation of foundations. Therefore, 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 adverse effects on cultural heritage sites are likely in the areas where remains of potential anthropogenic origin have been identified and additional surveys are necessary for identifying objects of potential anthropogenic origin in order to remove them or to carry out bottom destruction works near them (at a distance of up to 10 m). No reliable archaeological findings have been identified in the LEA area, therefore, additional archaeological research and/or protection measures for underwater cultural heritage objects are not required.

Taking into account the seabed structure, type and distribution of surface sediments and the formation of related valuable seabed habitats, it can be stated that the impact on the seabed is likely to be only local and relatively minor. 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. Damage to valuable seabed habitats is also possible if land disturbance is foreseen in the area during construction design.

The PEA area does not overlap with the distribution area of oil, sand or other valuable minerals, therefore, no negative impact on natural resources is expected either.

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 2-3 m deep, subject to the equipment used, and up to 3 m wide. 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 the impact of the PEA on the landscape

The proposed WTs will directly affect the area where they will be built and 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, the Curonian Spit and part of the coastline, in particular the western parts Palanga city, Kretinga district, Klaipėda district municipalities.

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

The Map of the Most Valuable Panoramic Viewpoints of the Lithuanian Landscape indicates the HP landscape area in the Old Town of Klaipėda, the landscape of open and semi-open spaces with a particularly

distinct and moderate vertical gradient in the Akmena Valley (9 viewpoints), and a further visually significant area in the Minija Valley, but their aesthetic values are not associated with marine panoramas (the direction of viewing has not been specified).

The PEA area (the nearest boundary) will be located between 35 km (Kopgalis) and 70 km (at the Ventė Cape headland) away from the 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 can be visible in good visibility conditions in Smiltynė, from the eastern shore of the Curonian Lagoon in Klaipėda City (taking into account 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 Republic of Lithuania Law 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 cumulative visual impact assessment, the central observation sites of Palanga beaches and the observation site of Juodkrantė beach, which is located in the highly protected landscape area of Lithuania, fall into the category of significant visual impact. In order to determine at what maximum WT height the visual impact on the above-mentioned observation sites would become insignificant, it has been identified that the visual impact category changes from significant to insignificant when total height of a WT is less than 280 m.

Information on the impact of the PEA on protected areas, biodiversity

The PEA area borders with the Klaipėda-Ventspils Plateau biosphere polygon and with the important bird and habitat protection areas of Natura 2000 – Klaipėda-Ventspils Plateau.

There is a potential impact on the protected species of birds due to disturbance and displacement from habitat with proper feeding grounds. Displacement and scaring effects are predicted for sea ducks which feed on benthos, such as Velvet Scoters and Long-tailed Ducks. The scaring effect for wintering birds is possible due to increase in intensity of ship movement during construction works or regular movement of service personnel by ships or helicopters during operation stage of the WF.

No direct impact on the reefs identified in the protected area is expected, however, the studies revealed that valuable reef habitats, which are also suitable for feeding of the protected species of birds, are also present in the PEA area under analysis. A significant physical loss of the seabed due to irreversible changes in the seabed substratum or morphology as well as the destructive effect on bottom biotopes during the construction, operation and dismantling phases of the wind farm are likely in the identified areas of circalittoral boulder sites and biogenic reefs.

The most valuable is the *Mytilus trossulus* - *Crustacea* community, which forms on the solid ground (boulders, rock bedding) that is common at the north-eastern border of the proposed area and is part of biogenic reef. According to Council Directive 92/43/EEC, the biogenic reef (1170) benthic habitat is important for EU countries for the protection of natural habitats and wild fauna and flora. 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 planning of the installation of the wind farm intends not to design WT foundations and cable routes in the area of high distribution of the community *Mytilus trossulus* - *Crustacea* (Figure 4.6.2.11 of the report).

Information on the impact of the PEA on fish

Three main commercial fish species predominate the PEA area: Baltic herring, Baltic cod, European flounder; also, a shorthorn sculpin seasonally distinguished by biomass can be attributed to the group. There is a potential noise impact on fish during pile driving into the seabed, therefore, the reduction of the noise intensity caused by impulse sources of noise is planned and acoustic deterrent measures are applied. After completion of the installation work, the fish will return to the nutrition area, 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 as fish at these stages of development are the most vulnerable. Turbidity can not only complicate the nutrition 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 and strength of currents. 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 wind farms is not planned, the report states that these negative effects will not be significant. Some studies show that, during cable installation, water turbidity can attract potential predators (Baltic cods and flounders) that take advantage of the conditions created by hunting juvenile stocks of planktophagous fish.

Part of the nutrition area of benthophages, such as Baltic flounder, Baltic cod or shorthorn sculpin will be destroyed during the installing WT foundations. However, given the relatively small areas of individual WT foundations and the large distance between individual WTs, the negative local effects on the nutrient base of benthophage fish will be insignificant. During operation, a positive impact on fish due to secondary habitats forming on the foundations of the WTs is expected.

Although cod have been found to be able to hear wind turbines operating up to 13 km away, like the European flounder, Baltic cod are expected to experience positive long-term effects due to the recovery of seabed integrity (without trawling).

The greatest impact on individual fish species can only occur during the installation of WTs 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 to noise. However, once the installation (or WT removal works) has been completed, the fish will return to the nutrition area, so only a short-term impact is expected. The avoidance reaction is observed only at a distance of a few metres from a 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 the impact of the PEA 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 stellata*), Great Crested Grebes (*Podiceps cristatus*) and other species can be found both in the coastal parts and in the open sea. Birds, which feed on benthos (diving sea ducks), are found in depths from 5 to 35 m. Their abundance above the habitats suitable for feeding is high. Pelagic birds, such as Divers and Razorbills, can dive to depths of up to 50-60 m, they regularly feed in the depth of 20 to 30 m, therefore, the feeding habitats are located further from the shore.

The studies undertaken show the highest density of wintering birds (Red-throated Divers, Long-tailed Ducks, Velvet Scoters, Razorbills) in the PEA area in December to March, therefore, it is important to avoid the disturbance of birds during the construction of WTs during these months (from the beginning of December to the end of March) and to apply mitigation measures during the operation later, if necessary. The highest distribution of Velvet Scoters and Long-tailed Ducks is observed in the Natura 2000 area east of the PEA where shallower waters prevail and where these birds find food more easily, as well as in the small part of the PEA area closest to the Natura 2000 territory.

The proposed wind park is likely to disturb and scare sea Long-tailed Ducks wintering in the Natura 2000 territory. As a consequence, a reduction of Long-tailed Ducks in the protected area may be observed as the ducks will move further away from the proposed wind farm. The distance that Long-tailed Ducks and Velvet Scoters avoid from the wind farm structures has not been specifically determined from literature sources, however, similar species have been observed to experience decline of up to 50% or more within 1 km of the wind farm. A smaller reduction in individual density is observed within 5 km of the wind farm. The planned wind farm borders the Natura 2000 territory, so it is likely that it would cause displacement from feeding territory and scaring effects to the species that are protected there. In order to reduce the potential negative impact of the wind farm and to preserve the important benthic biotopes for feeding and the protected bird assemblages of protected birds, it is recommended to move the proposed wind farm away from the Natura 2000 territory at least 1 km (if the part of the WTs closest to Natura 2000 are shutdown during the wintering period of the birds) or by 2 km (if no restrictions on WT operation are applied).

If the WT installation sites are moved 1 km away from the boundary of the protected area, the impact (scaring/displacement) on bird species protected in the Natura 2000 area may be recorded up to 1 km within the Natura 2000 IBPA. Birds will avoid using the area close to the proposed WTs, with a predicted reduction in their density of around 50% within 1 km of the WTs in the protected area. With the relocation of the WT installation sites at a 2 km distance of the boundary of the protected area, the displacement effect on bird species protected in the Natura 2000 area is expected to be minimal and the Natura 2000 IBPA will not be affected, i.e. birds should not avoid foraging within the protected area.

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 WTs, some of them show strong avoidance, others tend to ignore existing WTs 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 WTs operate: displacement from habitat is recorded more than 5 km from WTs. In the case under analysis, 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 as the feeding ground 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 respect.

The migration of other bird groups through the proposed wind farm is not intensive both in autumn and spring, therefore, no significant effects are expected on other wintering, breeding or migrating bird species.

At the coast close to the shoreline there is a very intense bat migration, however, when moving away from the shore, at around 5 to 7 km distance, it decreases considerably (more than 10 times) and only reaches 9.6% of what has been recorded over the sea close to the shore. No ultrasound recordings of bats were recorded in the spring within the PEA area. The probability that there will be an intensive migration of bats over the PEA territory is very doubtful and the proposed wind farm will not have an impact on bats.

Information on the impact of the PEA on marine mammals

During the warm season, mammals were observed in the PEA area together with bird surveys from a boat and from an aircraft during the cold season, as well as from marine mammal sound monitoring stations installed at sea. Only one grey seal was observed in the PEA area in spring, and all other seals were observed in other seasons in adjacent areas. During the winter season, 6 harbour porpoise visits were observed in the PEA.

During the construction phase, the most significant impact on marine mammals is the underwater noise generated during the installation of foundations. This impact may be particularly significant in winter, when natural conditions result in the highest dispersion of underwater noise. Where possible, foundation works should be planned to avoid driving piles or to apply appropriate mitigation measures during the winter season, when there is the highest probability of presence of harbour porpoises migrating after fish in the Lithuanian exclusive economic zone.

Information on the impact of the LEA on immovable cultural property

There are no registered immovable cultural properties in the PEA area. The nearest registered cultural property, the site of the L-14 shipwreck 38471 in the Baltic Sea, is about 24 km away. According to the charts of the Lithuanian Transport Safety Administration, there are several dozen sunken objects marked in the Lithuanian exclusive economic zone that have not been included in the Cultural Heritage Register. Most of the sunken objects are industrial ships, however, remains of wooden vessels of great scientific value have also been discovered. There have also been several valuable habitats of cultural underwater seascape with natural relics and tree remains found. One discovery site is marked nearby the PEA territory but does not fall within it.

Bottom surveys and acoustic data analysis were carried out in the PEA area and eight objects have been selected as potential tree remains (in some places, loose tree remains and the lower part of the trunk, i.e. stump). Beside the potential remains of tree trunks, 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 artefacts of prehistoric settlements have been found in the PEA area. Despite that small objects related to human activities have been identified at the seabed, no historic findings have been detected in the area under study.

At the stage of designing of the layout of WTs and connecting infrastructure, it is recommended, if possible, to take into consideration (leave undisturbed at the location of detection) the potential archeologic monuments (or remains thereof) to avoid their potential destruction and to preserve them for future studies.

Information on the impact of the PEA on public health

The residential and public areas located closest to the Baltic Sea are in Klaipėda city, Klaipėda district and Palanga city municipalities. The minimum distance to Palanga city municipality is ~29.5 km. The distance from the PEA site to the onshore residential, public and recreational areas is between 29.5 and 29.7 km. Physical pollution (noise, shadowing, infrasound, electromagnetic radiation) from the PEA that could affect public health is not expected, as there are no people living in the vicinity of the installation and operation solutions of the wind farm and other people, especially from the most sensitive groups (e.g. children, the elderly and the sick, who are the most sensitive to increased pollution).

Information on the impact of the PEA on material valuables

The PEA area is outside the established international shipping routes, roadsteads, 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 is also not within the areas of existing and planned engineering infrastructure (pipelines or underwater cables).

Part of the PEA area is within the danger zone at sea, i.e., former minefields. It is possible to carry out economic activities in such territories, however, a prerequisite is to conduct seabed surveys in search of hazardous objects and, if necessary, to carry out decontamination of the hazardous objects before the implementation of technical design solutions.

The analysed territory of the offshore wind farm does not fall within the mapped protection zone for military radars and within the areas where construction restrictions should be imposed in accordance with national security requirements. The PEA area is approximately 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.

According to the classification of the International Council for the Exploration of the Sea, the Lithuanian maritime territory falls within statistical rectangles 41H10, 40H10, 40G9 and 39H10 of the 26th ICES fishing area, where fish are caught by trawling and set nets. The PEA area falls within fishing rectangles 41H10 and 40H10, where the areas used for fishing with trawl are located. Some economic impact of PEA implementation on the fishing industry is expected due to the emerging fishing restrictions in the wind farm area – after WT installation, 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 area analysed occupies the fishing areas on the high seas that have not been 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 fishermen 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 fishermen claim compensation for losses related to the loss of fishing grounds, the procedure for compensation 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.

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 operation of the wind farm, fish are attracted from adjacent areas to the foundations of WTs, eventually there is a possibility of increase of fish productivity in the wind farm itself if the farm is large enough and fishing capacity is low. Wind farm locations usually create favourable conditions for the formation of fish nutrient base and spawning and increase biodiversity. This circumstance and the restriction of fishing in farm areas can contribute to the conservation and enhancement of fish stocks. A balanced approach to the conservation and enhancement of fish stocks as well as resulting constraints and compensation can considerably reduce the adverse effects for the fishing industry and the potential for conflicts between the fishing industry and wind energy.

Information on PEA risks due to emergency events and situations

During the construction and operation of the wind farm, potential emergency situations and their risks to people and the social environment are related to rotating blades, considering the possibility of their partial or complete blowing off, tower collapse, and the exposure of service personnel to electrical voltage. There is a risk of collision for aircraft, vessels moving near wind turbines or their farms at sea.

The likelihood of collisions between ships and the proposed WTs depends on the intensity of shipping. The navigation corridor is located 5.7 km (south) and 4.8 km (north) from the boundary of the PEA site. In order to minimise potential collisions between vessels and the wind farm or to avoid damage to cables, the developer imposes restrictions on vessel access to the wind park area and coordinates navigation within or adjacent to the wind farm.

Aircraft collisions with the high structures of the wind farm are rare or very rare. Flights over the wind farm will be performed by the Air Forces of the Lithuanian Armed Forces, the State Border Guard Service, as well as by other rescue aircraft. Organisations conducting flights will inform the operator of the wind farm about the flights; if necessary, the rotation of blades will be stopped during rescue operations.

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

Lubricating and transformer oils and greases, as well as cooling fluids are used in wind energy installations. Although these materials may contain hazardous components, none of them should be classified as hazardous to the aquatic environment. All hazardous chemicals will have to be used in accordance with the requirements set out in the safety data sheets during operations.

It is recommended that ALARP measures be applied to mitigate the risks. These include the use of good practice, best available techniques and safe materials, additional training of personnel, determination of a safety zone and its marking with buoys with radio navigational devices to inform passing ships, preparation of the Emergency Management Plan even if the facility is not included in the list of sites 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 be present in the cleared areas, periodic surveys of the seabed of the offshore wind farm territory.

Analysis of alternatives

The alternatives 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;
- Project implementation alternative I (technical): WT farm development, where WTs are installed in the entire area approved by Resolution No. 697 of the Government of the Republic of Lithuania using WT models with total height of up to 350 m (hereafter – Alternative I);
- Project implementation alternative II (balanced): WT farm development, where WT installation sites are located 1 km further away from the border of the Klaipėda-Ventspils Plateau biosphere polygon using up to 350 m high WT models (hereafter – Alternative II);
- Project implementation alternative III (environment-friendly): WT farm development, where WT installation sites are located 2 km further away from the border of the Klaipėda-Ventspils Plateau biosphere polygon using up to 350 m high WT models (hereafter – Alternative III).

The assessment of the alternatives in relation to the mitigation measures shows that:

- After applying all recommended mitigation measures (including temporary shutdown of the WTs and additional surveys of benthic communities), the most favourable alternatives would be Alternative II, where the WT installation would be carried out not closer than 1 km of the Natura 2000 IBPA boundary without infringing the habitats of valuable benthic communities, and Alternative III (i.e. WT installation is not planned within 2 km of the Natura 2000 IBPA boundary).
- Without additional surveys of benthic biotopes and without any shutdown of the WF part foreseen during the most sensitive wintering period for protected bird species, the most favourable PEA implementation alternative is Alternative III, i.e. no wind farm installation within 2 km of the Natura 2000 IBPA border.

6. Measures envisaged to prevent, reduce, offset negative impact on the environment or eliminate its effects. Description of the measures indicating at what stage of the proposed economic activity they will be envisaged and implemented (e.g. at the stage of issuance of the construction permit, permit for the exploitation of subsoil resources or cavities, integrated pollution prevention and control permit, pollution permit or any other permits referred to in legal acts, at the stage of operation, at the stage of decommissioning).

6.1. Before the start of operations:

6.1.1. The part of the PEA territory where significant adverse impact is probable borders with the Natura 2000 IHPA biogenic reef (1170) 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, WT and/or TS foundations cannot be built and cable routes cannot be laid in the areas of valuable reefs. WT and/or TS foundations and cable routes will not be installed in the area of high distribution of *Mytilus trossulus-Crustacea* as marked in Figure 4.6.2.11 of the Report.

6.1.2. For the wind farm not to have a significant negative impact on the Natura 2000 territory, to protect the benthic habitats important for bird feeding and to mitigate the scaring away effects of wintering birds, the WT installation sites shall be moved at 2 km distance from the boundary of the protected area – the Natura 2000 IBPA *Klaipėda-Ventspils Plateau* (the moving of the boarder away does not apply to the bottom infrastructure (cables connecting the WTs and TS) and to the foundation structure for the TS), which will effectively minimise the displacement effects for wintering birds on all the protected bird species.

6.1.3. The developer shall carry surveys on unexploded ordnance (UXO) before starting detailed design work of WTs and cable routes, which will allow for assessing the location and threats of the historical cable of unidentified origin.

6.1.4. It is recommended not to plan cable routes in areas of large-amplitude bottom relief changes (steep slopes and deep ravines) or, in order to avoid potential damage to the power transmission system, to provide partial terrain levelling procedures in the places of cable routes.

6.1.5. To minimise the potential impact on the landscape: the wind turbines shall be painted in light colours that create minimal colour contrast, avoiding white, which would create greater contrast; a special paint formulation shall be used to avoid the glossiness of the structures and the formation of reflections; assessment shall be made of the possibility of orienting the wind farm perpendicular to the coast (parallel to the axis of the Palanga Bridge) and/or arranging individual wind turbines in rows (arcs); considering the fact that lower WTs (up to 280 m high) will have a relatively 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 will ensure that the WT farm will be able to generate the optimal amount of electricity necessary to ensure the strategic objectives of Lithuania's energy independence.

6.1.6. In the designing phase, identified objects of potentially anthropogenic origin should be avoided or bottom dredging works in the construction site should be provided in accordance with all work safety principles. When planning the installation of WT and TS foundations and cable routes, to “isolate” identified potentially anthropogenic objects, i.e. do not plan any seabed excavation (foundation and cable installation) in the areas where they have been found (including the 10 m diameter safety zone). Once the archaeological value of the identified objects has been established or refuted by studies and the origin of the hazardous obstacles has been clarified, the entire territory may be used for the construction of wind turbines.

6.2. In the operational phase:

6.2.1. The waste generated during the wind farm construction and operation will be delivered by vessels to servicing ports and handed over to waste managers.

6.2.2. Current regime monitoring will be carried out in the vicinity of the wind farm during the WT installation and after the completion of construction works.

6.2.3. Pollutant analyses will be carried out before construction works (background concentrations), during construction works (foundation installation, cable laying) and after the completion of construction works (3 to 6 months after completion).

6.2.4. To reduce or avoid the spillage of heavy metals into the water, corrosion control methods with increased eco-friendly parameters will be used during the wind farm construction and operation.

6.2.5. In order to minimise the impact on marine mammals and fish, noise reduction measures and acoustic deterrents must be put in place before the beginning of construction works (e.g. piling):

6.2.5.1. The use of underwater noise suppression systems to reduce pile-driving noise, e.g. air 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%. When bubble curtains are used in the PEA area, it is recommended that they be installed within a 50 m radius around the pile driving area, ensuring the air supply of at least 1 m³/min. Another possible measure is pile “sleeves” made of various materials or a steel pipe, which are placed on the pile and keep the pile out of 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, which are still under development – the Noise Mitigation System (NMS), which also suppresses low-frequency noise.

6.2.5.2. Acoustic deterrence of animals before pile driving: (1) the use of additional acoustic deterrents to deter marine mammals away from the pile-driving location; (2) a soft start of pile driving, i.e. during the pile driving, the energy of the impact is amplified gradually, thus simultaneously deterring animals without causing sudden pulses of noise that are extremely harmful and can cause injury.

6.2.5.3. In order to assess/monitor the effectiveness of the noise mitigation measures applied during the installation of WT foundations, the developer is required to carry out underwater noise monitoring during the installation of foundations. The purpose of the monitoring is to record whether the noise generated does not exceed the limit values set (i.e. within 750 m from the pile driving location, it should not exceed 160 dBSEL and 190 dB_{Lp,pk}). If it is found that the noise exceeds the set limits, the works must be stopped and other/additional noise mitigation measures must be applied.

6.2.5.4. Where possible, foundation works should be planned to avoid pile driving during the winter season, when there is the highest probability of presence of harbour porpoises migrating after fish in the Lithuanian exclusive economic zone.

6.2.6. In order to minimise potential impact on marine mammals, it is recommended, wherever possible, to use only common navigation routes and designated navigation corridors for navigation to and from the PEA area during the construction and maintenance of the wind farm. This would allow for the concentration of noise in a given area and would reduce potential 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 the areas of damaged soil, environmentally friendly technologies must be used during the excavation of cable trenches, allowing to minimise the impact on the seabed and to use the original soil excavated from these trenches as much as possible for backfilling the trenches (if construction technologies allow this).

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

6.2.9. During the construction phase, if the works are carried out during the bird wintering season (early

December to late March), to minimise the impact on wintering birds in the protected areas, the routes of the wind farm installation vessels should be chosen to avoid the Natura 2000 IBPA. The priority period for the installation of WT foundation piles is April–November when there is no impact on wintering birds.

6.2.10. Monitoring of birds and bats will be carried out during construction and 3 years after the construction. Thereafter, monitoring for two years will be repeated every 5 years. In the event that significant adverse impact on birds or bats is identified that was not foreseen during the EIA, additional mitigation measures should be chosen according to the impact. Where such significant impact is identified, the WTs that cause such impact shall be shut down during the period of impact until the mitigation measures agreed with the Environmental Protection Agency and with the State Service for Protected Areas under the Ministry of Environment have been implemented. Where necessary to apply measures, such 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 the WTs to be shut shall be verified according to monitoring results. After the introduction of additional measures, their effectiveness shall be monitored until it is satisfied that the additional measures applied are effective for avoiding significant impact. If the impact remains significant with all mitigation measures tried, the WTs may not be operated during the period when they can have significant effects on biodiversity. 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 (based on multi-year survey data collected as part of the national environmental monitoring programme).

6.3. In the decommissioning phase:

6.3.1. After the wind farm dismantling, most of the wind farm components will be handed over for reuse and the remaining waste will be recycled or disposed of in designated disposal sites in accordance with the requirements of legal acts of the Republic of Lithuania. A plan for the management of the waste generated will be submitted during the preparation of the wind farm decommissioning project.

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 wind farm operation and the monitoring of fish and seabed communities, having ascertained that the formed secondary habitats have had a significant positive impact, the application of compensatory measures should be applied during the wind farm dismantling stage: such measures would include the installation of artificial habitats in an analogous area, using boulders of 0.1–1 m near the WTs being dismantled. Habitats should be installed at a distance of not more than 50 m from the WTs being dismantled and not later than within two years after the dismantling date of the WTs. The shape of habitats is not fixed and should be selected considering the potential intensity and direction of bottom trawling.

6.3.3. Taking into account the historical importance of the PEA area for fishing and considering that the wind farm operation is temporary, the impact of the wind farm dismantling on the environment and on fishing opportunities will be assessed after the end of wind farm operation, taking into account the likelihood of fishing gear being lost (e.g. by snagging on structures left after dismantling) in the former wind farm area, which could become a secondary source of pollution at sea.

7. Brief description of environmental (monitoring) measures, if applicable.

The application of observation (monitoring) measures is appropriate in the implementation of the PEA. Monitoring details are provided in Chapter 6 of the Report.

It is expected that the monitoring programme 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 commencement of the construction of the offshore wind farm and will have to include monitoring of the impacts of the WT and TS construction and cable laying on the seabed, water quality and wildlife. The guidelines of the Baltic Marine Environment Protection Commission – Helsinki Commission (HELCOM) must be taken into account in the drawing up of the monitoring programme and in the selection of monitoring methods.

Underwater noise monitoring. Underwater noise monitoring must be carried out during the construction phase when the WT foundations are installed. The purpose of the monitoring is to monitor whether the noise generated does not exceed the limit values (described in section 4.3.4 of the Report and specified in paragraph 6.2.5.3 of the Decision) in order to control negative impact on marine organisms (sea mammals, fish) as well as to assess / monitor the effectiveness of the noise reduction measures applied.

Water monitoring. In order to properly select the technological solutions for the development of the wind farm and to assess the impact of the planned WT structures on the hydrodynamic environment, it is appropriate to provide that measurements of currents should be carried out in the vicinity of the proposed wind farm before the start of construction works (for the assessment of background condition) and after the completion of the

construction works.

During the installation of the wind farm, a local and temporary impact on water quality as a result of additional water pollution with chemicals (heavy metals, oil hydrocarbons, polyaromatic hydrocarbons) is likely due to intensified shipping. In order to assess whether the pollutant concentration corresponds with the values of the good environmental condition, it is reasonable to include pollutant studies into the environmental monitoring programme and schedule them (background concentration) prior to construction works, during construction (installation of foundations, cable laying) and after the construction has been completed (3 to 6 months after the completion).

Zoobenthos monitoring. During the wind farm construction, the monitoring of zoobenthos habitats should be carried out immediately after the WT installation in order to assess the impact of the construction on different habitats (infauna, epibenthos).

Seabed monitoring. Detailed seabed investigations will be carried out prior to the wind farm construction in the specific cable laying routes and in the foundation installation sites. During operations, the developer will carry out scheduled monitoring of foundation structures 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 anchoring, trawling, etc.), therefore, no other additional seabed observation measures are required. However, seabed investigations (in addition to other environmental components) must be carried out before and after the wind farm dismantling works. It is recommended to carry out full seabed morphology and side-scan sonar investigations at installed / dismantled cable routes and separately at the places of each foundation structure.

During the installation of the wind farm, a local and temporary impact on bottom sediment quality as a result of additional accidental pollution with chemicals (heavy metals, oil hydrocarbons, polyaromatic hydrocarbons) is likely due to intensified shipping. In order to assess the potential impact of the wind 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 condition, after the completion of the wind farm construction works, it is reasonable to provide for scheduled (throughout the entire operation) testing for contaminants (at intervals of 6 to 12 months, or less frequently if test results do not show significant contamination) in the seabed sediments, as well as immediately after wind farm dismantling works. Sediment sampling points should be foreseen in the vicinity of installed/dismantled cable routes and at the location of each foundation structure.

Seabird and bat monitoring. The monitoring of seabirds and bats should be carried out for 2 full years prior to the start of the wind farm construction (including during the preparation of the EIA documents), during the construction and 3 years after the start of the wind farm operation. Thereafter, for the entire operation period of the wind farm, full 2-year studies should be carried out at least every 5 years from the last observation, according to the pre-construction scope of the studies. The objectives of the studies are to determine the species composition and abundance of migratory and passing, perching, feeding and flocking birds in the territory, assess the importance of the study area for these birds and to assess the potential impact of the wind farm.

Marine mammal monitoring. The following shall be monitored during different stages of the wind farm operation: seals and harbour porpoises in order to determine the occurrence and distribution of the different species and the potential species diversity of seals in the PEA and adjacent areas; the total and relative abundance of these mammals in the PEA area; the use of the habitats by seals and harbour porpoises in the PEA area and in the adjacent areas; the level of noise of anthropogenic origin in the PEA.

Fish monitoring. The following shall be monitored during different phases of the wind farm operations: total and relative abundance of different species, community structures, occurrence and distribution of fish species, diversity of species in the PEA and adjacent areas; distribution and condition of benthic habitats in the PEA area, including the formation of secondary habitats potentially important for fish nutrition on WT foundations; noise levels in the PEA area; concentration of pollutants in the fish found in the PEA area; monitoring of invasive species in the areas of anticipated impact in the PEA.

8. Conclusions by the environmental impact assessment bodies (nature, date, letter No.).

8.1. By Letter No. (4.36E)-R2-1555 of 23 June 2023, the Mayor of Klaipėda City Municipality expressed approval for the report and for the PEA Alternatives II and III considered in the report.

8.2. By Letter No. (4.21 E) D3-2476 of 20 July 2023, the Administration of Palanga City Municipality expressed approval for the report with the following comment: in order to avoid significant visual impact on the landscape of Palanga city, which is a particularly important part of the recreational potential, approval is given for the construction of the wind farm with wind turbines with a total height of less than 280 metres.

8.3. By Letter No. T17-396 (5.1.23 Mr) of 15 June 2023, the Mayor of Klaipėda District Municipality expressed approval for the report and for the PEA.

8.4. By Letter No. V15-1887 of 13 June 2023, the Mayor of Neringa Municipality expressed approval for the report and for the PEA.

8.5. By Letter No. (3-11 14.3.3 Mr)2-28730 of 14 June 2023, The Department of Klaipėda of the National Public Health Centre under the Ministry of Health expressed approval for the report and for the PEA.

8.6. By Letter No. 9.4-3-1847 /2023(11.3.135 E) of 7 June 2023, Klaipėda Fire and Rescue Board of the Fire and Rescue Department under the Ministry of the Interior expressed approval for the report and for the PEA.

8.7. By Letter No. (9.38-Kl E)2Kl-976 of 27 September 2023, Klaipėda Territorial Division of the Department of Cultural Heritage under the Ministry of Culture stated that it had no comments on the report and no objections to the PEA.

8.8. By Letter No. V3-1564 of 24 August 2023, the State Service for Protected Territories under the Ministry of Environment (hereinafter – the Service) expressed approval for the quality of the report and had no objections to the implementation of the PEA Alternative III (environmentally friendly) which is most favourable for the Natura 2000 territories and national protected areas and protected species – the development of the wind farm where the WT installation sites are located 2 km further away from the border of the Klaipėda-Ventspils Plateau Biosphere Polygon (Natura 2000 IBPA and IHPA Klaipėda-Ventspils Plateau) and the WT models of up to 350 m high are used. The Service also pointed out that it shall be necessary to comply with the impact avoidance, minimisation and offsetting measures and monitoring measures specified in the report during the implementation of the PEA. The programme of monitoring measures must be agreed with the Service.

8.9. By Letter No. UD-10.1.5E-1398 of 31 July 2023, AB Klaipėda State Seaport Authority indicated that it had no comments on the report and expressed its approval of the PEA during the meeting.

8.10. By Letter No. (5)-1-7-4350 of 25 September 2023, The Lithuanian Geological Survey under the Ministry of Environment indicated its approval of the quality of the report and stated that it had no objection to the implementation the PEA Alternative III.

8.11. By Letter No. 2E/2023-446 of 19 June 2023, the Fisheries Service under the Ministry of Agriculture of the Republic of Lithuania indicated that it has no comments for the report and no observations concerning the environmental impact of the PEA.

9. Information and participation of the public (where, when and how the public has been informed and participated, summary the proposals made by the public concerned by topics).

Information on the public information on the environmental impact assessment report was published on the website of the Environmental Protection Agency (17 March 2023), the notice board and website of Palanga City Municipality (17 March 2023), the notice board of the Eldership of Šventoji of Palanga City Municipality (17 March 2023), the notice board and website of the Administration of Klaipėda District Municipality (16 March 2023), the website of the Administration of Klaipėda City Municipality (16 March 2023), the notice board and website of the Administration of Neringa Municipality (20 March 2023), the newspaper of Palanga city "Palangos tiltas" (17 March 2023), the daily of Klaipėda "Vakarų ekspresas" (17 March 2023), and on the website of the drafter of the environmental impact assessment documents – VšĮ Coastal Research and Planning Institute at <http://corpi.lt/> (2023-03-17).

A public meeting concerning the environmental impact assessment report was held on 19 April 2023 at 16:00 at the Palanga Resort Museum (villa Anapilis) at the address: Birutės al. 34A, Palanga and by means of video streaming. The public meeting was attended, both live and remotely, by representatives of the drafter of the EIA documents, representatives of the PEA organiser, representatives of the Administration of Palanga City Municipality, residents of Palanga, representatives from the press, participants who joined the meeting remotely, and other interested persons. In total, 120 persons participated in the meeting (38 in person and 82 remotely online).

During the public meeting, the public asked questions about the impact of the PEA on birds, animals, about noise, the size of the foundations of wind turbines, the visual impact of the PEA, the prohibition of fishing in the PEA area, the economic assessment of the PEA, solutions for the connection to the onshore electricity networks, and all the questions were answered during the public meeting.

Two letters from the public (by e-mail) with comments and proposals for the EIA report were received before the start of the public meeting. On 14 April 2023, a reasoned proposal was received from Vestas Central Europe A/S to exclude recommendations on the use of WT models with direct-drive gearbox from the report. On 18 April 2023, comments on the report were received from UAB Ignitis Renewables concerning the PEA impact on material valuables, seabed, subsoil resources, marine mammals, the materials to be used, climatic conditions, potential impact of underwater noise during WT installation, the wind farm dismantling phase, impact mitigation measures. On 28 July 2023, proposals for the report were received from the Lithuanian Fishery Producers

Association concerning the potential impact on fish and fishery and a request to oblige the developers and operators of the wind park to provide compensation to the fisheries sector.

The proposals of the public concerned for the report were registered and considered in accordance with the requirements of paragraphs 78, 80 and 81 of the Description of Procedure for the Environmental Impact Assessment of Proposed Economic Activity¹ (hereinafter – the Procedure). The registration form and the assessment of proposals of the public concerned are presented in Annex 6 to the Report. The proposals have been taken into account, partially taken into account or rejected with reasoning provided.

The Environmental Protection Agency made the Environmental Impact Assessment Report available to the public on its website aaa.lrv.lt on 29 August 2023. The Environmental Protection Agency did not receive any proposals from the interested public on the Environmental Impact Assessment Report and the environmental impact of the PEA within the set time limit.

On 21 September 2023, in accordance with paragraph 43 of the Description of Procedure, the Agency prepared Meeting Minutes No. A7-19 on the Environmental Impact Assessment Report of the economic activity planned by the Ministry of Energy – installation and operation of the offshore wind farm, which was published on the Agency's website together with the adopted decision.

10. Cross-border consultations (where, when and how cross-border consultations took place, nature of proposals received).

The distance from the PEA area to the Exclusive Economic Zone of Latvia is approximately 2.8 km, to the Exclusive Economic Zone of Sweden is approximately 77 km and to the Exclusive Economic Zone of the Russian Federation is approximately 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 – the Espoo Convention), notified Denmark, Estonia, Latvia, Poland, Poland, Finland, Sweden and Germany about the PEA during the preparation phase of the EIA programme. The notification was accompanied by a summary of the EIA programme.

Replies from notified foreign countries were received between January and February 2022. The wish to participate in the transboundary environmental impact assessment procedures was expressed by Denmark, Latvia, Poland, Sweden and Finland. Estonia informed that it would not participate in the transboundary environmental impact assessment procedures, however, submitted proposals and expressed a wish to receive the report, indicating that such an exchange of information and documents was important for the assessment of the overall environmental impact of WF projects developed in the Baltic Sea. Germany did not reply to the notification.

On 5 April 2023, the Ministry of Environment submitted the report and its summary to Denmark, Latvia, Poland, Sweden and Finland. For Estonia, the documents have been made available for information. On 18 April 2023, a public presentation of the report for the public of foreign countries was organised. In view of the request for a public presentation by Latvia and the interest expressed by Poland, the presentation took place in English with interpretation into Latvian and Polish. After the meeting, the video recordings of the presentation, the report and the minutes of the presentation were made available to Poland and Latvia.

Comments from all the parties to the transboundary environmental impact assessment were received between May and June 2023.

Denmark submitted its opinion and proposals concerning the potential damage to marine mammals and birds. Latvia submitted an opinion and proposals concerning the impact on fish and birds, on the colour choice of wind turbines. Poland submitted an opinion and proposals concerning the impact on birds and marine mammals, the cumulative impact of the wind farms proposed during the PEA and other planned and existing wind farms in the Baltic Sea on the migration of birds and mammals at sea, the impact on protected benthic habitats, the use of bottom trawls, the increase in the quantity of fish catches, the choice of the foundation technology, and the impact on the Polish Natura 2000 IBPA. Sweden submitted an opinion and proposals concerning underwater noise and vibration, electromagnetic fields, current shifts, the cumulative impact of the wind farms proposed during the PEA and other planned and existing wind farms in the Baltic Sea, maritime traffic routes and shipping conditions, the location of the wind farm, and the impact on fishery and fish stocks. Finland submitted an opinion and proposals concerning the assessment of ocean and atmospheric fluxes, the cumulative impact of the wind farms proposed during the PEA and other planned and existing wind farms in the Baltic Sea, the effects of a secondary reduction in atmospheric wind speed on ocean mixing.

¹ Approved by Order No. D1-885 of 31 October 2017 of the Minister of Environment of the Republic of Lithuania "On the Approval of the Description of Procedure for the Environmental Impact Assessment of Proposed Economic Activity" (consolidated version 1 August 2021 – 30 November 2021).

The comments and proposals made concerning the report by the countries involved in the transboundary environmental impact assessment procedures (Denmark, Latvia, Poland, Sweden and Finland) were studied, assessed and, to the extent possible, taken into account by the drafter of the EIA documents.

On 20 July 2023, the Ministry of Environment sent its replies to the comments and proposals. In August-September 2023, replies were received from the foreign countries (Denmark, Latvia, Poland, Finland and Sweden) that participated in the consultations on the transboundary environmental impact assessment, which informed that the drafters of the documents had properly taken their comments and proposals into account and that Lithuania complied with the obligations set out the Espoo Convention.

The transboundary environmental impact assessment documents have been published on the website of the Ministry of Environment².

11. Conditions for the implementation of the proposed economic activity related to the completed environmental impact assessment:

11.1. The client of the PEA must, at its own expense, implement and carry out the measures specified in the report and in paragraph 6 of this Decision in order to avoid, reduce, offset or eliminate negative environmental impacts as well as comply with the EIA conditions for the PEA implementation as specified in paragraph 11 of the Decision.

11.2. The boundary of the PEA territory has been planned to be adjacent to the border of the Natura 2000 IBPA where Velvet Scoters, Long-tailed Ducks and Razorbills are protected. These species are sensitive to disturbance by the wind farm operation and will potentially be forced to avoid the part of the protected area closest to the wind farm. Habitat displacement and scaring away effects are expected, therefore, there is a high probability of reduction in the density of protected bird species in the Natura 2000 area, i.e. birds that use the area proposed for wind farm or the adjacent protected area for feeding will be forced to move away and find other foraging areas. Displacement and scaring effects are predicted for sea ducks which feed on benthos, such as Velvet Scoters and Long-tailed Ducks. In order to reduce the potential negative impact of the wind farm and to preserve the important benthic biotopes for feeding and the protected bird assemblages of protected birds, the proposed WTs must to moved away from the Natura 2000 area by 2 km.

11.3. If the impact on biodiversity remains significant after the implementation of all additional mitigation measures, the WTs may not be operated during the period when they can have significant impact on biodiversity. Similarly, if significant impact is identified, WTs may not be operated until the proposed mitigation measures have been implemented.

11.4. Monitoring should be carried out in accordance with the environmental monitoring programme agreed with the Environmental Protection Agency and with the Service.

11.5. Considering the results of the transboundary consultations and the letters from Latvia and Poland requesting information on the environmental monitoring carried out during the operation, environmental monitoring should be carried out and an annual summary of the environmental monitoring report should be submitted to the Ministry of Environment in English.

11.6. The developer of economic activity has to assess all options for choosing wind turbine models that are as low as possible (up to 280 m), so that the visual impact is not significant, while ensuring that the wind farm generates the optimal amount of electricity to ensure the strategic goals of energy independence of Lithuania.

11.7. If, during the operations, it becomes apparent that the environmental impact is higher than the indicators specified in the report or laid down in the legal acts, the operator will have to immediately apply additional measures to reduce the environmental impact or to reduce the scope of the activity/discontinue the activity.

12. Reasons for the decision on the environmental impact of the proposed economic activity:

12.1. The EIA bodies that have considered the EIA report and provided conclusions: Administrations of the municipalities Klaipėda City, Palanga City, Klaipėda District, Neringa, territorial unit of the National Public Health Centre under the Ministry of Health, territorial unit of the Department of Cultural Heritage under the Ministry of Culture, territorial unit of the Fire and Rescue Department under the Ministry of the Interior, the Lithuanian Geological Survey under the Ministry of Environment, the State Service for Protected Territories under the Ministry of Environment, AB Klaipėda State Seaport Authority and the Fisheries Service under the Ministry of Agriculture of the Republic of Lithuania have submitted positive conclusions on the Environmental Impact

² <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-installed-capacity-in-the-lithuanian-marine-territory-of-the-baltic-sea-started-at-december-2021/>

Assessment Report and the PEA environmental impact.

12.2. The territory borders, however, does not fall within the designated national protected areas or the European Network Natura 2000 bird and habitat protection areas. The EIA has identified potential significant impact on protected bird species in the adjacent protected areas – the Klaipėda-Ventspils Plateau Biosphere Polygon, the Natura 2000 IBPA Klaipėda-Ventspils Plateau – due to scaring away and displacement from feeding grounds, which require mitigation measures. With the application of one of the most effective measures for the protection of wintering protected bird species, i.e. the moving away of the TW installation sites not less than 2 km from the north-western boundary of the Natura 2000 site, no significant impact on protected areas, including Natura 2000, is expected.

12.3. The PEA territory is within the priority area marked in the solutions of the Comprehensive Plan of the Territory of the Republic of Lithuania for the development of renewable energy resources. Order No. 1-377 of the Minister of Energy of 18 November 2022 approved the Engineering Infrastructure Development Plan for the Territorial Sea of the Republic of Lithuania and/or the Exclusive Economic Zone of the Republic of Lithuania in the Baltic Sea for the Development of Renewable Energy for the PEA area. The PEA is in line with the solutions of the effective territorial planning documents.

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

12.5. Pursuant to the provisions stipulated in Article 49(18) of the Republic of Lithuania Law on Energy from Renewable Sources, the impact of the installation of 350 m high WT's at the distance of 350 m away from the coast and the important observation sites located therein on the landscape is considered to be insignificant. The visual impact analysis shows that the reduction of the WT's to the total height of 280 m has an impact only for the observation of central beaches of Palanga and for the beach observations of Juodkrantė – if WT's of 280 m are installed, the visual impact for them would also become insignificant.

12.6. The increase in turbidity in the water column of the proposed farm territory during the wind farm construction will only occur in the sites of installation of foundations and cable laying, therefore, its impact should be considered as local (seabed layer) and temporary (during installation only), with no significant long-term impact on hydro-chemical water parameters and consequences for the Baltic Sea water quality. The distance from the site of proposed works to the nearest recreational areas and beaches of the municipality of Palanga is approximately 29.5 km, therefore, significant impact on the coastal area of Palanga will be avoided during the installation and operation of the proposed wind farm.

12.7. The greatest impact on individual fish species can only occur during the installation of WT farms and during the removal works of structures. This impact on the fish community will be short-term and insignificant. Although some species with a large swim bladder, such as Baltic cod, may withdraw from the area because of their sensitivity to noise, once the installation (or WT removal) is over, the fish will return to their feeding area, therefore, only short-term negative impact is expected. The avoidance reaction is observed only at a distance of a few metres 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 cessation of trawling and the recovery of seabed integrity are expected to lead to an increase in both the condition and abundance of fish.

12.8. There are no archaeological / historical / cultural values registered in the Register of Cultural Valuables in the PEA area. However, remains of possibly sunken anthropogenic objects and old tree trunks, probably representing the historic coastline, have been identified in the PEA area, which may be important for mariner knowledge. For this reason, additional archaeological investigations of the identified objects will be carried out in the proposed wind farm construction area prior to the design of the TW foundations and cable laying routes, therefore, no negative impact on potential cultural valuables is expected.

12.9. The demarcated PEA area in the Baltic Sea is located at a considerable distance (29.5-33.7 km) from the shoreline and from the onshore environment of residential and public buildings and recreational areas, therefore, physical pollution (noise, shadowing, infrasound, electromagnetic radiation) from the PEA is not expected to have any effect on public health.

12.10. The waste generated during the PEA operation will be collected, sorted and transported in such a way that it does not have a negative impact on public health and the environment. The technological equipment and individual pieces of equipment dismantled during decommissioning will be transported to the storage or recycling site specified by the activity organiser or will be delivered to a waste collection company authorised to manage such waste.

12.11. According to the information provided in the report, with the impact mitigation measures set out in the report and in Section 6 of the Decision, as well as subject to the conditions set out in paragraph 11 of the

Decision, the implementation of the PEA will not cause significant negative impact on water, air, seabed, material valuables, immovable cultural property, protected areas, biodiversity, landscape and the interaction between these elements; no significant negative effects on public health due to biological, chemical and physical factors caused by the PEA; no significant negative effects on the environment and public health due to the risk of PEA emergency events and situations.

13. Nature of the decision on the environmental impact of the proposed economic activity (indicating whether the proposed economic activity complies/does not comply with the requirements of legal acts on environmental protection, public health, protection of immovable cultural heritage, fire safety and civil protection).

Having regard to the Environmental Impact Assessment Report, the assessment of the proposals made by the public concerned, on the basis of the conclusions made by the EIA bodies on the EIA report and the PEA impact on the environment, in the light of the reasons set out above and in accordance with Article 11(1)(2) of the EIA Law, the following decision is made: the PEA of the Ministry of Environment of the Republic of Lithuania – the installation and operation of the offshore wind farm in the marine territory of Lithuania – according to the project implementation Alternative III (wind farm development, where WT installation sites moved away by 2 km from the border of the Klaipėda-Ventspils Plateau Biosphere Polygon and WT models of to 350 m high are used), subject to the implementation of the measures and conditions set out in paragraphs 6 and 11 of the this Decision, **complies** with the requirements of legal acts on environmental protection, public health, protection of immovable cultural heritage, fire safety and civil protection.

The decision on the environmental impact of the PEA has been made on the basis of the submitted report, which has been published on the website of the Environmental Protection Agency at <https://aaa.lrv.lt/> under the link *Environmental Impact Assessment (EIA) > 2023 > 9. Information on the decisions taken on the environmental impact of the proposed economic activity in 2023* and is an integral part of this Decision.

In accordance with Article 11(10) of the EIA Law, this Decision shall be valid for 5 years from the date of its adoption and may be extended for a period not longer than 5 years.

14. Procedure for appealing against a decision on the environmental impact of proposed economic activity.

You have the right to appeal against this Decision to the Lithuanian Administrative Disputes Commission (Vilniaus g. 27, 01402 Vilnius) under the procedure set out by the Law on the Procedure for Pre-Trial Settlement of Administrative Disputes or to Vilnius Regional Administrative Court (Žygimantų g. 2, 01102 Vilnius) under the procedure laid down by the Law on Administrative Proceedings of the Republic of Lithuania within one month from the date of service of this Decision.

Director

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**LIST OF ADDRESSEES OF THE DECISION OF THE ENVIRONMENTAL PROTECTION
AGENCY CONCERNING THE ENVIRONMENTAL IMPACT OF THE INSTALLATION AND
OPERATION OF THE OFFSHORE WIND FARM IN LITHUANIA'S MARINE TERRITORY**

Administration of Klaipėda City Municipality

Administration of Palanga City Municipality

Administration of Klaipėda District Municipality

Administration of Neringa Municipality

National Public Health Centre under the Ministry of Health

Fire Protection 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

AB 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

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Environmental Protection Department under the Ministry of Environment

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