Baltic II&III Non-technical summary- combined summary

RE-PM735-00027

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Bałtyk II&III Non-technical summary – combined summary

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List of abbreviations

ECI, IP	Transmission infrastructure
CFG	Heavy gravity foundation
CLV	Cable Laying Vessel (CLV)
EEZ	Exclusive Economic Zone
EIA	Environmental impact assessment
EIA decision	Decision on the environmental conditions
EIA report	Report on the environmental impact of the planned project prepared in accordance with Article 66 of the Environmental Protection Act.
JCWP	Single body of surface water
JCWPd	Groundwater Body
Location permit or PSZW	Permission to erect or use artificial islands, structures and installations in Polish maritime areas
MFW	Offshore wind farm
NIS 2015	The most far-reaching scenario from the 2015 EIA Report, the scenario showing the most far-reaching impacts for individual environmental components
NTS	Non- technical summary
O&M, O&M Base	Operations and maintenance, Operations and maintenance base in Łeba
ONS	Onshore substation
PMŚ	State Environmental Monitoring
POM	Spatial development plan of internal sea waters, territorial sea and the exclusive economic zone in the scale 1:200 000
PSE	Polskie Sieci Elektroenergetyczne S.A (Transmission System Operator)
PTS	Permanent Threshold Shift, permanent shift of the hearing threshold
RDEP	Regional Director for Environmental Protection
RDSM	Marine Strategy Framework Directive
SCI	Main groundwater reservoir
TTS	Temporary Threshold Shift - temporarily shifts the threshold of audibility of sounds
u.o.o.ś	Act of 3 October 2008 on providing information on the environment and its protection, public participation in environmental protection and environmental impact assessments, Journal of Laws of 2023, item 1094, as amended.

1 Introduction

1.1 Introduction

This document - Non-technical summary (NTS) for the Projects: MFW Bałtyk II and MFW Bałtyk III has been prepared based on the environmental impact reports prepared in 2015 - 2023 and based on the environmental decisions (EIA decisions) issued for each component of the Projects. Obtaining an EIA decision enables the submission of applications for building permits. Regarding the offshore part, all construction permits have already been obtained. Regarding the onshore part of the Projects - all applications for construction permits for the connection infrastructure have been submitted in March - April 2024.

The key information on technical issues presented in this Non-Technical Summary (NTS) has been updated to reflect the current state of knowledge on the preparation of the Projects.

In 2018, Equinor and Polenergia began cooperation on the construction of two offshore wind farms (MFWs), located approximately 22 km and 37 km from the coast respectively, in the Polish Exclusive Economic Zone (EEZ). The connection infrastructure, linking the two wind farms to the substation in Wierzbięcin (point of interconnection into the Polish Power Grid), runs through the EEZ, Polish territorial waters and then crosses the coastal zone about 3 km west of the port of Ustka. The onshore part of the Projects is located in the administrative areas of the municipal and rural communes of Ustka, Redzikowo (formerly the Słupsk municipality) in the Pomorskie voivodeship. The operation and maintenance base (O&M base – associated facility) will be located in the Łeba municipality.

In order to implement the Projects, two Polish legal entities for each MFW were established for each project: the MFW Bałtyk II and MFW Bałtyk III, respectively, in which Equinor and Polenergia each hold a 50% stake. The total generating capacity of the two wind farms will be 1440 MW, which will allow electricity to be supplied to approximately two million households per year.

The offshore part of the Projects consists of wind turbines implemented as part of the offshore wind farms Bałtyk II and Bałtyk III and the transmission infrastructure (IP). Each wind farm with a capacity of up to 720 MW will consist of 50 wind turbines, one offshore substation and 100 km of submarine power and telecommunication cables. The offshore part of the IP consists of two independent electricity export systems from MFW Bałtyk II and MFW Bałtyk III, together with the necessary infrastructure for their implementation and operation.

The onshore components of the Projects concern the construction of the onshore part of the IP. The scope of this component includes the construction of 4 underground 220 kV cable lines, 2 onshore substations (ONS), two 440kV cable lines and the infrastructure required for the operation of connections and offshore wind farms.

The Projects will also include the construction of an operation and maintenance base in Łeba, which is an associated facility to the MFW Bałtyk II and MFW Bałtyk III projects, as it will be financed separately. The application for the issuance of the EIA decision for the base together with the project information sheet was submitted on 15 July 2024.

The area of the planned Projects is covered by the arrangements of the spatial development plan for Polish marine areas, which was adopted by the Regulation of the Council of Ministers of 14 April 2021[1] .

[1] *Spatial development plan for internal sea waters, territorial sea and exclusive economic zone (EEZ) of 14 April 2021. (Journal of Laws 2021, item 935).*

The Projects are in line with the assumptions of the updated Polish Energy Policy, which provides for the construction of offshore wind farms (MFW) in the Polish exclusive economic zone (EEZ) with a total capacity of 5.9 GW by 2030, and by 2040 to reach a capacity of approximately 11 GW. In this context, the implementation of the Projects makes a significant contribution to zero-emission power generation - the total generating capacity of the Bałtyk II and Bałtyk III MFWs is expected to be up to 1.4 GW.. The implementation of the Projects will also enable the reduction of 4.1 million tonnes of CO^2 emissions per year, which is in line with the environmental and climate objectives of both EU and Polish policy.

The development of offshore wind farms in the EEZ is divided into two phases. According to the Act on Promotion of Electricity Generation in Offshore Wind Farms, in the first phase of the system, support is granted through an administrative decision issued by the President of the Energy Regulatory Office. The first phase includes projects with planned investment start-up by 2030. There are 7 projects in total: Baltica 2, Baltica 3, Baltic Power, BC- Wind, FEW Baltic II and the MFW Bałtyk II and MFW Bałtyk III projects.

Currently, none of these projects have been implemented. They are at different stages of development. All Phase I support projects have environmental decisions[2] .

The MFW Bałtyk II and MFW Bałtyk III projects are among the first to be built. Their timetable calls for the start of construction of the O&M base at the end of this year and the start of offshore construction in Q1 2025. The first energy from the Projects is expected to flow into the electricity grid in 2027. The commercial phase of their operation is planned from 2028. The expected lifetime is 30 years.

1.2 Project classification and EIA procedure

MFW Bałtyk II and MFW Bałtyk III

The offshore wind farms MFW Bałtyk II and MFW Bałtyk III are classified as projects that are likely to have significant environmental impacts and therefore required obtaining environmental decisions following an Environmental Impact Assessment (EIA) procedure, which includes:

• Verification of the Environmental Impact Report (EIR),

• Obtaining the necessary opinions and agreements as required by law,

• Ensuring public participation in the process.

These environmental decisions for the planned offshore wind farms were issued by the Regional Director of Environmental Protection in Gdańsk (RDOŚ) after an EIA with public participation and after obtaining agreements from the Director of the Maritime Office in Gdynia and the Director of the Maritime Office in Słupsk, as well as the opinion of the State Border Sanitary Inspector in Gdynia.

The EIA during the issuance of the EIA Decisions for each of the planned offshore wind farms was based on the envelope concept, i.e., determining the project parameters generating the most extensive impacts on various environmental components (the so-called far-reaching scenario – NIS) and subjecting such a theoretical project shape to an impact assessment. This aimed to determine whether the planned project is permissible from an environmental standpoint and what conditions must be met to ensure that these impacts are not significantly negative.

[2] *Projects currently underway in Poland - Offshore Wind Energy - Gov.pl Portal (www.gov.pl)*

Following an environmental impact assessment, the RDOŚ imposed a number of measures on the investor to minimise and limit the impact of the project, the aim of which is to avoid, prevent and limit the negative impact of the planned projects on individual environmental components, including biodiversity to insignificant impacts. Environmental decisions have been issued:

- on 7 July 2016 for the project named "Construction of Polenergia Bałtyk Środkowy III offshore wind farm" (case number: RDOŚ-Gd-WOO.4211.12.2015.KP.22);
- on 27 March 2017 for the project named "Construction of Polenergia Bałtyk II offshore wind farm" (case number: RDOŚ-Gd-WOO.4211.26.2015.KSZ.20).

Due to the detailing of the design assumptions for both MFWs, the Investor has applied for an amendment to the environmental decision. According to Polish law[3] , a change of the EIA decision issued after the EIA procedure also requires an EIA procedure. The changes to the EIA decision were issued after further public participation and obtaining agreements and opinions of the co-operating authorities, which took place on the basis of the updated EIA reports. The conditions set out in the aforementioned EIA decisions provided a reference point for assessing the changes for the updated Projects. This assessment was aimed at verifying that the changes in the parameters of the Projects did not result in changes to the previous findings on environmental impacts and how these impacts were avoided, reduced or minimised or compensated for. As part of the EIA procedure carried out on the basis of the updated EIA reports, the 2015 NIS scenario was compared with the updated impacts. This verified that these impacts do not go beyond the scope of the previously carried out assessment. It was found that their territorial extent and scale had decreased compared to the original assumptions of the Projects. In connection with this, decisions were issued amending the EIA decisions:

- on 26 October 2021, the decision to amend the decision on environmental conditions for the project: "Construction of offshore wind farm Bałtyk II" (case sign: RDOŚ-Gd-WOO.420.3.2021.KSZ.14);
- on 8 November 2022, the decision to amend the decision on environmental conditions for the project: "Construction of offshore wind farms Baltic Central III" (case sign: RDOŚ-Gd-WOO.420.41.2022.AM.6).

The need to update the environmental impact assessment was due to, inter alia, the changed implementation environment of the Projects, updated knowledge of the marine environment and potential impacts, including cumulative impacts, associated with the construction and operation of the MWF. It was also necessary to include in the decisions issued the current technical and organisational assumptions of the Projects, which are at a more advanced stage of development. A number of requirements were imposed in the amended decisions to better protect the environment from the potential impacts of the planned farms.

Connection infrastructure for MFW Bałtyk II and MFW Bałtyk III (ECI)

Connection infrastructure is qualified as having a potentially significant impact on the environment[4] and also requires the issuing of a decision on environmental conditions, following a screening procedure, i.e. qualification for a environmental impact assessment. This qualification took place on the basis of the prepared project information sheet with the participation of the interacting authorities: State Border Sanitary Inspector in Gdynia, the Commander of the Military Center for Preventive Medicine in Gdynia, the Director of the Maritime Office in Gdynia and the Director of the National Water Management Authority Wody Polskie, Basin Area Management Authority in Koszalin.

[3] *the provisions of Article 155 of the Code of Administrative Procedure and the provision of Article 87 of the EIA Act, from which it follows that the same provisions apply to the amendment of the EIA as to its issuance, i.e. in this case an environmental impact assessment must be carried out during the amendment of the EIA*

[4] *§ 3 subsection 1 point 7, § 3 subsection 1 point 54 b, § 3 subsection 1 point 62 and § 3 subsection 1 point 88 of the Regulation of the Council of Ministers of 10 September 2019 on projects which may significantly affect the environment (Journal of Laws of 2019, item 1839 t.j., as amended).*

Following the screening procedure, the RDEP identified the need to carry out an environmental impact assessment for the proposed project and determined the scope of the EIA report in accordance with Article 66 of the EIA Act.

After submitting the Report with later additions, the RDEP applied to the Director of the Maritime Office in Gdynia, the Commander of the Military Center for Preventive Medicine in Gdynia and the State Border Sanitary Inspector in Gdynia for agreement on the conditions for the execution of the subject project.

Following an environmental impact assessment, the RDEP imposed a number of measures on the investor to minimise and limit the impact of the project, aimed at avoiding, preventing and limiting the negative impact of the planned projects on various components of the environment, including biodiversity to insignificant impacts. The decision on environmental conditions was issued on 29 November 2023 (case number: RDOŚ-Gd-WOO.420.40.2022.AM.32) and then supplemented by the supplementary provision of the RDEP of 14 December 2023 (case number: RDOŚ-Gd-WOO.420.40.2022.AM.35.).

O&M base

With regard to the O&M base in Łeba (associated facility) - an application for a decision on environmental conditions was submitted on 15 July 2024. This undertaking is qualified as having a potential impact on the environment and, depending on the results of the screening, a decision on environmental conditions will be issued for it without or after a environmental impact assessment.

None of the above projects required a cross-border procedure.

The EIA procedures carried out are in accordance with the EIA Directive, the Aarhus and Espoo Conventions and other EU regulations.

1.3 Findings of strategic and planning documents

1.3.1 EU and national strategy

The projects are part of the European Union's broader 2030 climate target, known as Fit for 55, which calls for a 55% reduction in greenhouse gas emissions by 2030 compared to 1990 levels and a move towards carbon neutrality by 2050. Offshore wind farms are one of the key tools to meet these targets.

In addition, these initiatives support the implementation of the REPowerEU programme, launched in May 2022. The REPowerEU programme is an EU tool to accelerate the green transition by increasing clean energy production and wind power generation capacity.

The Project area is covered by the spatial development plan for internal maritime waters, the territorial sea, and the exclusive economic zone (EEZ) on a scale of 1:200,000, adopted by the Council of Ministers on April 14, 2021 (Journal of Laws of 2021, item 935) (POM Plan). The Plan was adopted following an extensive consultation process conducted under the auspices of the Maritime Office in Gdynia. The necessity for establishing the POM Plan arises from the Water Law (Journal of Laws 2023.1478 consolidated text) and the Act on Sea Areas of the Republic of Poland and Maritime Administration (Journal of Laws of 2023, item 960 consolidated text, as amended). These legal acts transposed into Polish law the provisions of the Marine Strategy Framework Directive (OJ L 164/19 of 25.6.2008) and the Directive on Maritime Spatial Planning (OJ L 257/135 of 28.8.2014).

The strategic environmental assessment process for the POM Plan includes an analysis of the potential impacts of planned activities in these areas on the natural environment, considering public consultations and opinions from experts and administrative bodies. During the strategic environmental assessment, it was determined that the provisions of the plan project could impact the marine waters of Sweden, Denmark, and Germany. As a result, a transboundary procedure was carried out, which was completed in December 2021.

These projects were then assessed as part of the Marine Spatial Plan (POM) within the scope of the environmental impact forecast conducted in accordance with the requirements of Directive 2001/42/EC, which considered the broader potential cumulative impact of the project on the environment. National policy on renewable energy in Poland

Poland's Energy Policy 2040 (PEP2040) sets out the framework for Poland's energy transition. It indicates the strategic technological choices needed to create a low-carbon energy system. PEP2040 supports the implementation of the goals of the 2015 Paris Agreement, emphasising the need for a fair and solidarity-based transition.

On 29 March 2022, the Council of Ministers adopted the assumptions for the PEP2040 update, aiming to strengthen the country's energy security and independence. The offshore wind energy development strategy is one of the key specific objectives of the PEP2040 (objective 6). The document went through a public consultation process.

PEP2040 is based on three pillars: a just transition, zero-carbon energy systems and good air quality. Offshore wind energy is planned to account for the largest share of electricity generation from renewable energy sources. Offshore wind energy has been identified as one of the 'Strategic Projects' of PEP2040. As envisaged, the installed capacity of offshore wind farms is expected to reach 5.9 GW by 2030 and around 11 GW by 2040.

Work on the PEP2040 update is currently underway and has already begun and it is anticipated that new energy consumption forecasts will indicate the need for even more offshore wind capacity. The PEP2040 update is expected to be completed later in 2024 or early 2025.

PEP2040 underwent a strategic environmental assessment. This assessment includes an analysis of the potential environmental impacts resulting from the implementation of planned actions in the energy sector. The process takes into account public consultations and cooperation with experts and public administration bodies to identify and minimize negative environmental impacts while simultaneously supporting sustainable development and the country's energy security.

2 Description of the planned project

2.1 General characteristics of the planned project

2.1.1 Subject and scope of the project

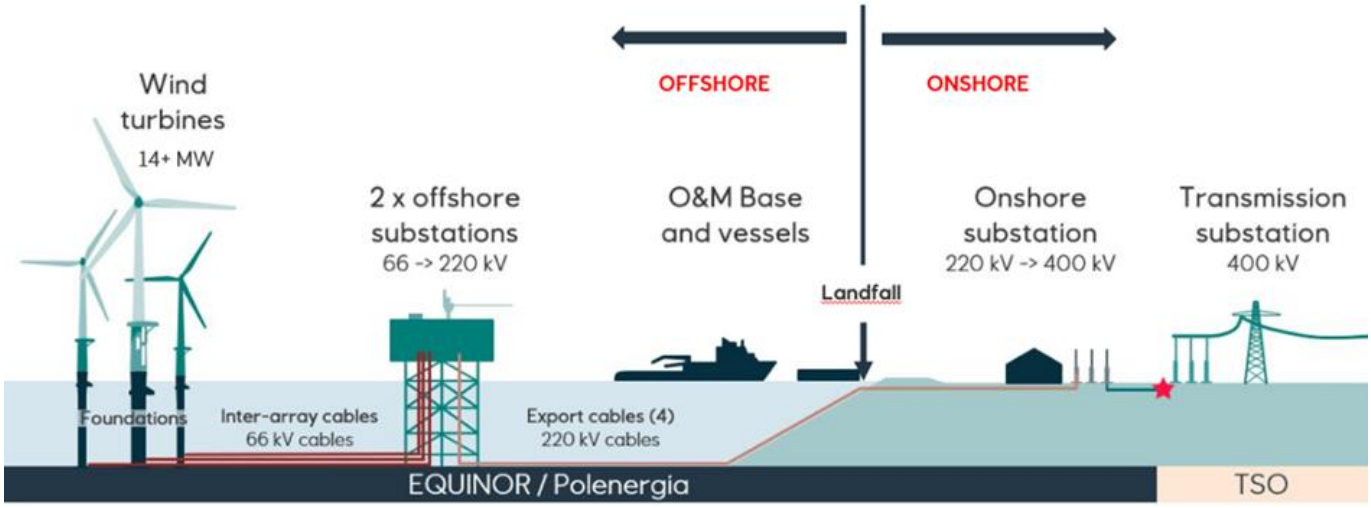
As indicated above, the generating capacity of the two wind farms is expected to be 1440 MW, which will allow the supply of electricity to approximately two million households. The projects include the implementation of:

1. two offshore wind farms with an installed capacity of 720 MW each (50 wind turbines each);
2. offshore connection infrastructure, including one offshore substation for each MFW and submarine cables;

3. one common trenchless crossing of the coastal zone with all cable lines - approximately 3 km west of the port of Ustka;
4. onshore connection infrastructure, including one onshore substation for each MFW and underground cables;
5. operation and maintenance base in Łeba (O&M base - associated facility).

A visualisation of the key elements of the Projects is included in the figure below.

Figure 1 Illustrative diagram of the Projects



Source: Equinor&Polenergia, 2024.

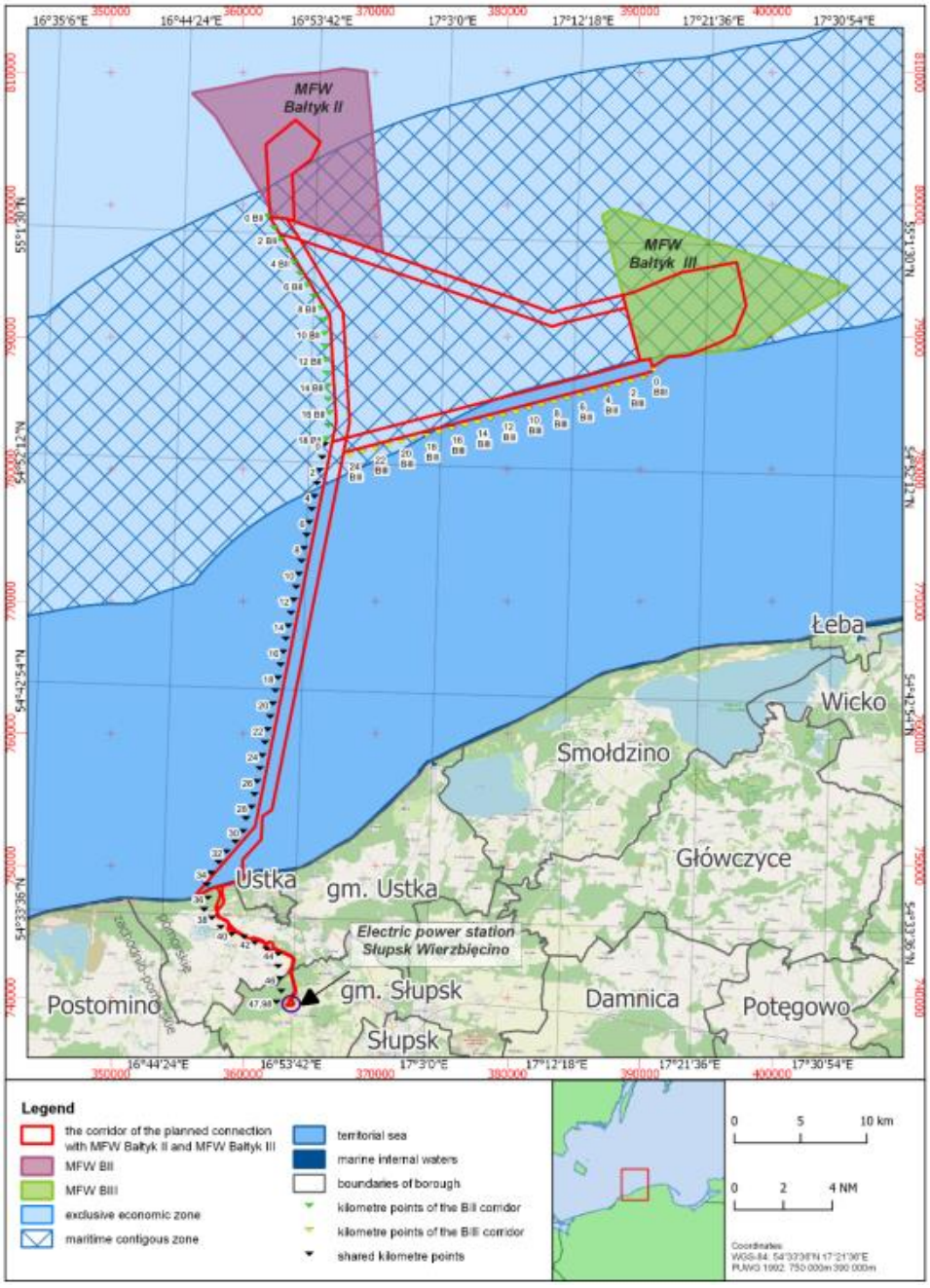
The projects are in line with the spatial development plan for the Polish maritime areas. Offshore Wind Farms will be implemented entirely within the area indicated in the permit for the erection and use of artificial islands, structures and devices.

2.1.2 Location and area of the project

The offshore wind farms will be located in the Baltic Sea, in the Polish exclusive economic zone (EEZ). The offshore wind farm Bałtyk II is located about 37 km and the offshore wind farm Bałtyk III about 22 km from the shore. The connection infrastructure, connecting both wind farms to the substation in Wierzbięcin (the point of connection to the Polish Power Grid), runs through the Exclusive Economic Zone, territorial sea, internal sea waters and then crosses the coastal zone about 3 km west of the port of Ustka. The land components of the Projects are located in the administrative areas of the municipal and rural communes of Ustka, Redzikowo (formerly the Słupsk municipality) in the Pomorskie voivodeship.

The operation and maintenance base, together with a control room for remote control of offshore wind farms, will be located in the port of Łeba.

Figure 2 Location of MFW Bałtyk II and MFW Bałtyk III offshore wind farms and connection infrastructure.



Source: EIA Report, 2023.

A brief overview of the offshore and onshore components of the Projects is provided in the two tables below.

Table 1 Offshore Components of the Projects

Offshore **component**	**Characteristic**s
Offshore wind farms	**Bałtyk II MFW -** will be located in the Polish EEZ about 37 km north of the coastline, at the level of Smołdzino (Pomeranian Voivodeship): • 720 MW, 50 wind turbines • 1 internal offshore substation • up to 200 km of submarine energy and telecommunications cables [1] • total area about 122 km [2] **Bałtyk III MFW -** will be located in the Polish EEZ, approximately 22 km north of the coastline, at the level of the Łeba commune (Pomeranian voivodeship): • 720 MW, 50 wind turbines • 1 internal offshore substation • up to 200 km of submarine energy and telecommunications cables [1] • total area about 117 km [2]
Offshore part of the connection infrastructure (ECI)	**Two independent electricity export systems** from the offshore wind farms MFW Bałtyk II and MFW Bałtyk III, together with the necessary infrastructure for their implementation and operation and an optional cable connection between the offshore farms: • 2 submarine export cables (from the offshore substation in the MFW Bałtyk II area to the shore, length of approximately 60 km each) • 2 submarine export cables (from the offshore substation in the MFW Bałtyk III area to the shore, length of approximately 67 km each) • optional cable connection between MFW Bałtyk II and MFW Bałtyk III of approx. 30 km - corridor in reserve for possible future laying of export cables and optical fibre.
Coastal zone and landfall	Trenchless crossing of the coastal zone with all cable lines between 236.5 and 237 km of the Polish seaside (according to the kilometrage of the Maritime Office)

Source: Sotis Advisors based on project data from Equinor&Polenergia

Table 2 Onshore Components of Projects

Component	Characteristics
Landfall area	Crossing of all cable lines through the coastal zone by HDD trenchless method between 236.5 and 237 km of the sea shore (according to the Maritime Authority's kilometrage)
Onshore part of the connection infrastructure (ECI)	• 4 underground cable lines (2 lines for each offshore wind farm) from the landfall to the two planned onshore substations/ONS in the Pęplino area, with a length of approximately 8 km; • 2 onshore substations (ONS) in Pęplino with a total area of approximately 10 ha (approx. 4.3 ha each); • 2 high-voltage underground cable lines (one line for each substation) from the substations/ONS oin Pęplin to the designated connection point to the Polish Power Grid in the existing Słupsk Wierzbięcin substation, with a length of approx. 6 km; • infrastructure necessary for the operation of the connections and offshore wind farms, i.e. fibre optic lines and the access road to the planned ONS; • optionally, energy storage facilities may be built near the ONS in the next phase
O&M base (associated facility)	The operation and maintenance base in Leba is an associated facility to the MFW Bałtyk II and MFW Bałtyk III projects, as it will be financed separately. The adaptation of plots 52/1 and 365/66 for the construction of a service base for offshore wind farms will require: • demolition of 5 existing buildings, • reconstructionof the existing quay and associated demolition of the superstructure of the existing shipyard quay, • decommissioning (backfilling) of the existing slipway, • raising the height of the existing site to approximately +2.0 ÷ 2.5 m, • demolition of existing building and construction of new building No. 1 with change of function from storage to services • construction of warehouse building 2.

Source: Sotis Advisors based on project data from Equinor&Polenergia

The following tabular summaries provide information on the land occupation of the offshore and onshore components of the Projects, during the construction and operational phases.

Table 3 Offshore Components of the connection infrastructures - Construction and Operation Phase

Project components and their land occupancy	**ECI MFW** Bałtyk II	**ECI MFW** Bałtyk III
Construction phase		
Length of submarine cables	approx. 60 km x 2 lines - total of approx. 120 km	approx. 67-97 km x 2 lines (including a 30 km connection between MFW Bałtyk II and MFW Bałtyk III) total of approx. 194 km
Average seabed occupation associated with bottom preparation and laying of one cable (there will be 4 cables in total)	a strip width of approx. 5 m for one cable	
Seabed surface directly related to bottom preparation	approx. 0.3 km^2 x 2 lines - total approx. 0.6 km^2	approx. 0.5 km^2 x 2 lines - total approx. 1 km^2
Offshore average trench width (per cable)	1,5 m	
Offsore average depth of the trench	1,5 m	
Depth of the trench at the TSS Ławica Słupska crossing	2,5 m	
Width of trenchat passage through rev zone*	20 m for one cable	
Depth of trench at passage through rev zone*	4 -5 m	
Operation phase		
Offshore section - restrictions on the use (prohibition of anchoring, except for emergency anchoring and for installation and maintenance work)	in accordance with the POM Plan the safety zone will be established at the request of the Investor, by the territorially competent director of the maritime office	

** - optional solution to be used when HDD trenchless crossing does not go beyond the last revetment - deeper subsea excavation for a maximum length of 800 m*

Source: EIA Report, 2023

Table 4 Onshore Components of the Projects - Construction and Operation Phase

Component	**Land occupation - construction phase**	Construction **method**	**Restrictions on** use
Landfall area	Up to 0.85 ha - fenced during construction. Location: between 236.5 and 237 km of the seashore	Horizontal directional drilling (HDD) trenchless method. Maximum drilling length: approx. 1.5 km and 120 m or more on the onshore part.	Restricted corridor of approximately 10 m to 31 m (according to the location decision), depending on the section of the cable where buildings and trees are prohibited.
Underground cable lines	Corridor 30-32 m wide with local widening in the area of trenchless crossings (up to 50-100 m) and near the offshore/onshore cable connection. Temporary road and temporary storage of excavated material (soil and topsoil). Location: Rural communes of Ustka and Redzikowo, total length approx. 14 km	Open excavation method: removal of trees and shrubs; excavation (to a depth of 1.3 to 5 m) and securing of the excavation; laying of the cable; backfilling and compaction of the excavation and restoration to the original condition, including restoration of the soil profile.	Restricted corridor of approximately 10 m to 31 m (according to the location decision), depending on the section of the cable where buildings and trees are prohibited.
Onshore electrical substations (ONS) and access road	2 separate ONS stations, but adjacent to each other: one for MFW Bałtyk II and one for MFW Bałtyk III. Total area of 10 ha (approx. 4.3 ha per wind farm) Paved access road of approx. 1.5 km (approx. 2 ha) Location: Pęplino	Earthworks, foundations, building construction and equipment installation.	Permanent acquisition and occupation of space for above-ground facilities: total station area approx. 10 ha (approx. 4.3 ha per wind farm) access road (length approx. 1.5 km, approx. 2 ha)
O&M base in Łeba (associated facility)	Approximately 1.58 hectares (within plot 52/1). Existing non-operational shipyard. Location: Jachtowa Street in Łeba.	Clean-up work; tree and shrub felling; demolition of existing buildings and surfaces. Partial filling of existing slipway; raising the terrain to the designed elevation. Construction of the proposed buildings, paving, equipment and other elements comprising the 'land' part of the service base. Clean-up work and commissioning of the facility. Reconstruction of the quay, including installation of a new sheet pile wall, demolition of the existing slab superstructure and construction of a new quay superstructure.	Approximately 1.58 ha, already used for industrial purposes

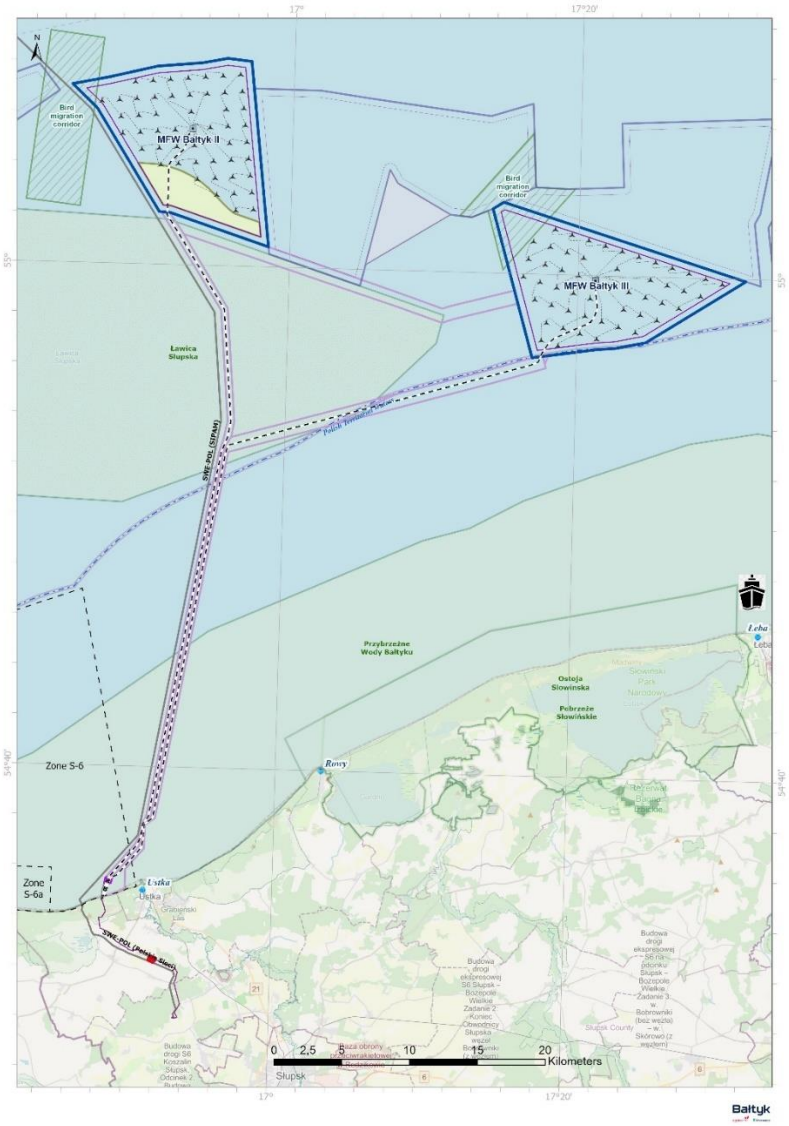
Component	**Land occupation - construction phase**	Construction **method**	**Restrictions on** use
		Cleaning work and commissioning.	

Source: Sotis Advisors based on environmental decision and project data from Equinor&Polenergia

2.1.3 Arrangement of the individual elements of the project

The figure below shows the planned distribution of wind turbines within the boundaries of the two MFW Bałtyk II and MFW Bałtyk III wind farms, updated from EIA reports (as of 15 July 2024).

Figure 3 Arrangement of elements of the offshoremaritime part of the Projects



Source: Polenergia 2024

As graphically illustrated below, in the onshore section, the cable corridor for the connection infrastructure of the MFW Bałtyk II and MFW Bałtyk III offshore wind farms::

1. Forests managed by the Regional Directorate of State Forests in Szczecinek within the boundaries of the Ustka, Modlinek and Pęplino Forest Districts;
2. Closed areas designated by the Ministry of National Defence; ;
3. Agricultural areas.

Most of the private plots located along the underground cable route are used for open-field agriculture. The easement restrictions established along the cable corridor relate to the presence and further construction of buildings for human habitation, the prohibition of planting or maintaining trees, shrubs or other vegetation exceeding 0.3 m in height, and the requirement to coordinate with the two MFW Bałtyk II and MFW Bałtyk III Projects the location and characteristics of any buildings in the vicinity. The impact of these restrictions on field agriculture is minimal, and affected landowners or land users will be able to continue such activities after construction. The remaining part of the plot, outside of the easement area, may be developed by the owner at their discretion, provided that it does not conflict with the provisions of the transmission easement agreement and that these developments are coordinated with the Projects.

This situation applies to 48 plots of land. The total area of these land plots is 382.4 ha, of which only 5.7% are actually affected by the easement (21.8 ha).

Additionally, two onshore substations (ONS) in the Pęplino area, covering a total area of 10 hectares (approximately 4.3 hectares each), located on agricultural land.

Figure 4 Location of the landonshore part of the Projects

Source: Equinor&Polenergia 2024

2.2 Description of the technology

2.2.1 Description of the production process

The process of generating energy from MFWs involves several key steps. Firstly, the wind turbines are installed offshore, where the wind is stronger and more stable than on land. Each turbine consists of a tower, a nacelle

containing a generator and a rotor with blades. As the wind flows through the rotor blades, it sets them in a rotating motion. The kinetic energy of the wind is then transferred to the generator, which converts it into electricity.

The electricity generated by the individual turbines is transmitted via cables to an offshore transformer station. At this station, the electrical voltage is stepped up to minimise losses during transmission over longer distances. From the offshore transformer station, the energy is transmitted to the onshore station via cables (submarine and land cables).

Once it reaches the onshore transformer station, the energy is reprocessed and transmitted to the national grid. At this point, the energy is ready for use by consumers. Monitoring and maintenance are key at each stage to ensure the efficiency and sustainability of the entire system. The entire process is environmentally friendly, as it does not emit greenhouse gases or other air pollutants.

2.2.2 Description of the technology of the individual components of the project

The following data has been compiled based on issued environmental decisions, EIA reports and has been updated based on information obtained from the Investor at a later stage of the Projects.

The entirety of this Project consists of structurally and functionally interconnected wind turbines and their connection infrastructure.

As part of the Bałtyk II and Bałtyk III MFWs, 100 wind turbines of the GTW 14.4 MW type (2x50 SG 14-236 DD turbines) will be built, with a total capacity up to 1440 MW (each MFW is to have a capacity up to 720 MW). The turbines (weighing 1185 tonnes) will be erected on monopile foundations permanently embedded in the seabed, with a diameter of 9.0 m - 9.5 m. The turbines will have a 236 m diameter rotor and 115 m long blades. The hub in the selected model will be located at a height of approximately 141 m; the tower will be 122.9 m high, with the total height of the turbine, when the blade is at its highest point, being 260 m.

The ECI consists of internal cables (connecting wind turbines among themselves in cable circuits and groups of wind turbines with the offshore substation), 2 offshore substations (separately for each MFW), connection cables (offshore and onshore), and 2 onshore substations (separately for each MFW).

In addition, the infrastructure required to support the connections and offshore wind farms will be part of the investment: fibre optic lines and an access road to the planned onshore substations.

The energy generated by the wind turbines will be converted and transmitted to land from the offshore substations via 4 high voltage (220kV) AC submarine export cables. From the landfall up to the two onshore substations in the Pęplin area, energy will be transmitted via 4 underground high-voltage (220kV) cables. Further, via two underground 400 kV high voltage lines, energy will be transmitted to the designated connection points to the National Power System at the PSE S.A. Słupsk Wierzbięcin substation.

In the offshore area, multi-core submarine cables in alternating current technology (HVAC) will be used, and onshore, earth export cables, consisting of 3 separate single-corecables in alternating current technology (HVAC), will be used.

The technology for burrowing the cables into the seabed will be determined by the geological conditions of the seabed. It is envisaged that the cables will be buried by water jetting or by mechanical cutting and ploughing in more difficult ground conditions. If boulder fields are encountered that cannot be avoided, the cable will be laid on the bottom and protected from damage (not buried).

It is assumed that the cable will be buried at an average depth of approximately 1.5 m. For the section of the cable exit from the sea to land, the requirements of the POM Plan regarding the crossing of the reef zone (shallow coastal zone) will be taken into account at the stage of designing the cable trajectory, in which it is required to lay new line elements of technical infrastructure at least 3 m below the average depth of the bottom of the inter-bed gutters. Cables will be laid at a safe distance from each other to allow adequate manoeuvring space for vessels carrying out maintenance or repair work.

Crossing of the coastal zone is planned by trenchless HDD (horizontal directional drilling) with all cable lines; anticipated maximum drilling length: approx. 1.5 km, with no less than 120 m in the onshore section.

The onshore cable line will be laid underground using the open excavation method, which will involve, among other things, possible felling of trees and shrubs (within the construction strip), except where the trenchless HDD method will be used (selected watercourses and major roads and sections agreed upon with the State Forests will be crossed trenchlessly). The depth of excavation may range from 1.3 to 5 m, depending on the topography of the site and groundwater conditions.

2.3 Project options under consideration

2.3.1 Approach to identifying project options

MFW Bałtyk II and MFW Bałtyk III

The analysis of alternatives carried out in the Reports has taken into account the elements of the Projects that affect the occurrence and scale of environmental impacts, i.e:

- Height of structure above water level;
- Clearance height between sea level and the lower limit of the rotor zone;
- Rotor diameter;
- Number of wind turbines and internal substations;
- Total rotor area;
- Occupation of the bottom surface by foundations of power stations and other structures;
- Length of internal connection infrastructure cables;
- Noise emissions during foundation placement and/or decommissioning;
- Length of continuous construction process.

Connection infrastructure (ECI)

The location of the ECI is determined primarily by the starting and ending points, which were determined at the stage preceding the obtaining of the environmental decision - the starting point resulting from the location of the offshore wind farms MFW Bałtyk II and MFW Bałtyk III, approved by the issued PSZW decisions, and the ending point determined by the conditions for connection to the NPS issued by PSE S.A. and the signed connection agreement.

In conducting the options analysis, consideration was given to:

- the need to ensure the stability of the seashore;
- site location restrictions needs;
- drill length;
- technological variant of power derivation from the MFW;

- location of trenchless crossings of terrain obstacles and the coastal zone;
- choice of trenchless passage technology.

2.3.2 Project options considered and reasons for their selection

All, analysed in the EIA Reports, options are technically feasible and do not cause significant impacts on the environment, in particular on the integrity, coherence and subject of protection of Natura 2000 sites.

2.3.2.1 Option proposed by the Applicant

MFW Bałtyk II and MFW Bałtyk III

In the case of both MFW Bałtyk II and MFW Bałtyk III, the variants selected for implementation allow to achieve a better economic result, by using a smaller number of more powerful power plants and thus achieve optimal use of the energy potential of the area designated for the construction of the wind farm, as well as shorten the construction time. At the same time, by reducing the number of power plants, the key parameters of the project for the scale of environmental impact, such as the total rotor zone and seabed occupation, will decrease.

Connection infrastructure (ECI)

The execution variant is the most environmentally favourable variant, i.e. landfall of cables in the eastern variant and power evacuation from the MFW only by underground cables of 220 kV and 400 kV.

2.3.2.2 Rational alternative

The tables below show the key differences between the option selected for implementation and the alternative (approved for implementation by the Environmental Decisions of 2016 and 2017).

Table 5 Parameters of the proposed variant selected to be implemented for the MFW Bałtyk II, compared to the parameters of the alternative variant

Parameter	Option selected for implementation (EIA decision amendment)	A reasonable alternative variant (EIA Decision of 2017)
Maximum total height of the power station above sea level. [m]	300	300
Minimum clearance between the lower wing position and the sea surface [m].	20	20
Maximum rotor diameter [m]	250	250
Number of power plants [units].	max 60[5] / 50 will be implemented	max 120
Maximum zone of a single rotor [m]^2	49 087,4	49 087,4
Maximum total rotor area [m]^2	2 945 244,0	5 890 488,0
Maximum number of associated infrastructure foundations [pcs.].	1	6
Types of power plant foundations considered	Foundations: monopile and jacket type (trusses)	Foundations: monopile, tripod, jacket and gravity foundations
Maximum bottom area occupied by 1 power plant foundation [m]^2	78,5	1 963,5
Associated infrastructure foundation types considered	Foundations: monopile, tripod, jacket and gravity foundations	Foundations: monopile, tripod, jacket and gravity foundations
Maximum bottom area occupied by 1 foundation of supporting infrastructure [m]^2	1 963,5	1 963,5
Maximum bottom area occupied by all foundations [m]^2	6 673,5	247 401,0
Maximum cable length of the wind farm's internal connection infrastructure [km].	200	200

Source: EIA Report 2021 for the MFW Bałtyk II

[5] The number of power plants may be reduced if turbines with higher unit capacity are used, while maintaining the minimum capacity of the farm.

Table 6 Parameters of the proposed variant selected to be implemented for the MFW Bałtyk III, compared to the parameters of the alternative variant

Parameter	Option selected for implementation (EIA decision amendment)	A reasonable alternative variant (EIAl Decision of 2016)
Maximum total height of the power station above sea level. [m]	310	275
Minimum clearance between the lower wing position and the sea surface [m].	20	20
Maximum rotor diameter [m]	250	200
Maximum number of power plants [units].	60	120
Maximum zone of a single rotor [m]^2	49 088	31 400
Maximum total rotor area [m]^2	2 945 244	3 768 000
Maximum number of associated infrastructure foundations [pcs.].	1	6
Types of power plant foundations considered	Foundations: monopile and jacket type (trusses)	Foundations: monopile, tripod, jacket and gravity foundations
Maximum bottom area occupied by 1 power plant foundation [m]^2	79	1 257
Associated infrastructure foundation types considered	Foundations: monopile, tripod, jacket and gravity foundations	Foundations: monopile, tripod, jacket and gravity foundations
Maximum bottom area occupied by 1 foundation of supporting infrastructure [m]^2	1 964	1 257
Highest density of power plants [pcs./km]^2	not applicable*	1,35
Minimum distance between power plants (counting from the axis of individual structures) [m].	800	parameter not specified in the decision
Maximum bottom area occupied by all foundations [m]^2	6 676	158 382
Maximum cable length of the farm's internal connection infrastructure [km].	200	200

**Parameter replaced by the minimum distance between power stations (counting from the axis of each structure) source: provided by the Contracting Authority.*

Source: EIA Report 2022 for the MFW Bałtyk III

Connection infrastructure (ECI)
The rational alternative consists of the option to go ashore further west (western alternative) using the HDD trenchless method and the construction of a 400 kV overhead line from the ONS station to the PSE station, instead of the underground cables proposed by the Investor. The construction of a mid-forest 400 kV overhead line in the alternative option would be associated with felling in a 35 m wide strip, over a distance of approximately 6 km, and the creation of a 70 m wide technological strip (35 m each from the line axis in both directions) during the operational phase. The overhead power line is a source of electromagnetic field and noise emissions.

The most environmentally favourable variant was considered to be the eastern variant cable exit and the derivation of power from the MFW only by underground cables of 220 kV and 400 kV, i.e. the applicant's variant.

2.4 Description of the various stages of the project

2.4.1 Construction phase

MFW Bałtyk II and MFW Bałtyk III:

Prior to the start of construction, the Investor will select a construction and assembly port. The port will be used for unloading the wind farm components from the supply vessels, storing them to ensure continuous delivery to the installation site during favourable weather conditions, assembling the nacelles, rotors, towers, loading individual components or partially assembled components onto jack-up construction vessels or other installation vessels.

The construction of service facilities for the MFW Bałtyk II and the MFW Bałtyk III (O&M Base) will be carried out in the port of Leba. There will also be a construction office for the offshore part of the projects and a coordination centre for offshore operations during construction. At present, none of the domestic ports meet all the requirements for installation ports, primarily due to the lack of adequate storage space for components and the carrying capacity of the storage areas. The port of Gdansk is being considered as a potential port to serve the construction process. The installation port in Świnoujście, which is currently under construction, and the planned installation port in Gdańsk will not be available until the start of construction of the MFW Bałtyk II and MFW Bałtyk III.

Of the nearest foreign ports meeting the requirements for key components (turbines and foundations) are the ports of Rønne (Denmark) and Sassnitz-Mukran (Germany).

Vessels (ships and barges) will be used for the construction of the farm, such as transport vessels, bulky cargo vessels, support vessels, hotel vessels, tugboats, jack - up vessels, cable vessels and others. At this stage, it is not possible to determine their exact number, types or working hours due to the need to adapt the construction schedule to weather conditions and to the availability of vessels of this type on the market.

The most important stages of construction are the laying of the foundations, the installation of the power station and substation and the laying of the internal power cables.

Transport and assembly of the farm components - depending on the production location, these will either be transported directly to the wind farm site area or will be stored at the selected port that will support the construction of the wind farm, in the quantity required to build a particular phase of the project.

Installation of the farm components can only take place in good weather conditions, i.e. with minimal wave action. In practice, this means that installation work should be planned between March and October, with waiting periods for favourable weather conditions.

The installation time for one steel monopile is estimated to be 2 days, excluding bad weather conditions, with a maximum of 6 hours for active pile driving (NIS 2015).

Wind turbines - installation of a single turbine takes about two to three days, excluding interruptions due to bad weather.

Photography 1 Vessel assembling the transition piece (yellow) between the monopile and the wind tower, and vessels assembling wind towers and turbines (overview photos)

Source: Equinor&Polenergia, 2024

Once all the turbines are installed and the internal MV cables are connected, testing and technical acceptance is carried out. Testing includes checking the generator, switchgear, gearbox, transformer, cabling, meteorological equipment, turbine control systems, safety systems, etc. This process can take up to 10 days for one power plant.

Offshore substations will be installed in a similar way to wind turbines.

However, there are no plans to build a separate measuring and testing station. Environmental testing equipment will most likely be installed at one of the substations.

Submarine cables (internal between farms) - are laid using specialist vessels (known as cable-layers) by sinking into the seabed, usually to a depth of no more than 3 m. In some sections it may be necessary to lay cables at greater depths.

Characteristic for cable-layers is a drum-shaped loading area that can accommodate large quantities of marine cables. When laying, the cable is lowered into the water from the drum, where a device dragged behind the vessel lays it into the seabed.

The technology and depth of cable laying depends on several factors, including the depth of the water, the type and properties of the substrate and environmental conditions. Submarine cables can be laid directly on the seabed or under the seabed at a suitable depth.

It is estimated that laying one section of cable (e.g. between two power stations) could take 20 - 25 hours. However, this will depend on many factors that cannot be predicted at the report stage, such as weather conditions.

Photography 2 Example of a vessel used for the installation of marine cables from the MWF

Source: Equinor&Polenergia, 2024

Emissions during the MFW construction phase

Projected emission sources during the MFW construction phase, identified in the 2021-2022 EIA reports:

- emissions associated with the production of wind farm components
- emissions associated with the maritime transport of wind farm components to the construction and assembly port
- emissions associated with the storage of wind farm components at the construction and assembly port
- emissions associated with the movement of installation and transport units from the port to the Project site
- emissions related to the sea transport of farm components and subassemblies to the investment site
- emissions associated with the operation of the installation units at the project site
- emissions related to the preparation of the seabed for foundations
- emissions associated with the installation of foundations
- emissions associated with the installation of wind power plant components, substations
- emissions associated with the transport, recovery or disposal of waste and wastewater from vessels
- emissions associated with laying submarine cables.

Anticipated underwater noise emissions - sound can be generated during all stages associated with the construction, operation and decommissioning of an offshore wind farm. Of greatest concern, however, is underwater noise emitted during construction, due to the high sound levels generated during pile driving (piling).

Currently, based on the design work carried out to date to clarify the parameters of the Project, the diameter of the monopile foundations has been limited to 9.0-9.5m. The possibility of using 4,500 kJ jackhammers to install the foundations is assumed.

Bubble curtains will be used to minimise the extent of underwater noise impacts on organisms (including harbour porpoises and seals).

The agitation (disturbance) of the bottom sediment associated with the construction (foundation) of the foundations for the wind farm facilities, anchoring of ships or burial of the cable is a process that favours the passage of pollutants from the sediments to the water depths. This is how pollutants, including heavy metals and PAHs and PCBs; nutrient elements (nitrogen and phosphorus) can enter the water.

Impacts associated with sediment disturbance and subsequent sediment redeposition associated with the installation of the wind turbine foundations in the variant approved by the Environmental Decision, both direct (such as an increase in suspended solids in the water resulting in a decrease in water clarity) and indirect (such as a change in habitat conditions for marine organisms, e.g. burial of benthic organisms), will only occur on a local scale. Sediment uplift into the seabed will also occur during cable laying; the agitated sediment will form a suspension in the seabed for a period of time, which will move in line with sea currents over short distances, after which the sediment will settle back to the seabed elsewhere. In addition, there will be an uplift of the bottom sediment associated with the anchoring of the vessels during the foundation and installation of the towers. The anchoring process itself is of a short duration, in a small area (spot), to a depth of approximately 3 m, so the volume of disturbed sediment will also be small.

Connection infrastructure (ECI):

The works related to the construction of connection infrastructure for MFW Bałtyk II and MFW Bałtyk III will be performed in accordance with the construction documentation approved at the stage of obtaining the building permit, containing a set of required arrangements. Moreover, the construction works will be carried out in accordance with the prepared Works Organisation Plan, according to the established schedule of works including the division into particular types of works and their completion dates.

The construction of the connection infrastructure will be a source of periodic air and noise emissions from vessels and vessels carrying out construction work (including underwater noise) and vehicles and equipment used to construct the infrastructure on the onshore part and will be a source of waste and wastewater generation as a result of construction.

During the construction phase, there will be fugitive emissions in the form of exhaust gases (oxides of carbon, nitrogen, sulphur and hydrocarbons) and dust associated with the operation of ships, construction machinery, transport of equipment, materials and people. Due to the limited duration of emissions, any concentrations of gases and dust emitted will be insignificant and will not result in exceedances of permissible levels.

The greatest noise nuisance during the construction phase will be associated with the implementation of the trenchless transition of the cable lines from sea to land. The second location where such nuisance may occur is the construction site for the planned ONS in the Pęplino area.

Waste and wastewater generated during the construction phase will be properly stored and secured on board the vessels, in accordance with each vessel's marine pollution prevention plan, and will then be taken to port reception facilities and managed in accordance with the applicable port waste and ship cargo residues management plan.

The implementation of the planned Project on land will generate waste from typical construction activities associated with the excavation of cables and the construction of onshore substations.

Pursuant to the Waste Act of 14 December 2012 (Journal of Laws 2021.779 t.j., as amended), the generator of waste produced during construction works is the contractor of these works. The contractor of the works will be obliged to

carry out management in accordance with the requirements of the aforementioned Act, i.e. in the first place to prevent waste generation, and if waste is generated, to collect it selectively and transfer it to entities holding a waste transport or collection permit.

Transport and subsequent waste management will be the responsibility of specialised companies - in accordance with the transport and waste management permits. All wastewater generated will be collected and then delivered to the treatment plant in accordance with legal requirements. Waste disposal will be carried out in accordance with the Construction Waste Management Plan to be developed by the Investor or the construction contractors.

It is assumed that the construction phase will be carried out in the shortest possible time, in accordance with current standards and the cable manufacturer's recommendations, and under ongoing supervision. In this context, the emissions mentioned in the application of environmental protection solutions will be of a short-term local nature.

The main environmental impacts will occur during the construction phase and will be associated in the offshore section with periodic occupation of the seabed with a width of up to 20 m (for each of the four submarine cables), while in the onshore section they will beassociated with periodic occupation of the land for a construction strip with a width of about 32 m (up to about 50 - 100 m in the area of trenchless crossings) and for the construction site of the trenchless crossing of the cables from sea to land (with an area of about 0.85 ha), where there will be destruction of the topsoil, removal of trees and shrubs. The construction of the two onshore substations will involve the permanent occupation of a total area of approximately 10 ha. The onshore construction phase will also involve periodic and localised nuisance for the residents adjacent to the construction site. Due to the significant distance of the planned Project from residential development, this impact can be considered insignificant.

Due to the limitations on access to the necessary services and supplies due to the possible execution of similar investments at the same time, the minimisation of the risk of not meeting the timeframe, the economic optimisation of the overall Project (ECI), as well as the possibility of comprehensive contracting of the necessary services and supplies, the Investor allows the planned Project (ECI) to be executed in a continuous process and in stages.

Submarine cables.

The assumed total duration of work for the laying of the 4 submarine cables (2 lines for each offshore wind farm) is approx. 130-140 days. The maximum duration of laying of one cable is ca. 35 days (installation campaign), whereas in the phase of laying the submarine cables we separate two stages: preparation of the bottom (ca. 3-5 days), laying and burial of the cable (ca. 25-30 days). In the case of the 2 cable lines connecting MFW Bałtyk II with MFW Bałtyk III, it is assumed that cable laying will take approx. 30 days.

The vessels that will be used to lay submarine cables during one installation campaign are: cable laying vessel, trenching vessel, support vessels - (4 boats). Optionally, if 4 deeper trenches are required in the shallow coastal zone (to go beyond the last reef), additionally this may extend the work time up to 8 days (per cable). A small dredger is planned to be used for the deeper trenches.

Submarine power cables will be transported from the manufacturer to the port, which is the main logistical hub, or directly from the manufacturer to the offshore cable installation area. The cables will be delivered on a dedicated CLV (cable lay vessel).

The installation process, for each individual cable, will take place in stages including:

- Launching the cable using floats in the area of the trenchless landfall section;
- pulling the cable through the trenchless section onto land;
- laying of the cable at the bottom along the planned route;

- pulling the cable into the MSE;
- burrowing/burying the cable in the bottom.

Trenchless passage HDD (Horizontal Directional Drilling)

The cables will be routed from the sea to land using a trenchless HDD method, and the technical solutions for completing the crossing will be selected based on the results of geotechnical investigations and other local considerations, including the length of the crossing and access to the construction contractor's facilities.

The HDD method involves horizontal directional drilling using a special steering head guided towards a designed exit point. The execution of horizontal directional drilling (HDD) includes the following stages: pilot drilling, hole widening, installation of drilling pipes, pulling cables through the installed pipes.

It is possible to drill from the land side or drill from a sea barge towards land.

The construction site area for the HDD cable landfall will be approximately 0.85 ha. Appropriate organisation of the onshore construction will be required, including: demarcation of the construction site boundaries, clearing of the construction site (including tree and shrub felling), necessary site levelling, fencing and securing of the construction site, provision of access (including organisation of temporary access roads), provision of utilities, organisation of construction facilities, storage bases, parking areas and welfare facilities. The source of water for the drilling operation and for welfare and living quarters will be cisterns or existing water mains.

The preliminarily indicated location of the construction site - is a partially deforested and transformed area (paved car park, fragment of military fortifications), located partly within the technical belt. The choice of this site, despite its partial location within the technical belt of the Maritime Office, is dictated by the fact that it is an already transformed and deforested area.

Cable lines on land

Four offshore and onshore cable connection sites will be realised. These are concrete rectangular-shaped structures with side lengths of a maximum of a few metres and a depth of approximately 2 m.

The 220 and 400 kV cable lines, together with the fibre optic cable, will be laid in up to four cable paths (ducts).

The underground cable line will mostly be laid using the open trench method, in a dry excavation. If dewatering of the trenches is required, pumps, needle filters or additional dewatering trenches will be used.

The construction works will be carried out in a construction strip of approximately 30-32 m width with local widening in the area of trenchless crossings of approximately 50-100 m and widening in the area of the marine/land cable connection (illustrative drawing below). The estimated depth of excavation is approximately 1.3-5 m, depending on the terrain surface, soil and water conditions etc.

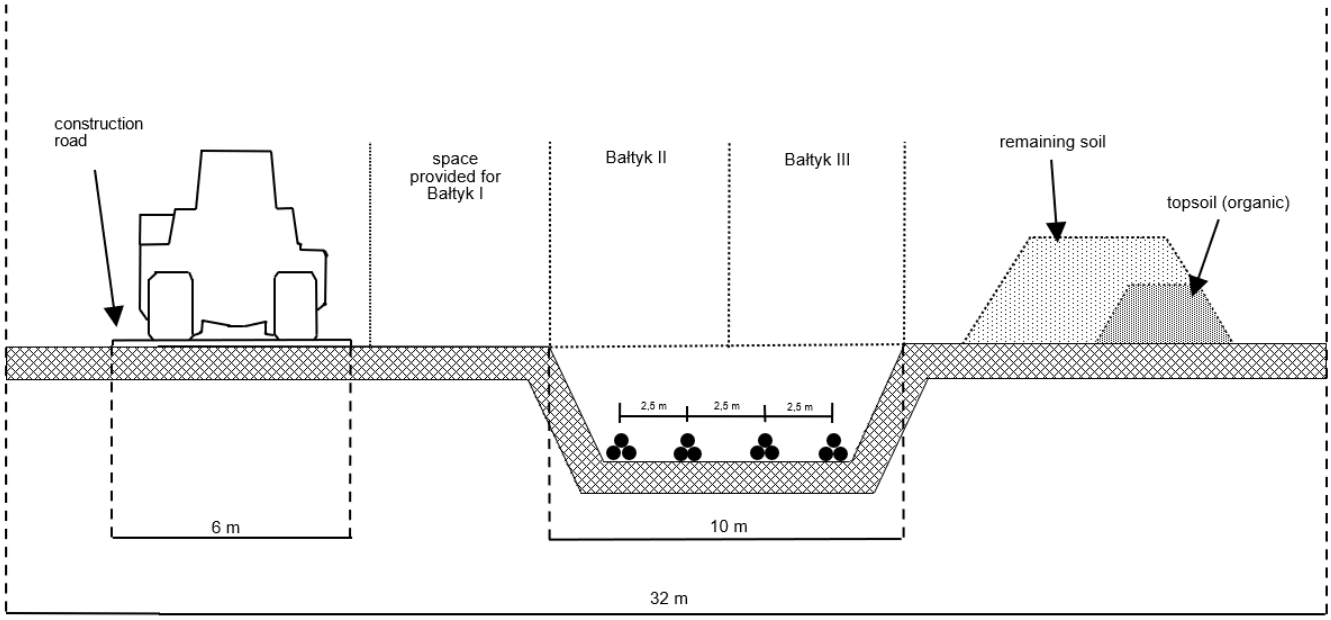
The construction phase is expected to last approximately 14 months, depending on ground conditions.

Within the limits of the construction strip in the sections laid in open excavation, tree felling will be necessary, with permanent deforestation due to the risk of damage to the cables by root systems and possible failure covering, depending on the IP section, a strip of approximately 10 to approximately 31 m. The remainder of the construction strip will be able to be reforested once the construction process is complete. Permanent access to the offshore and onshore cable connection sites and coupler sites must also be provided.

An approx. 6 m wide temporary road will be designated in the construction strip, from which excavation and cable laying works will be carried out, as well as transport of materials, raw materials and construction equipment. Access

to the construction strip will be carried out using the existing traffic system. In the event that it is not possible to transport materials and equipment along the existing roads, it will be carried out using temporary roads constructed for the duration of the planned Project. Upon completion of the construction works, the areas designated for the construction of temporary roads will be restored to their original state.

Figure 5 Example of a construction strip diagram for cables from MFW Bałtyk II and MFW Bałtyk III



Source: EIAReport, 2023

Onshore substations

It is planned to build two substations in the area of the village of Pęplino - one for serving the MFW Bałtyk II and one for serving the MFW Bałtyk III.

Preparatory works will consist in the preparation of the access road, cabling of the existing overhead medium voltage line passing through the station area, removal of the topsoil layer and, if necessary, levelling of the area. For the purposes of access to the construction site, the Investor envisages using the existing access road to the MOWI POLAND S.A. factory and further heading in a south-easterly direction to realise a paved access road to the station site.

The construction of the substations consists of typical construction and assembly works (earthworks, excavations, levelling; preparation of internal roads and welfare facilities; excavation for infrastructure; construction of formwork, foundations and concrete floors; installation of power transformer stands and reactors; installation of high-voltage apparatus and connections; installation of fuel tanks for emergency generators (if required) and a water tank for fire-fighting purposes; paving of roads and parking areas; preparation of lawns with a 20-30 cm layer of humus; installation of fencing and gates).

The construction work will be carried out by contractors who will use conventional equipment such as excavators, trucks, wheel loaders, cranes, etc. Heavy equipment will be transported by large trucks and lifted by cranes. Lighter installation materials will be transported by truck to the site for collection.

Site preparation for the ONS will take approximately 6 months. It is not expected that trees will need to be felled, due to the agricultural nature of the site - mainly arable land and grassland. The preparation period will be followed by earthworks, construction of buildings, foundations, etc. and finally the installation of equipment. It is estimated that the construction time will be approximately 2 years.

Due to the need for access to the Project site, a paved access road will be implemented to allow permanent access to the planned onshore substations.

2.4.2 Operation stage

The exploitation phase is currently assumed to last 30 years.

MFW Bałtyk II and MFW Bałtyk III:

The construction of service facilities for the MFW Bałtyk II and the MFW Bałtyk III (O&M Base) will be carried out in the port of Łeba;

To support the tasks of the operation phase of the farm, vessels (ships and barges) such as support vessels and small research vessels will be used. Other types of them may also be used as required. At this stage, it is not possible to determine their exact number, types or operating hours.

The MFW Bałtyk II and MFW Bałtyk III will be controlled by means of an information system supervising the course of the technological process (SCADA - Supervisory Control and Data Acquisition). The SCADA system collects current data (measurements), prepares their visualisation, controls the production process, reports, as well as alarms (e.g. it can report the necessity of planned or unplanned maintenance of the devices or their inspection, or even automatically shut down a damaged power plant) and archives data. There will also be meteorological monitoring, providing sea state and wind data to help plan maintenance work on farm equipment, as well as verifying wind turbine performance and forecasting production. SCADA can also be used in the transmission of data from ornithological monitoring, if such will be carried out by equipment installed on the farm facilities (e.g. radars or cameras). The control systems located at the individual farm facilities will be connected via fibre optic cables (which are part of the submarine cables) and additionally via radio with the monitoring and control centre probably located at one of the internal substations.

During the operation period of the farm, systematic, periodic inspections of individual elements of the farm (surface and underwater parts of the power plant, substation, cables) will be carried out in accordance with the Maintenance Plan specified in the contract with the turbine manufacturer. Planned (preventive) and unplanned (corrective) maintenance of the farm will be carried out. An environmental monitoring programme will also be carried out.

Connection infrastructure (ECI):

The planned connection infrastructure at the stage of operation will ensure the possibility of transmitting electricity generated in the MFW Bałtyk II and Bałtyk III to the PSE S.A. Słupsk Wierzbięcino substation.

The operation of a submarine cable line is an unmanned process. It starts when the cables are connected to the offshore substation and/or the substation is commissioned. For the purposes of operation, monitoring and servicing

of the offshore wind farms together with the power derivation units, a operation and maintenance base will be organised in Łeba. During operation of the submarine cables, surveys of the seabed will be carried out periodically (approximately once every 5 years), with the first three surveys planned in the first, third and fifth year after completion of construction. Using a special seabed seismic apparatus, the state of burial of the cables in the seabed will be checked.

The operation stage of the underground cable line in the onshore section is also an unmanned process. The maintenance and service base in Leba will also serve the cable lines and onshore substations. As part of the operation of the onshore substations, regular maintenance and servicing is envisaged. Maintenance and service work on the onshore substations is foreseen several times a year.

The use of the ECI area in the offshore part during the operation phase will follow the rules established in the POM Plan. In order to provide access to the cable line during the operation phase, a technology belt (permanent technical belt) will be established in the onshore part. Land occupation is also planned in the landfall area for the use of coupler stands. In addition, permanent land occupation is required for the implementation of the onshore substations and the access road to the substations.

During the operational phase of the ECI, small amounts of waste will be generated as a result of the operation of the onshore substations. This will be waste generated from the normal operation of the facilities, as well as waste generated during periodic maintenance and repair work on the cable lines. The amount of waste generated during the substation operation phase will be significantly less than during the construction phase. Onshore substations are a source of negligible amounts of waste generated during its operation, small amounts of both hazardous and non-hazardous waste may be generated. The waste generated will be stored in a selective, non-hazardous manner and in places designated for this purpose and managed in accordance with current legislation.

The permanent impacts of the ECI phase of operation both offshore and onshore are related to minor heat and electromagnetic radiation emissions, which are considered insignificant based on the available literature. The planned two onshore substations, on the other hand, will be a source of permanent noise emissions. The noise propagation modelling carried out on the basis of the preliminary conceptual assumptions showed that the permissible noise levels are not exceeded in relation to the existing and planned residential development.

2.4.3 Decommissioning phase

MFW Bałtyk II and MFW Bałtyk III:

Decommissioning of theMFW (or its individual elements e.g. individual turbines) may occur for the following reasons:

planned decommissioning, due to the depletion of the equipment and the end of the wind farm's operation;

- decommissioning for technical reasons, e.g. mistakes made during construction, resulting in a demolition order for the farm facilities being issued by the relevant authority;
- liquidation for formal legal reasons (e.g. because the location decision has expired).

Today, the expected life cycle of a wind farm power plant is 30 years.

Prior to the start of decommissioning, the developer will select the port from which this work will be carried out. It is envisaged that this will be one of the ports that can be used during the construction of the farm. During the decommissioning phase of the farm, similar vessels will be used as during the construction phase. Upon completion of the decommissioning works, a seabed inspection is required to ensure that all elements of the farm have been removed as required.

The various components of the wind farm will be decommissioned as follows:

- Power stations - removed in their entirety - decommissioning a power station is roughly the reverse process of installing it;
- foundations - removed to a depth of 3 m below seabed level or left in their entirety. It is also possible to decide to leave the foundations in their entirety, so that the artificial reef, which will appear after these structures are populated by benthic organisms, will not be destroyed. Such a decision should, however, be taken immediately before the possible decommissioning of the investment, in consultation with the Regional Director for Environmental Protection in Gdańsk and after carrying out a nature inventory;
- internal cables - removed or left in the seabed, covered by sediment. The method of cable disposal depends on how the cables were laid. In the event that they have been shallowly buried in the sand, then they may be pulled out after they have been dug up. This may result in an uplift of the bottom sediments, but this impact is not expected to be significant. If the cables have been laid deeper, then they are likely to be left in place as decommissioning would not be economically justified and would also have a greater environmental impact;
- protection against leaching - left,

offshore substations - removed or left for future use (may continue to be used after decommissioning of the wind farm; other MFW may be connected to them).

The data presented in the 2021-2022 EIA reports are based on analyses carried out in the 2015 reports for the NIS scenario, assuming the construction of 200 power plants, with the variant finally approved in the environmental decision reducing this number to 120. Ultimately, according to the current data obtained from the Investor, 100 wind turbines of the GTW 14.4 MW type (2x50 turbines SG 14-236 DD), with a total capacity of 1440 MW (each MFW is to have a capacity of 720 MW), will be built as part of the implementation of the MFW Bałtyk II and MFW Bałtyk III.

Projected emission sources during the decommissioning phase of the MFW, identified in the 2021-2022 EIA reports:

- emissions associated with the movement of service and transport units from the port to the Project site;
- emissions associated with the operation of vessels at the decommissioning site;
- emissions associated with the removal of foundations;
- emissions associated with the de-installation of wind power plant components, substations;
- emissions associated with the decommissioning of submarine cables;
- emissions associated with transporting dismantled farm components and sub-assemblies ashore;

emissions associated with the transport, recovery or disposal of waste from the decommissioning of the farm and waste and wastewater from vessels.

Unplanned emissions associated with accidents and emergencies during the decommissioning phase will be similar in nature to similar events during the construction phase.

Connection infrastructure (ECI):

The decommissioning process will depend on the decision whether to leave the inactive cable in the ground or remove it. If the cables have to be removed, it will be a similar process to the construction phase, with the same logistical set-up. Before the end of the project's operation, the land stations will be emptied of oil and grease for disposal. The stations will be dismantled, and all parts recycled or disposed of.

In the case of cables, once de-energised and inactive, two possible decommissioning options are envisaged, either by leaving them in the bed or removing them. At this stage it is not possible to prejudge what the decision will be regarding the decommissioning of the cables. A final decision on how the project will be decommissioned will be made after the operation has been completed.

2.5 Information on energy demand and consumption

MFW Bałtyk II and MFW Bałtyk III

Wind power plants are devices that produce electricity using wind power.

During the operation of wind turbines, in the absence of wind, there is only a small demand for electricity. This is covered from the grid - the consumer of the generated energy.

Consumption of water, raw materials, materials and fuels will only occur during the construction phase of the project in question or its eventual decommissioning, and exceptionally during periodic maintenance and repair work. However, these are related to the ageing of plant components and not to the technological process.

It is important to emphasise that during the operation of the project in question, there will be no need to consume water, raw materials, materials or fuels as in the case of typical manufacturing activities. Wind turbines are devices that operate without the use of raw materials or fuels. During their operation, in the absence of wind, there is only a small demand for electricity.

Connection infrastructure (ECI)

During construction work, electricity will be used mainly for construction machinery and site lighting. Due to its specific nature, the planned project will be implemented using ready-made equipment, elements and construction products.

At the stage of operation of the planned project, electricity will be used to supply the necessary technological equipment and onshore substations. In connection with the operation of the substation, the demand for electricity will be met on its own by means of own-needs transformers and emergency power supply from the OSD or by means of a generator.

Demand for raw materials, materials, fuels and energy may possibly occur in the event of cable breakdowns and repair and maintenance work.

2.6 Risk of major emergency events or natural and construction disasters

MFW Bałtyk II and MFW Bałtyk III

The MFW are not classified as establishments posing a risk of a major industrial accident. The EIA reports analysed the impact of unplanned events that may occur from the moment of construction through operation until decommissioning of MWF Bałtyk II and MFW Bałtyk II.

Unplanned impacts are the result of events or malfunctions that are not related to the activities included in the project schedule. The causes of installation failures that may result in marine water pollution may be shipwrecks, collisions of ships with each other and with the farm facilities, operators' errors, fatigue of the material used, exceeding of allowable pressures and stresses, etc. The following potential unplanned events or failures of the MFW have been identified:

- leakage of petroleum substances as a result of a collision, accident or construction disaster (during normal operation or in an emergency);
- accidental release of municipal waste or domestic sewage;
- accidental release of building materials;
- fouling of the water tone and bottom sediments with antifouling agents;

- Explosions of unexploded munitions of military origin that may occur as part of deliberate bottom clearance in preparation for construction or as a result of accidental damage to undetected munitions during the works.

As a result of unplanned events, the abiotic environment, primarily marine waters and, to a lesser extent, bottom sediments, can be directly contaminated. Oil spill events may also affect living organisms that inhabit or otherwise use the seabed, the water column and the sea surface. Explosions of unexploded ordnance may cause damage to living organisms in the area of potential impact, or their habitats, as a result of shock wave and noise emissions. Explosions may also cause damage to equipment, including construction or survey vessels, and result in contamination of the marine environment by the spills referred to above.

The reports and the issued environmental decisionsdescribe the requirements related to the possibility of unplanned events and the prevention of major accidents, in particular those related to oil spills; preventive and minimising measures for negative impacts in this respect are identified.

Connection infrastructure (ECI)

Major failures

Potential major accidents that may occur during the construction, operation and decommissioning phases of the offshore part of the ECI are: offshore events, oil spills, explosions of unexploded ordnance and unexploded military ordnance, mechanical damage to cable lines, release of waste or domestic sewage, release of biocides into water. The risks associated with the above risks from offshore events, due to the preventive measures in place, have been assessed as insignificant - negligible. During the operation phase, there is a risk of connection infrastructure failure due to mechanical damage to the cable line. This risk should be considered negligible.

The main environmental risks during the construction, operation and decommissioning of the onshore part of the ECI are: potential leakage of harmful substances, gas emissions into the atmosphere, fires. Adequate supervision of the operation of machinery and its maintenance in good technical condition, as well as proper management of the investment process and the subsequent operation of the connection infrastructure, practically eliminates the above risks. Fires occurring in stations are a rare occurrence; the use of state-of-the-art technology and warning systems make it possible to fully prevent such events. The use of state-of-the-art equipment and procedures also prevents the emission of gaseous substances into the atmosphere.

Natural disasters

Due to the installation technology adopted, the risk of damage to the cable line as a result of strong winds, ice phenomena, seismic phenomena should be considered negligible.

Taking into account natural disasters resulting from climate change such as lightning, droughts, changes in temperature, changes in wind speed, icing, an analysis has been prepared with the possibility of their impact on the operation of the planned Project. None of the above will adversely affect the operation of the Project.

During the construction, operation and decommissioning phases of ECI, the occurrence of a natural disaster should be considered negligible and unlikely.

Construction disasters

ECI, due to its characteristics (submarine and underground cable lines) is not a potential source of construction disasters and risks to the immediate environment, including people. The probability of a construction disaster during the operation of the ECI is negligible, given the consideration of the applicable legal and technical requirements and the use of adequate technologies to ensure safety, reliability of electricity transmission and compliance with relevant environmental standards and requirements.

2.7 Relationship between project parameters and impacts

MFW Bałtyk II and MFW Bałtyk III

The emission-impact-parameter linkage matrix for the project, together with a summary of the proposed modifications to the MFW implementation and operation conditions, is presented in the table below.

Table 7 Correlation matrix of potential direct and indirect environmental impacts caused by the MFW, their sources and determinants

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Disturbance of sediment structure (and any other physical disturbance of the seabed)	- Preparation of the bottom for the foundation - Geotechnical drilling - Installation of the foundations - Laying of a protective layer against leaching	- Destruction and alteration of habitat - Reduction in population size - Reduction of the feeding base - Possibility of damage to historical objectslocated on the seabed - Possibility of washing out or removing raw materials during the preparation of the seabed for foundations - Possibility of covering mineral deposits withdredged material	- Sediments - Benthos - Fish	- Seabirds - Mammals - Cultural heritage	- Seabed type - Thickness of the sediment layer	- Number of foundations - Type of foundation - Diameter of foundation - Width of protective layer	Construction of 200 gravity foundations with a maximum diameter considered, i.e. 40 m	Construction of 60 monopile foundations with a maximum diameter of 10 m or jacket type and the implementation of one gravity foundation (with a maximum base diameter of 50 m) for the needs of the construction of an offshore substation.

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Increase in suspended solids concentration in water	- Preparation of seabed for foundation - Installation of foundations - Cable laying	- Change in habitat conditions - Turbidity of water	- Benthos - Fish - Mammals - Seabirds - Hydrological conditions	- Seabirds - Mammals - Material assets	- Sediment type - directions of currents - speed of currents - Sediment deposition speed	- Number of foundations - Type of foundation -Diameter of foundation - Length of cables - Width of protective layer	Construction of 200 gravity foundations with a maximum diameter considered, i.e. 40 m	Construction of 60 monopile foundations with a maximum diameter of 10 m or jacket type and the implementation of one gravity foundation (with a maximum base diameter of 50 m) for the construction of an offshore substation.

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Release of pollutants and nutrients from the sediment to the water column	- Preparation of seabed for foundation - Installation of foundations - Laying of cables - Heat emission from cables	- Increase in contaminants and nutrients in water - Change in habitat conditions - Decline in population size - Increase in concentration of pollutants in organisms of fish from food species	- Benthos - Fish - Mammals - Hydrochemical conditions	- Seabirds - Human health and life	- Sediment type -Contamination of sediment - direction and speed of currents	- Number of foundations - Type of foundations - Diameter of foundation -Length of cables - Depth of burial of cables	Construction of 200 gravity foundations with a maximum diameter considered, i.e. 40 m	Construction of 60 monopile foundations with a maximum diameter of 10 m or jacket type and the implementation of one gravity foundation (with a maximum base diameter of 50 m) for the construction of an offshore substation.

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Deposition of disturbed sediment	- Preparation of the seabed for the foundation - Installation of foundations - Cable laying	- Change in habitat conditions - Potential for additional mineral deposit cover	- Benthos - Fish	- Seabirds - Mammals - Cultural heritage - Material assets	- Sediment type - Currents directions - Currents speed - Sediment deposition speed	- Number of foundations - Type of foundation - Diameter of foundation - Length of cables	Construction of 200 gravity foundations with a maximum diameter considered, i.e. 40 m	Construction of 60 monopile foundations with a maximum diameter of 10 m or jacket type and the implementation of one gravity foundation (with a maximum base diameter of 50 m) for the construction of an offshore substation.

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
The "artificial reef" effect	- Foundations laid	- Creation of new habitats - Change in species composition - Increase in food base - Change in habitat conditions - Increase in quantity and quality of commercial and tourist fishing - Increase in income from fishing and tourism industry.	- Benthos - Fish	- Seabirds - Fish - Mammals - Tourism and recreation - Fisheries - Material goods	- Physical and chemical parameters of water	- Number of foundations - Type of foundation - Diameter of foundation	Construction of 200 gravity foundations with a maximum diameter considered, i.e. 40 m	Construction of 60 monopile foundations with a maximum diameter of 10 m or jacket type and the implementation of one gravity foundation (with a maximum base diameter of 50 m) for the construction of an offshore substation.

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Increased underwater noise and vibration	- Foundation laying - Cable laying - Ship traffic - Power station operation - Decommissioning of wind farm facilities	- Displacement from habitats - Alteration of habitat conditions - Injury - Mortality - Reduction in catches	- Fish - Mammals - Seabirds	- Seabirds - Mammals - Fisheries	- Background noise level - Depth - seabed relief -seabed structure - Wind speed	- Type of foundation - Number of foundations - Diameter of foundation - Time of placing 1 foundation - Effective driving time - Number of blows when driving the foundation - Hydraulic hammer power - Depth and method of cable laying - Number of construction vessels	Construction of 200 monopile foundations with the maximum considered diameter i.e. 10 m (WA) or decommissioning of gravity foundations (200 units, WA))	Construction of 60 monopile or jacket foundations with a maximum diameter of 10 m and one gravity foundation (with a maximum base diameter of 50 m) for the construction of an offshore substation or decommissioning of the monopile or jacket foundations (60 units) and the gravity foundation.

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Heat emission from cables	- Cables	- Increase in water and sediment temperature - Appearance of alien species	- Water - Sediment	- Abiotic environment - Archaeology and cultural heritage - Benthos - Fish	- Type of sediment - Thermal conditions at the seabed	- Cable length - Cable type - Burial depth	Construction in WA of 200 power plants with cable infrastructure (with the proviso that WR, i.e. 120 power plants, will likely require cables of similar length to be laid, due to the greater distances between wind turbines	Construction of 60 power plants with cable infrastructure (it is assumed that a similar number of cables may be laid as for NIS 2015 due to the distances between wind turbines)

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Emergence of the new structures under the sea level	- Foundations - Cables	- Barrier effect - Change in living conditions - Changes in the regime of sea currents and wave action - Disruption to shipping and navigation - Procurement for the maritime industry	- Fish - Mammals - Hydrological conditions - Shipping and navigation - Maritime industry - Material assets		- Water transparency - Wind speed	- Number of power plants - Type of foundation - Density of wind turbines/km^2 - Diameter of foundations - Constant noise and vibration - Length of cable	Construction of 206 gravity foundations of the maximum diameter considered, i.e. 40 m (WA)	Construction of 60 monopile foundations with a maximum diameter of 10 m or jacket type and the implementation of one gravity foundation (with a maximum base diameter of 50 m) for the construction of an offshore substation.

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Emission of electromagnetic fields and radiation	- Cables	- Disturbance of orientation - Changes in the use of space - Interference with radar systems - Disruption of shipping and navigation	- Fish - Mammals - Radar systems - Shipping and navigation			- Cable type - Cable length - Buried depth - Number of MSEs - MSE foundation height	Construction in WA of 200 power stations with cable infrastructure (with the caveat that WR, i.e. 120 power stations, will likely require cables of similar length to be laid, due to the greater distances between the wind turbines)	Construction of 60 power stations with cable infrastructure (it is assumed that a similar number of cables may be laid as for NIS 2015 due to the distances between the wind turbines)

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Emergence of new structures above sea level	- Rotor - Tower - offshore substations	- Barrier effect - Displacement from habitat - Mortality due to collision - Landscape changes - Obstruction to shipping and navigation - Procurement for the maritime industry - Increase in industry innovation - Increase in employment / wages.	- Seabirds - Migratory birds - Landscape - Bats - Shipping and navigation - Maritime industry - Material assets			- power plants height - Rotor diameter - Number of structures - power plants density	Construction of 200 power plants with a minimum clearance of 20 m, a maximum rotor diameter of 200 m and a maximum height of the entire structure of 275 m and 6 substations	Construction of 60 power plants with a minimum clearance of 20 m, a maximum rotor diameter of 250 m and a maximum overall height of 300 m and (the diameter and overall height parameters remain unchanged from the condition set by the Environmental Decision) and 1 substation
Increased traffic of vessels and helicopters	- Vessels (ships, barges) - Helicopters	- Barrier effect - Scaring - Collisions with animals	- Seabirds - Migratory birds - Bats - Marine mammals - Fish - Benthos - Water - Sediments.			- Number of vessels - Type of vessels	Construction, operation and decommissioning of 200 farm facilities	Construction, operation and decommissioning of 60 farm facilities and 1 substation

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Surface noise emissions	- Rotor - Ship traffic	- Scaring - Displacement from habitats - Deterioration of living conditions for people in the area of the farm (e.g. on boats)	- Seabirds - Marine mammals - Fish - Tourism - Human health and life		- Wind speed - Wind directions - Wave height	- Acoustic power of the turbine - Tower height - Number of power plants - Number and type of vessels	Construction / decommissioning of 200 power plants with infrastructure (resulting in the longest noise emissions due to length of construction or decommissioning; noise levels will be the same regardless of the number of plants constructed) Operation of 200 power plants (resulting in noise emissions of highest level and extent)	Construction / decommissioning of 60 power plants and 1 substation with infrastructure (resulting in the longest noise emissions due to the length of construction or decommissioning; noise levels will be the same regardless of the number of power plants constructed, but the length of emissions depends on the number of power plants) Operation of 60 power plants (resulting in the highest level and extent of noise emissions)

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Air pollutant emissions	- Ships - Helicopters	- Deterioration of living conditions for animals - Deterioration of living conditions for people in the area of the farm (e.g. on ships)	- Air quality - People's health and lives	- Birds - Mammals	- Wind speed - Wind directions	- Number of vessels - Engine power - Fuel consumption - Number of days of operation	Construction / operation / decommissioning of 200 power plants with infrastructure (causing the most air emissions from ships and helicopters)	Construction / operation / decommissioning of 60 power plants and 1 substation with infrastructure (causing the highest air emissions from ships and
Water pollution emissions	- Ships - Corrosion protection - Grouting - Agents to protect against fouling in marine structures	- Deterioration of living conditions	- Hydrochemical conditions - Benthos - Fish - Marine mammals - Sea birds		- Physico-chemical properties of water	- Number of vessels - Number of foundations - Type of foundation - Type of binder	Construction / operation / decommissioning of 200 power plants with infrastructure (causing the most air emissions from ships and helicopters)	Construction / operation / decommissioning of 60 power plants and 1 substation with infrastructure (causing the highest air emissions from ships and helicopters, dependent on the number of power plants)

Type of emission or disturbance	Source of emissions	Type of impacts	Which elements of the ecosystem are directly affected	Links (indirect impacts)	Environmental factors influencing the scale of the impact	Parameters of the project affecting the scale of the impact	The most far-reaching scenario of the NIS 2015	Project - option chosen for implementation (Project after update)
Waste generation	- Construction process - Construction and service vessels - Construction and service operation					- Number of power plants - Number of foundations - Number of vessels - Time of construction process - Frequency of service	Construction / operation / decommissioning of 200 power plants with infrastructure (causing most waste generation)	Construction / operation / decommissioning at 60 power plants with infrastructure (resulting in most waste generation, dependent on number of power plants)
Light phenomena	- Power plants in operation	- Stroboscopic effect - Shadow flickering	- Marine mammals - Seabirds		- Height of the power plant - Current position of the sun relative to the position of the power plant	- Number of power plants - Height of power plant - Diameter of rotor - Number of solar days	Operation of 200 power plants	Operation of 60 power plants and 1 substation

Source: EIA Reports MFW Bałtyk II (2021) and MFW Bałtyk III (2022)

Connection infrastructure (ECI)

A summary of the assessment of impacts on individual abiotic and biotic components, both during the construction and operational phases in the offshore part of the ECI, is presented in the table below.

Table 8 Summary of results of significance of impacts of the planned project (connection infrastructure) by component - offshore part

Component		MARITIME PART	
		Construction phase	Operation phase
Shaping of the bottom of the water body		insignificant	insignificant
Geological structure, bottom sediments and deposits		insignificant	insignificant
Marine waters		insignificant	insignificant
Phytobenthos		moderate	insignificant
Macrozoobenthos		moderate	insignificant
Ichthyofauna		moderate / significant - GD*	insignificant
Marine mammals		moderate	insignificant
Seabirds		moderate	insignificant
Sand hopper		no	no
Natura 2000	PLC990001 Ławica Słupska	moderate	insignificant
	PLB990002 Przybrzeżne wody Bałtyku	insignificant	insignificant
	PLH220052 Dolina Słupi	significant	negligible
Ecological corridors		significant	insignificant
Biodiversity		moderate	negligible
Underwater cultural heritage		negligible	negligible
Climate and air quality status		insignificant	**positive**
Acoustic climate		insignificant	insignificant
PEM		no	insignificant
Thermics		no	insignificant
Material goods		no	no
Fishing		insignificant	insignificant
Maritime transport		insignificant	insignificant
Health and human life		insignificant	negligible

** GD - bi-environmental species*

Source:EIA Report, 2023

The table below summarises the comparison of the results of the significance of the impacts on the different components in the land part, both during the construction and operational phases.

Table 9 Comparison of the results of significance of impacts of the planned project (connection infrastructure) by component - onshore part

Component	INVESTOR OPTION	
	Construction phase	Operation phase
Land surface	moderate	neutral
Geological structure and deposits	insignificant	neutral
Soils	moderate	moderate

Component		INVESTOR OPTION	
		Construction phase	Operation phase
Surface water		Moderate	insignificant
Groundwater		moderate	neutral
Vegetation and natural habitats		moderate	moderate
Forests		moderate	moderate
Biota of Macromycetes and lichens		moderate	insignificant
Invertebrate fauna		insignificant	insignificant
Ichthyofauna		neutral	no
Herpetofauna		moderate	insignificant
Birds		moderate	insignificant
Terrestrial mammals		insignificant	insignificant
Bats		moderate	insignificant
Protected areas	Protected landscape area	moderate	moderate
	Natura 2000	no	neutral
Ecological corridors		insignificant	neutral
Biodiversity		moderate	neutral
Landscape		moderate	moderate
Monuments		requires the agreement of the Pomorskie Voivodeship Office for the Protection of Monuments and the Office of Municipality of Ustka	neutral
Climate and atmospheric cleanliness		insignificant	positive
Acoustic climate		insignificant	moderate
PEM		no	neutral
Thermics		no	neutral
Health and human life		insignificant	insignificant
Material goods		insignificant	neutral

Source: EIA Report, 2023

3 Environmental conditions

For the purposes of the EIA Report for the ECI, data from marine environmental research performed for the reports for the MFW Bałtyk II and MFW Bałtyk III projects were used. These studies were additionally supplemented with environmental data updated as at the date of preparation of the Report for ECI, e.g. from the State Environmental Monitoring (State Environmental Monitoring). Therefore, the marine environmental conditions will be discussed jointly for all investments.

In all cases where the land area affected by the Projects is discussed, this refers to the land part of the connection infrastructure (ECI).

3.1 Location and terrain

Maritime area

The planned offshore wind farms are located in the Baltic Sea, in the Polish exclusive economic zone (EEZ). The offshore wind farm Bałtyk II is located about 37 km and the offshore wind farm Bałtyk III about 22 km from the shore. The connection infrastructure, connecting both wind farms to the substation in Wierzbięcin (the point of connection to the Polish Power Grid), runs through the Exclusive Economic Zone, Polish territorial waters and then crosses the coastal zone about 3 km west of the port of Ustka. The onshore components of the Projects are located in the administrative areas of the municipal and rural communes of Ustka, Redzikowo (formerly the municipality of Słupsk) in the Pomorskie Voivodeship. The operation and maintainace base is located in port of Leba (associated facility).

Offshore wind farms will be located outside protected areas, including Natura 2000 sites.

The offshore connection infrastructure of the Projects will cross the following Natura 2000 areas: Ławica Słupska PLC990001 and Przybrzeżne Wody Bałtyku PLB990002.

The planned connections from the offshore wind farms MFW Bałtyk II and MFW Bałtyk III are located in the infrastructure corridor designated in the Spatial Development Plan for internal sea Waters, territorial sea and the Exclusive Economic Zone , so called POM Plan. The length of the connecting infrastructure corridor (IP) in the offshore part is approx. 60 km (IP of MFW Bałtyk II) and approx. 67 km (IP of MFW Bałtyk III) plus an additional section between the farm areas of approx. 30 km. The maximum width of the corridor is about 1,000 m, except in the southern part, where the corridor narrows and then widens towards the coastline.

The ECI will be implemented between the MFW Bałtyk II and MFW Bałtyk III fields, on the northern and north-eastern slope of the Ławica Słupska, at depths of up to approximately 33 m.

The seabed is characterised by a wide variety of landforms, resulting from the influence of the last glaciation and modern sedimentary processes. Depths within the route of the IP corridor range from 16 m to 33 m, with the greatest depths recorded at a distance of about 35 km from the shore.

In the area of MFW Bałtyk II, the seabed consists mainly of moraine uplands with hills up to 3-4 m in relative height, while in MFW Bałtyk III, kame terraces with valleys and sills dominate, forming a sandy accumulation plain. Sedimentary structures such as reefs, stonewalls and ripples and sand waves are common throughout the IP corridor.

Land area

The onshore part of the power transmission facilities will run on the territory of the municipalities of Ustka and Redzikowo (Słupsk County, Pomeranian Voivodeship), along a stretch of approx. 14 km, in a corridor approx. 60 m wide, with local widening in the area of the landfall of the connection infrastructure and in the area of planned trenchless crossings under roads or other terrain obstacles.

The onshore connection infrastructure and substations will be located mainly in agricultural and forest areas, outside residential areas, partly in restricted areas (restricted access area defined by the Ministry of National Defence). The course of the planned power cable corridor will cross the eże Protected Landscape Area Pas Pobrzeża na Zachód od Ustki, where forests predominate, for a length of about 2 km - in this part the project will be implemented partly using the trenchless method to minimise impacts.

Based on survey and analysis, the shoreline is either abrasive or dynamically stabilised (accumulation). The abrasive shore extends between 237 and 238.75 kilometres of shore and the accumulative shore extends between 235 and 237 kilometres of shore The width of the beach within the accumulative sections ranges from 25 to 85 m, within the abrasive sections from 15 to 50 m. The sediments building up the shore are mainly medium-grained sands (average grain diameter 0.303 mm) with good sorting. In the waterline zone, the sediments are slightly coarser and their sorting is poorer. Their average diameter of 0.524 mm corresponds to coarse-grained sands.

In the coastal zone there are Lędowskie Wydmy overgrown with pine forest. Morphologically, there are frontal dune ridges and vegetation-reinforced grey dune ridges, complex dunes and many single forms and groups of dunes separated by numerous depressions. In places the aeolian forms are very fragmented.

3.2 Geological structure, bottom sediments, raw materials and other deposits

3.2.1 Geological structure and geotechnical conditions

Marine area:

For the realisation of the planned MFW and ECI (foundation of monopiles, substation and cables), the Quaternary sediments consisting mainly of glacial and fluvioglacial sediments from the glaciation period, as well as omarine, lake and marsh sediments formed in the post-glacial period. The thickness of this layer varies from 20 to 45 m, depending on the location. It is overlain by sedimentary rocks: sandstone, siltstone, claystone and limestone formed in different geological periods and by chalk sediments. consists mainly of glacial and water-glacial sediments from the Pleistocene and marine, lake and marsh sediments from the Holocene. The thickness of this layer varies from 20 to 45 m, depending on the location.

Land area

Weak-bearing soils along the route of the IP include dune and eolian sands, peats, peats on sands, peat silts and valley bottom silts and sands. These soils can make earthworks with heavy construction equipment difficult. They account for approximately 24% of the length of the onshore connection and occur along its entire route . The remaining section is made up of stable carbonate rocks of the Upper Cretaceous covered by a layer of post-glaciation (Holocene) soil and sediments.

3.2.2 Bottom sediments and soil

Marine area:

MFW Bałtyk II

The bottom surface of the area designated for MFW Bałtyk II is varied. The depth of the seabed varies from 20 m to 25 m in the southern and south-western part, where the relief is diversified by moraine hills with relative heights of up to 4 m, 6 m in places. The depth of the bottom increases towards the north and reaches maximum values in the north-western and north-eastern parts of the field, where it is over 45 m. As a result of the conducted analyses, four main types of sediments were distinguished in the bottom structure of the MFW Bałtyk II area: fine-grained sands, multi-grained sediments, subaqueous clay and glacial till. At the bottom surface, outcrops of glacial till with a thin, variable cover of fine-grained sands and sandy-gravel deposits occur.

MFW Bałtyk III

The bottom area of the area designated for MFW Bałtyk III varies. The depth of the study area ranged from approximately 23.5 m in the south-western part to approximately 43 m in the north-western part. The slope of the bottom is relatively gentle. In the north-western part, the relief of the bottom is varied, with ridge forms and depressions formed on the surface of the clays. Denivelations within these forms reach up to about 3 m.

As a result of the analyses carried out, five main types of sediment were distinguished in the in-depth structure of the MFW Bałtyk III area: outcrops of glacial till, glacial till with a thin cover of sands, marine sands, mixed-grained sediments, clays and silts.

On the bottom surface, there are mainly fine- to medium-grained modern marine sands, constituting the so-called dynamic layer, which is displaced by wave action. The thickness of this layer is variable and ranges on average from approx. 0.2 to approx. 1.7 m.

Interconnection infrastructure (ECI)

On the surface of the ECI route bottom, the following were identified: boulder clays, boulder clays with sandy cover, multi-grained sediments, sands on clays/silt (stagnation deposits) and fine-grained sands. The IP area is mainly covered by sandy sediments, which in some places lie on clays or loams. In the central and eastern parts, in the vicinity of the MFW Bałtyk II and MFW Bałtyk III offshore wind farms, the bottom surface consists mainly of continuous layers of sands, sometimes covered by a thin layer of clays.

None of the sediment samples tested in 2013-2014 were found to exceed the above-mentioned concentration limits for metals and organic compounds. Based on the analysis carried out, it can be concluded that the movement of bottom sediments within the waters, the ECI site and the reach of the ECI will not result in the release of metals and organic compounds from the sediments in concentrations that could potentially affect water status.

The measured values for conductivity and resistivity do not exceed the critical values specified for cables and therefore allow the Project to be carried out economically and technologically safely.

Land area:

Along the route of the overland section of the ECI, the following have been identified:

- hydrogenic soils of the silty, peaty and mucky types (approx. 3.02% in the IP corridor), which have low resistance to soil profile disturbance and water disturbance and pollution;
- arenosols - i.e. soils in the coastal zone with low resistance to contamination and sensitive to wind erosion (approximately 14% in the IP corridor);
- fertile soils of the following types: black earths and soils (approx. 13% in the IP corridor);

In addition, the IP corridor contains soils of the good wheat complex with bonitation classes II, IIIa and IIIb.

3.2.3 Raw materials and deposits

Marine area:

In the area of MFW Bałtyk II there are no areas with hydrocarbon deposits - so there is no conflict of coexistence of the MFW and potential exploitation). In the area of the planned MFW Bałtyk II and in its vicinity, there are no valid concessions for exploration, prospecting and extraction of hydrocarbons from deposits issued on the basis of PGG regulations.

The MFW Bałtyk III area partly overlaps with areas of hydrocarbon deposits (with no conflict of coexistence between the MFW and potential exploitation).

In the area of the planned MFW Bałtyk III and in its vicinity, there are no valid concessions for exploration, prospecting and extraction of hydrocarbons from deposits issued under the provisions of the Geological and Mining Law. There are no documented mineral deposits or mineral extraction sites (mines) in the area through which the offshore transmission infrastructure will run or in its vicinity .

Land area:

According to the maps of concessions for prospecting, exploration and extraction of minerals from deposits (as of June 2022), the planned Project in the onshore part is located outside the areas covered by the concessions. There are no mineral deposits or mining areas within the boundaries of the planned Project and in the area of potential impact .

3.3 Water quality

Marine area (seawater):

The data used for the characterisation were primarily the PMS data for the Bornholm Basin contained in the 2021 publication of the Inspectorate of Environmental Protection: "Assessment of the state of the environment of the Polish Baltic marine areas on the basis of monitoring data from 2020 against the background of the decade 2010-2019". In addition, the results of hydrological and hydrochemical measurements carried out by the Investor within MFW Bałtyk II and MFW Bałtyk III were used.

Temperature

Water temperature in the Baltic shows variability in the vertical profile and seasonal variability. Based on PMŚ data from 2020, the mean water temperature studied for the Bornholm Basin in the surface layer (0-10 m depth) varied between 5.2-18°C. A slightly higher variability was recorded in 2019, i.e. 3-20°C.

Salinity

In Polish marine areas, the average salinity of the bottom waters ranges between 5.5 and 12 PSU. In 2019, in the area of the planned Project, the average salinity of the surface layer waters ranged from 7.43 to 7.95. The highest average salinity value was recorded in March, the lowest in June. The largest difference in mean salinity value between 2019 and the 2009-2018 multi-year period was recorded in March (0.55). In the other months, the differences were small: in February the difference was 0.07, in June and November the difference did not exceed 0.2, while in August and September the value of average water salinity in 2019 was 0.3 higher than in the 2009-2018 multi-year period.

pH

The seawater has a slightly alkaline reaction. In 2019, pH values ranged from 6.88-8.97. The average pH value of the Baltic Sea water was 7.96. This value was 0.13 lower than the multi-year average 2009-2019.

Hydrochemistry

In accordance with the Marine Strategy Framework Directive (MSFD) and the established pressure indicators related to eutrophication and pollutants, the results of the studies carried out indicate a water status below good).

- The results of the Biochemical Oxygen Demand (BOD_5) and Total Organic Carbon (TOC) tests indicate good water quality. Throughout the measurement period, the values of BOD_5 did not exceed the limits set for Class I water quality.
- The results of suspended solids levels in the water depths also did not show concentrations deviating from typical values for Baltic Sea waters. The highest values of suspended solids concentrations were recorded in May and July 2013. (max. suspended solids concentration near the bottom 9.18 ± 2.70 mg/dm^{-3}). During the rest of the period they did not exceed the value of 3 mg/dm^{-3} .
- The results of biogenic substances: total nitrogen, mineral nitrogen, nitrates, nitrites, ammonia, phosphates and total phosphorus showed seasonal variability. The lowest concentrations were recorded in May and July, while the highest (elevated) concentrations were recorded in the winter months: December and February. The upward trend in the winter months is attributed to the seasonal recovery trend of nutrients.
- Low values of particularly harmful substances were recorded in the water samples of the study area. Polychlorinated biphenyls, free and bound cyanides, the metals Pb, Cd, Cr, Cr (VI), As, Ni, Hg and phenols were present in trace amounts, as were ^{137} Cs and ^{90} Sr, and mineral oil.
- no exceedances of the water quality indicator limits for the mean values of polycyclic aromatic hydrocarbons (PAHs) were recorded in the water samples. The situation is similar for the indicators for cadmium, nickel, lead and mercury.

Marine Environmental Assessment

The assessment of the state of the marine environment has been carried out on the basis of the criteria recommended by the ICZM on the basis of the basic indicators determined for the individual features based on the results of the studies carried out within the framework of the PMŚ.

The assessment of the marine environmental status of Sub-Aquas 36 and 38 shows that in the waters of Sub-Aqua 36 good status was achieved in the features D1 biodiversity - zooplankton, D6 seabed integrity and D9 harmful substances in fish and seafood - heavy metals, while in the waters of Sub-Aqua 38 in the features D8 pollutants and pollution effects - radionuclides and D9 harmful substances in fish and seafood - heavy metals. In the remaining features, good environmental status has not been achieved or has not been assessed. So far, for marine waters, no overall assessment of water status has been made.

Table 10 Assessment of the state of the marine environment in 2020. GES - good environmental status, subGES - good environmental status not achieved - no assessment

Lp	Subakwen	Name of administration	D1/D4				D3	D6	D5	D8				D9		D10
			fish	zooplankton	Macrozoo-benthos	chlorophyll a				Radionu-klidy	Heavy metals	POPS	Micronucleus test	Heavy metals	POPS	
1.	36	Open waters of the Bornholm Basin	subGES	GES	subGES	subGES	subGES	GES	subGES	subGES	subGES	subGES	subGES	GES	subGES	-

2.	38	Polish coastal waters of the Bornholm Basin	-	-	subGES	-	-	subGES	subGES	GES	subGES	-	-	GES	subGES	subGES

Source: EIA Report, 2023

Land area (surface water):

The northern part of the route of the planned ECI is delimited partly in a wetland area, with a hydrographic network formed mainly by:

- Struga Lędowska,
- Pogorzeliczka,
- drainage ditches.

The hydrographic network in this area drains to Lake Modla, approximately 900m west of the ECI corridor boundary. The watercourses, including drainage ditches, are in varying states of maintenance. Some of them carry water periodically or episodically.

In an area of 35 km, the IP corridor crosses the coastal zone. This is a direct catchment area of the sea with no flowing surface water.

Wetlands and drainage ditches

The route of the ECI corridor in 37 km is routed meridionally through wetlands. There are drainage ditches with a total length of approximately 540 m. They do not carry water during dry periods.

In the area of 39 km, the eastern ECI corridor crosses a wetland for approximately 500 m, while in the western variant it is routed along the southern boundary of the wetland. In addition, a drainage ditch is crossed in the eastern route of the wetland crossing. The western corridor of the planned Project is routed along the drainage ditch for a distance of approximately 300 m.

Flood risks

ECI is located fragmentarily within areas of special flood risk due to its location:

- between the shoreline and the levee or the natural high bank into which the levee has been built, as well as islands and siltation;
- within the technical belt.

Surface water bodies

The ECI corridor includes parts of the catchment areas of water bodies - coastal including the direct catchment of the sea), and river and lake surface water bodies. ECI will be implemented within water bodies assessed as poor, mainly due to poor chemical and biological status.

Land area (groundwater):

In the northern part of the planned Project (up to 38 km) groundwater occurs at a depth of approximately 2.5 m, with water flowing from the southwest towards the coast. In the area of 39 km the groundwater occurs at a depth of 5 m and the further south the depth gradually increases to 25 m in the area of the Wierzbięcino PSE station. The water here flows from a southerly and south-easterly direction.

The ECI corridor is located outside the boundaries of the Main Underground Water Reservoirs (GZWP). They do not occur in its close vicinity either. The nearest Main Underground Water Reservoir is situated at a distance of about 13 km from the PSE Słupsk - Wierzbięcino station.

In the immediate vicinity (up to 500 m from the boundary of the corridor of the planned Project), 5 underground water intakes have been identified.

Groundwater bodies (JCWPd)

The ECI corridor is routed within the boundaries of JCWPd PLGW600010, which has an area of 2,559 km^2 . The usable aquifers are located in Quaternary, Miocene and Cretaceous formations. In the coastal area, freshwater occurs to depths of 100-150 m, while in the upland area up to 250-300 m. The land use status of the JCWPd is defined as agricultural and forestry. The 2019 status assessment for the JCWPd indicated good chemical, quantitative and overall status of the water body. The environmental objectives for PLGW600010 are good chemical and quantitative status and are not at risk of not being achieved.

3.4 Climatic conditions

3.4.1 Climate and the risk of climate change

According to the climate scenarios developed (Climada Project), the temperature shows a clear upward trend throughout the country, more warming is expected towards the end of the century, temperature increases are regionally and seasonally differentiated, the highest temperature increase above 4.5°C in the last thirty years of the 21st century in the low temperature ranges is seen in the winter in the north-eastern region of the country, and in the high temperature ranges in the summer in south-eastern Poland.

The increase in temperature is correctly reflected in the course of all climate indices based on this variable, e.g. there is a clear trend towards a longer thermal growing season, an earlier onset is noted, the number of days with a minimum temperature below 0°C is decreasing and the number of days with a maximum temperature above 25°C is increasing, and of course the course of the indices is regionally determined, which is very well reflected in the models;

- For precipitation, the trends are less clear, with simulations indicating some increase in winter precipitation and a decrease in summer precipitation towards the end of the century;
- Temperature characteristics such as the number of days reflect an upward trend in temperature change;
- Precipitation characteristics show a prolongation of rain-free periods, an increase in total maximum precipitation and a reduction in the duration of snow cover.

In the coastal zone, the effects of climate change include:

- an increase in the intensity, frequency and duration of storms and a reduction in winter ice cover, which protects the beach from erosion;
- The average annual sea level along the entire coast according to the scenarios will rise by about 5 cm between 2011 and 2030 compared to 1971-1990;
- coastal infrastructure will be significantly impacted by storm flooding and inundation of low-lying areas and erosion of the seashore and cliffs.

As a consequence of climate change, which causes high winds and excessive ice, overhead networks are at risk of damage. This risk does not apply to cable networks.

3.4.2 Meteorological conditions

Marine area:

Sunshine in the Baltic varies from 1592 hours per year in Lund to 1881 hours in Visby. The least sunshine is in December and January (less than 40 hours at most research stations) and the most from May to August (more than 200 hours per month).

The average annual cloud cover ranges from 65% (Arkona, Maarianhamina) to 71% (Kolobrzeg), with the most cloudy period being November-February (over 70% cloud cover). The number of days with precipitation ranges from 158 to 182 days per year, with the highest number in November, December and January (around 20 days) and the lowest from April to September (less than 15 days).

Ice phenomena occur every winter, lasting between 0 and 40 days in the Baltic Proper. In the Polish economic zone, ice cover was rarely and briefly present, with an average thickness of less than 30 cm.

Winds blow mainly from southerly and westerly directions, most often at speeds of 5 to 10 m/s. Minimum wind speeds were mainly recorded from April to September, and most days with storm weather occur in autumn and winter.

Temperatures in the area of the planned project ranged from -9.8°C in January 2014 to 24°C in August 2013.

Land area:

The average temperature in the area is 8.8°C. The coldest months are January and February and the warmest month is July. The average annual rainfall is 626 mm, with the heaviest rainfall occurring in the summer months of June, July and August. The lowest rainfall occurs in April and October. The growing season lasts about 214 days, which is favourable for agricultural development.

In the onshore area, the prevailing winds are from the WSW and W direction, reaching speeds of up to 60 km/h. During autumn and winter, winds of greater strength are recorded than at other times. Most storms at sea are observed during this time. At other times, the wind is weaker and moderate. Strong winds during this period occur sporadically, usually accompanying weather phenomena such as storms. The average wind speed in the area is 22 km/h.

3.5 Air quality

In the area of the planned projects, the concentration limits for SO_2 (125 µg-m^{-3}), NO_2 (40 µg-m^{-3}), PM2.5 (20 µg-m^{-3}) are not exceeded, which allows the marine area in the area of the wind farms and transmission infrastructure to be assigned a cleanliness class A.

3.6 Acoustic background

Maritime area

The study area can be characterised as having a medium underwater noise pressure on the marine environment. The level of acoustic background increases during stormy periods and decreases at low wind speeds. Compared to other areas in the Baltic Sea and North Sea, the acoustic background in the MFW area for frequencies below 10 kHz

only has a moderate impact on harbour porpoises and seals in the area. The observed acoustic background levels will not adversely affect the use of the area by harbour porpoises.

Land area

In the vicinity of the planned connection with MFW Bałtyk II and MFW Bałtyk III, acoustic nuisance is mainly caused by traffic noise, accumulating mainly along the provincial road No. 203 from Ustka to Koszalin and along district and communal roads. Occasionally, at high traffic volumes, noise may exceed the standards set for areas protected against noise. No exceedances were recorded at night. There are no other significant noise sources in the vicinity of the ECI corridor.

3.7 Electromagnetic field

Maritime area

The anthropogenic source of the electromagnetic field in the area of the planned projects is the cable line of the 450 kV direct current transmission system Sweden-Poland (SWEPOL Link), which runs parallel to the ECI corridor, along its western border, while in the area of the seashore - directly in the corridor of the planned ECI, at a length of approximately 250 m. This line does not emit above-normal impacts.

There are substations and power lines located in the ECI area, which are elements of the National Power System, including substations and overhead lines. None of these have a significant impact on raising the background level, which is at a low level. Impacts from electromagnetic radiation are perceptible in the immediate vicinity of the substations and under the high and extra-high voltage lines. There is no residential development in their immediate vicinity.

3.8 Biotic elements in marine areas

3.8.1 Phytobenthos

The summary of the phytobenthos inventory showed that 8 species, including protected and eutrophication indicator species, covering less than 1% of the seabed were identified in the connection infrastructure (IP) corridor of the MFW Bałtyk II offshore wind farm, with the exception of a few local areas with higher coverage. The most valuable areas in terms of nature, due to the presence of rare and protected species and locally high macroalgae cover, are located in the areas of the IP corridor of the MFW Bałtyk II. In the corridor connecting the MFW Bałtyk III to land, no sites of phytobenthos importance were found.

3.8.2 Macrozoobenthos

The macrozoobenthos inventory conducted by the Investor showed the presence of 34 taxa, of which 28 were designated to species, with bivalves dominating in terms of biomass (93%). A high macrozoobenthos biomass and the presence of the rare species Eurydice pulchra, which is listed as endangered in the Red List of Threatened Species in the Baltic Sea, was recorded in the IP corridor with MFW Bałtyk II and MFW Bałtyk III. The most valuable

sites due to the highest macrozoobenthos biomass were identified in the boulder and rocky sections, which are also important for benthic fish and birds.

3.8.3 Ichthyofauna

Fish inventories carried out by the Investor in 2012-2014 and as part of the PMŚ surveys showed the presence of 41 fish species including 4 protected demersal fish species (sand goby (*Pomatoschistus minutus)*, common sand goby (*Pomatoschistus microps),* common seasnail (*Liparis liparis)* and straightnose pipefish (*Nerophis ophidion)*) and 2 alien species (round goby (*Neogobius melanostomus*) and rainbow trout (*Oncorhynchus mykiss)*). The connection area runs through the naturally valuable Slupsk Bank (Ławica Słupska), important for spawning and migration of protected species and as a potential spawning ground for herring and sprat. The area also serves as a migration corridor for sea trout and salmon.

3.8.4 Marine mammals

Marine mammals are likely to use the area of the MWF and ECI and adjacent waters surveyed for monitoring incidentally as a foraging migration area (following food-base fish species). The sea shore is used very occasionally by Baltic seals as a resting place. However, the number of observations collected is so small that no clear trends in animal behaviour or seasonality can be identified. There are currently no regular roosting, resting, feeding or breeding areas for marine mammals in the area of the planned Project.

3.8.5 Seabirds

Area outside Slupsk Bank (Ławica Słupska)

During the survey, bird densities were highest in winter, reaching values of up to 13.1 individuals per km² in the farm area and 10.6 individuals per km² in the buffer zone. In summer and autumn, densities were much lower, not exceeding 5 individuals per km². The distribution of birds was also variable from season to season, suggesting no clear preference for a particular part of the study area.

Analysis of the results of the comparative surveys carried out in 2012-2013 and 2016-2017 showed that bird densities in the common area did not show significant differences between the study periods. These surveys were designed to assess the potential impact of the offshore wind farm on the environment, with a particular focus on the impact on birds migrating and flying over the area.

During the survey, occurrences of 21 different seabird species were observed in the different study areas. The most abundant are the long-tailed duck (*Clangula hyemalis), the* silver-backed gull (Larus *argentatus), the* common gull (*Larus ridibundus), the* scoter (*Somateria mollissima)*, the alka (*Alca torda*) and the uhla (*Melanitta fusca)*.

Slupsk Bank area including the Ławica Słupska Natura 2000 site PLC990001

A total of 31 species of waterbirds were found on Slupsk Bank during ornithological surveys, of which 15 belong to seabirds. Icefish are the dominant species, accounting for as much as 99.5% of all seabirds observed, a result of their abundant presence in the area.

The density of seabirds on Slupsk Bank varied depending on the season:

- In summer, the average density was 1.1 individuals per km².
- In autumn, the density increased to 164.2 individuals per km².
- In winter, the highest density reached 251.5 individuals per km².
- In spring, the density dropped to 67.9 individuals per km².

The long-tailed duck prevailed among seabirds throughout the year, reaching the highest concentrations in winter, especially at the end of February, when the density of this species on parts of Slupsk Bank exceeded 100 individuals per km².

Migrations

The results of the surveys showed that the MFW Bałtyk II and MFW Bałtyk III areas do not lie on a major bird migration route, suggesting that bird flights over the area are dispersed rather than clustered in large groups. Bird species that were analysed in detail for their occurrence and migratory patterns included alcids, geese, cormorants, golden plovers, little gulls, cranes and various species of sea ducks.

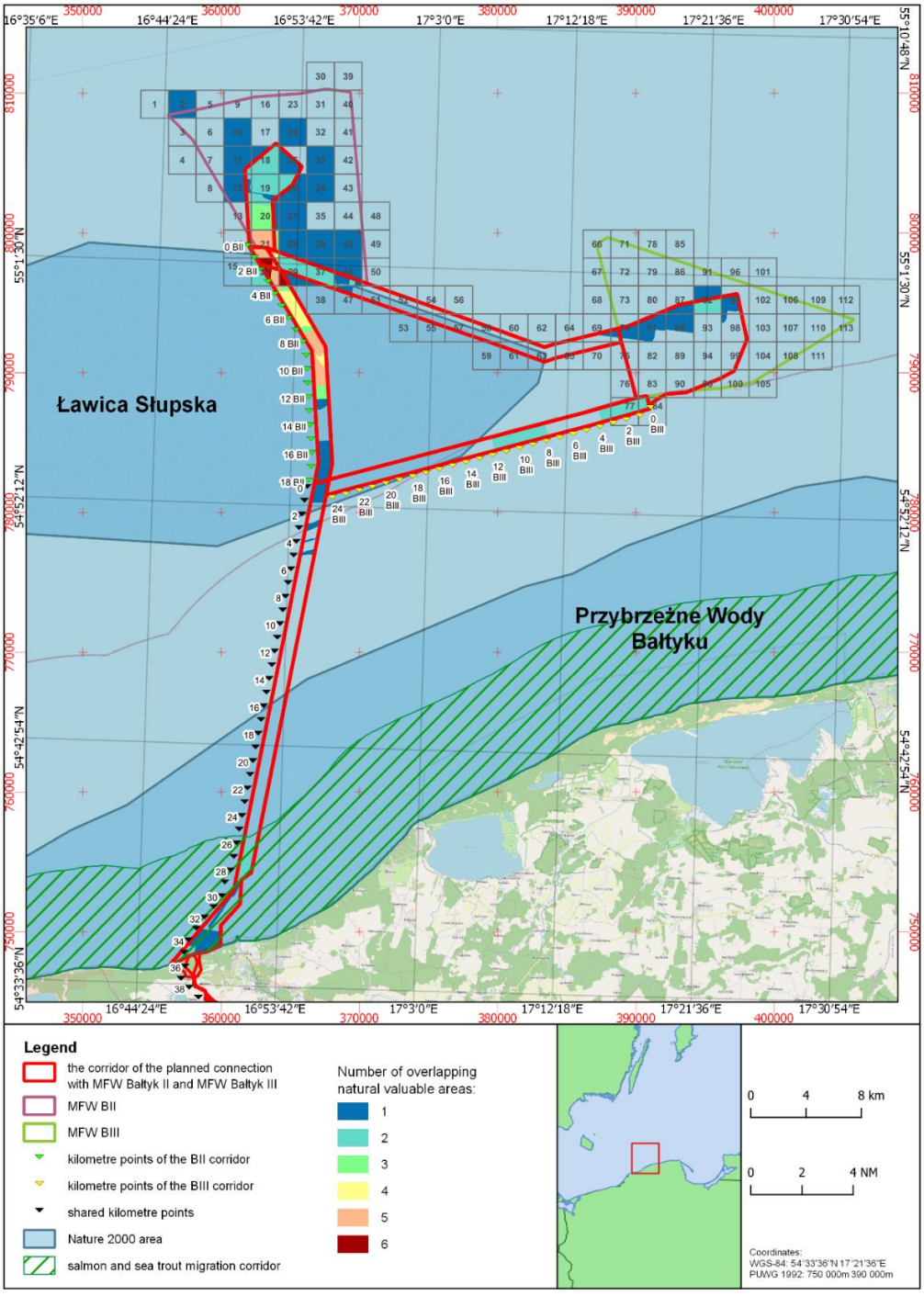
Comparative surveys carried out in the neighbouring Baltica MFW area also confirmed similar migration patterns, although some details such as flight heights and exact migration directions may have varied slightly depending on the season and location of the survey.

3.8.6 Sand hopper Talitrus saltator

Detailed surveys carried out in August 2015 on the sandy beach to be crossed by the corridor of the planned IP of the MFW Bałtyk II and MFW Bałtyk III offshore wind farms revealed that it is colonised by the sand hopper *T. saltator*. Its occurrence was recorded over almost the entire study area, most abundantly on the stretch of beach up to 6 m from the waterline. A clustering of occurrence was observed, with maximum densities (up to 90 individuals·m^{-2}) recorded close to the shoreline in the section of beach between km 237.12 and km 237.09 according to the Maritime Office kilometrage.

3.8.7 Biodiversity and nature conservation of the basin

Figure 6 Natural assets in the Project area



Source: EIA Report, 2023

The sections of the connection infrastructure running through the Slupsk Bank area, which is protected under Natura 2000 (PLC990001 Ławica Słupska), are distinguished by high biodiversity, especially ichthyofauna, due to the varied

habitat conditions. The area is home to rare plant species such as the fork-wort Furcellaria lumbricalis and the rosebay Ceramium diaphanum, and a greater number of macrozoobenthos taxa, including the rare crustacean Eurydice pulchra.

The connection route from the MFW Bałtyk II includes sections with the highest natural values, where high densities of wintering birds, such as the long-tailed duck, and potential spawning grounds for herring have been identified. These areas are also characterised by a high biomass of macrozoobenthos, including the mussel Mytilus trossulus, which is an important habitat and food source for many organisms.

The connection route from MFW Bałtyk III, although also more valuable in terms of nature, is of lesser value compared to MFW Bałtyk II. However, a high biomass of mussels and macrozoobenthos was found there, as well as potential spawning grounds for sprat.

The link between MFW Bałtyk II and MFW Bałtyk III is particularly valuable in the western part, where there are potential herring spawning grounds and high bird densities. A protected beach sandpiper has also been recorded on the surveyed beach.

3.9 Biotic elements in terrestrial areas

3.9.1 Vascular plants and natural habitats

The habitat inventory in the area of the land corridor showed the presence of 9 natural habitats (2120 Shifting dunes along the shoreline with *Ammophila arenaria*, 2130 Fixed coastal dunes with herbaceous vegetation, 2180 Sub-Atlantic and central European beech forests, 9110 Acidic Beech Forests (*Fagus sylvatica*), 9130 Fertile Beech Forests (*Fagus sylvatica*), 9160 Sub-Atlantic Oak-Ash Forests (*Quercus robur, Fraxinus excelsior*), 91F0 Riparian Oak-Ash Forests (*Quercus robur, Fraxinus excelsior*), 9190 Acidic Oak Forests (*Quercus robur*), 4030 Dry Heaths with Erica tetralix). Their status and perspectives of protection vary, but they are an important element of the biodiversity of Pomerania and the plant cover of the South Baltic coastal zone.

3.9.2 Forests

The ECI corridor is dominated by forests and fresh forests. Forests growing on poor sands are quite susceptible to chemical and biological degradation.

3.9.3 Biota of macrofunghi and lichens

Within the corridor of the planned connection, 4 species of macrofunghi of natural value were found , including 1 species - Polyporus weberianus (*Inonotus obliquus)* under partial protection. No species of macrofungi under strict protection were found.

In addition, 16 naturally valuable lichen species were found within the corridor of the planned connection, including 4 species under strict legal protection, 11 species under partial legal protection.

3.9.4 Invertebrate fauna

Within the ECI corridor and in the area of potential impact, 3 species of invertebrates under partial species protection were found. The most common species found was the red ant (1 site within the IP corridor and 6 in the area of potential impact). The presence of the remaining species was determined by single sightings. The most valuable section of the ECI, in terms of entomofauna, is the northern, coastal part of the corridor: 34 km - 37 km.

3.9.5 Ichthyofauna

The Lędowska Stream (Struga Lędowska), characterized by a constant flow of water, is of significant importance for the ichthyofauna within the ECI corridor. However, the species composition here is relatively poor, and the fish population is low. In other streams, fish may occur sporadically, mainly in estuarine sections. During electrofishing conducted in the Lędowska Stream, 26 fish with a total weight of 132 grams were caught, comprising 2 species: northern pike and tench. No protected or non-native species were recorded. The ichthyofauna of the Lędowska Stream also includes the non-protected three-spined stickleback (*Gasterosteus aculeatus*), which was not captured during electrofishing but was observed in the stream during surveys of other animal groups.

3.9.6 Herpetofauna

Within the ECI corridor and in the area of potential impact of the connection, 2 species of reptiles were found (the most numerous was the European Common Lizard (*Zootoca vivipara*), observed at 3 sites) and 5 species of amphibians. The identified groups of amphibian species included brown frogs (the Common Frog (*Rana temporaria*) and the Marsh Frog (*Pelophylax ridibundus*)) and a complex of green frogs (the Laughing Frog (*Pelophylax ridibundus),* the Lake Frog (*Pelophylax esculentus*), and the Water Frog (*Pelophylax lessonae*)). Brown frogs are easy to identify during the breeding season, so the Inventory Contractors identified them to species, while outside this period, they were categorized collectively as brown frogs. With the exception of the Marsh Frog, which is under strict species protection, all found species are partially protected. Three species and representatives of the green frog complex are listed in the annexes of the EU Habitats Directive. The most commonly found species in the ECI area were those belonging to the brown frog group (70 sites in total) and the green frog complex (18 sites).

3.9.7 Birds

Within the ECI corridor and in the area of potential impact of the connection, 18 species of breeding birds were identified, including 16 species under strict species protection and 6 listed in Annex I of the EU Birds Directive. Additionally, two game species considered of high conservation value were noted: the European Stonechat (*Saxicola rubicola)* and the Grey Partridge (*Perdix perdix*). The most frequently encountered species in the planned Project area were the Common Whitethroat (*Curruca communis*) (8 sites), the Eurasian Wryneck (*Jynx torquilla*) (6 sites), and the Wood Warbler (*Phylloscopus sibilatrix*) and the Spotted Flycatcher (*Muscicapa striata*) (5 sites each). The least common species were the Northern Lapwing (*Vanellus vanellus*), the Green Woodpecker (*Picus viridis*), the Black Woodpecker (*Dryocopus martius*), the Lesser Spotted Woodpecker (*Picoides minor*), the Grey Partridge (*Perdix perdix*), the Tawny Owl (*Strix aluco*), the European Stonechat (*Saxicola rubicola*), the Grasshopper Warbler (*Locustella naevia*), and the Common Crane (*Grus grus*) (1 site each).

Furthermore, within the bird observation points, 239 species of migratory birds passing over the ECI area were recorded during the spring and autumn migration periods.

The most valuable areas in terms of avifauna are the sections within tree stands, shrubbery, and wetland areas, particularly from 35 km to 41 km and from 42 km to 48 km of the ECI corridor.

3.9.8 Mammals land mammals

Within the ECI corridor and the area of potential impact of the connection, 2 mammal species under partial species protection were identified: the European Beaver (Castor fiber) (also listed in Annexes II and V of the EU Habitats Directive) and the Eurasian Red Squirrel (Sciurus vulgaris). Observations of the beaver were limited to a few old gnawings.

Additionally, 686 observations of representatives of 13 mammal species crossing the study area during migration were recorded. The identified species were: Badger (*Meles meles*), European Beaver (*Castor fiber*), Eurasian Wild Boar (*Sus scrofa*), Red Deer (*Cervus elaphus*), Red Fox (*Vulpes vulpes*), Roe Deer (*Capreolus capreolus*), European Polecat (*Mustela putorius*), Eurasian Red Squirrel (*Sciurus vulgaris*), European Otter (*Lutra lutra*), European Brown Hare (*Lepus europaeus*), Raccoon Dog (*Nyctereutes procyonoides*), Marten (*Martes sp.*), and European Bison (*Bison bonasus*). In the planned land area of the Connection Infrastructure of the MFW Bałtyk II and MFW Bałtyk III, the European Mole (*Talpa europaea*), which is under partial species protection in Poland, was also recorded

3.9.9 Bats

Within the ECI corridor and the area of potential impact of the connection, 4 bat species were identified. All of these species are under strict species protection in Poland and are listed in Annex IV of the EU Habitats Directive. The most numerous roosts, which serve as breeding and hibernation sites, pertain to the European Red Bat (*Plecotus auritus*) (6 sites) and the Lesser Horseshoe Bat (*Rhinolophus hipposideros*) (5 sites). The remaining species were found less frequently around the planned Project area. Additionally, within the detection points, 10 bat species were recorded flying over the planned connection area. They were most commonly found along roadside tree lines, watercourses, and the edges of dense forest patches. The identified species were: the Great Bat (*Nyctalus noctula*), Pipistrelles (*Pipistrellus sp.*), including the Soprano Pipistrelle (*Pipistrellus pygmaeus*), the Common Pipistrelle (*Pipistrellus pipistrellus*), and Nathusius' Pipistrelle (*Pipistrellus nathusii*), the Western Barbastelle (*Barbastella barbastellus),* the Late Eptesicus (*Eptesicus serotinus*), and Myotis bats (*Myotis sp.*), including the Greater Mouse-eared Bat (*Myotis myotis*) and the Daubenton's Bat (*Myotis daubentonii*).

The most valuable areas of the planned Project in terms of bat fauna are the northern, coastal part of the study area (35 km – 37 km of the IP corridor), where the highest number of bat roosts was found, including one of the wintering sites for this species in the ruins of Battery 9 of the Permanent Artillery in Ustka at site No. 504 (battery No. 4) (35.1 km of the IP corridor). Additionally, a fragment of forest in the vicinity of 36.6 km of the IP corridor, where swarms of Soprano Pipistrelle (*Pipistrellus pygmaeus*) were recorded, should be considered particularly valuable.

3.9.10 Biodiversity

The most biodiverse sections along the IP route include areas:

- coastal grey dunes (35 km),
- mixed forests and forests on coastal dunes (35-36.5 km),
- wet meadow complex with the Struga Lędowska (36.9-37.5),
- fertile beech forests (43, 44, 46-47 km),
- acid beech (36.5, 45.8 km).

In addition, areas along the ECI route have been highlighted for their biodiversity in a monotonous setting of farmland:

- in the area of 38.6-39.0 km, habitat 91F0 Riparian Oak-Ash Forests. This is an area surrounded by arable fields and is valuable for herpetofauna,
- In an area of 39.7 km, the planned Project crosses the historical railway line "Trail of the rolled-up Tracks". There is a depression of land with periodic wetlands. The area is overgrown by trees and shrubs. It acts as an ecological link, allowing fauna to migrate through the monotonous landscape of the surrounding agricultural fields.

3.10 Protected areas, including Natura 2000 sites

Maritime area

The planned investments are located within two Natura 2000 sites established under the provisions of the Nature Conservation Act. These are:

PLC90001 Ławica Słupska: The ECI corridor runs through this area for approximately 31.8 km.;
PLB990002 Przybrzeżne Wody Bałtyku: The connection passes through this area for approximately 19.7 km from both wind farms.
Additionally, over 6 km from the marine boundaries of the ECI, there is a marine part of the Natura 2000 site Ostoja Słowińska (PLH220023) and the Słowiński National Park.
PLC90001 Ławica Słupska - This area was designated by the Regulation of the Minister of the Environment of July 21, 2004, on Natura 2000 Special Protection Areas for Birds, and the Commission Decision of December 12, 2008. The seabed in this area is highly diverse, with water depths ranging from 8 to 35 meters. The shallowest parts of the seabed are located in the northern and western sections and include "boulder fields" and sandy seabed areas. The conservation interests in this area include habitats such as Submarine Sandbanks (1110), Reefs (1170), and bird species (wintering and migratory): the Black Guillemot (*Cepphus grylle*, A202), the Long-Tailed Duck (*Clangula hyemalis*, A064), and the Common Eider (*Melanitta fusca*, A066).

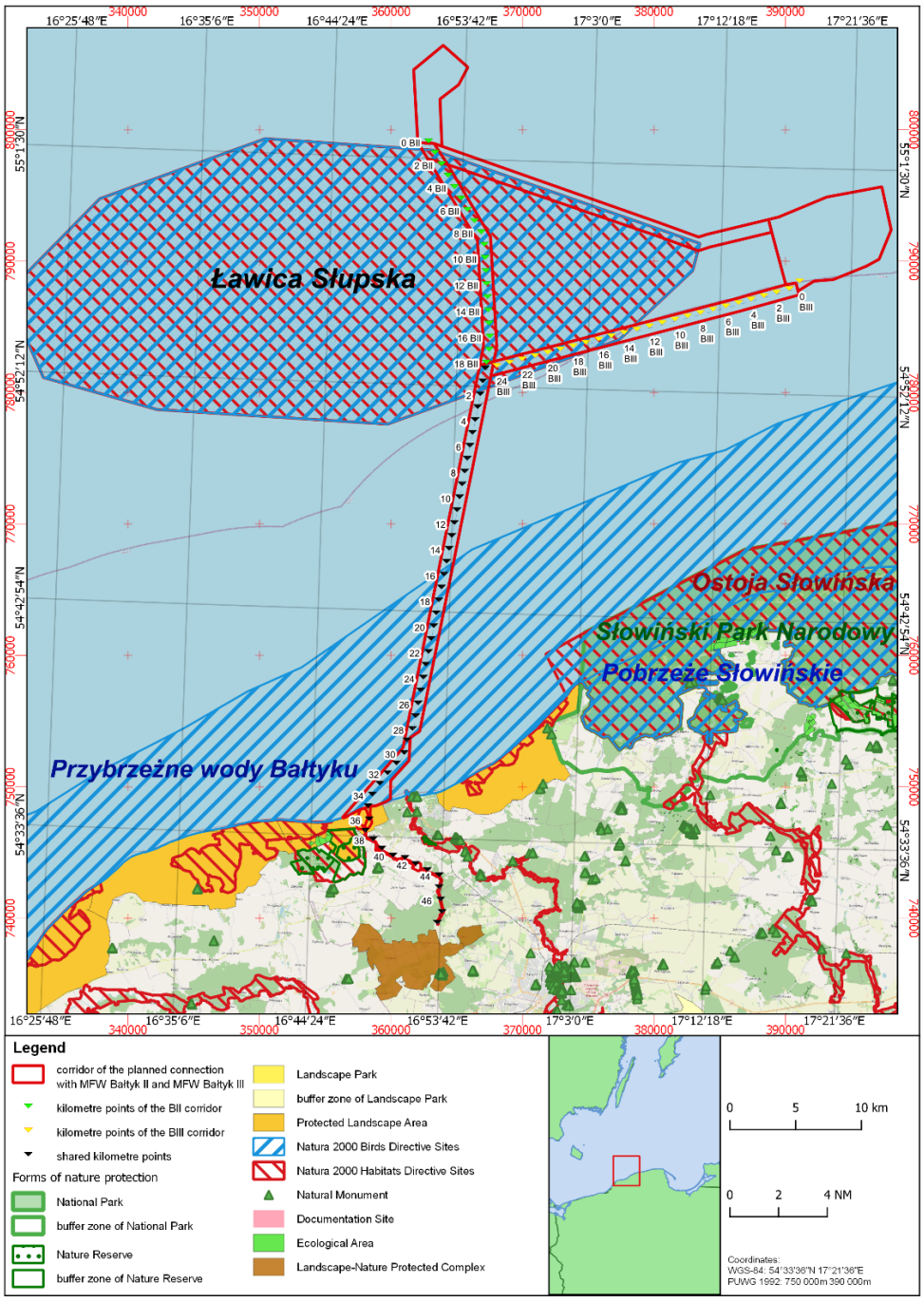
Additionally, the SDF mentions the Harbor Porpoise (*Phocoena phocoena*) as well as the Black-Throated Diver (*Gavia arctica*) and the Red-Throated Diver (*Gavia stellata*), but these are not the primary conservation targets of this site.

PLB990002 Przybrzeżne Wody Bałtyku - This area was designated by the Regulation of the Minister of the Environment of July 21, 2004, on Natura 2000 Special Protection Areas for Birds. The seabed is characterized by unevenness, with variations reaching 3 meters. The benthic fauna is dominated by small crustaceans.

The conservation targets in this area include six species of wintering birds and one migratory species: the Long-Tailed Duck (Clangula hyemalis), the Razorbill (Alca torda), the Black Guillemot (Cepphus grylle), the Herring Gull (Larus argentatus), the Common Eider (Melanitta fusca), and the Velvet Scoter (Melanitta nigra).

The Przybrzeżne Wody Bałtyku serve as a bird sanctuary of European significance (E 80). This area is a wintering ground for numerous sea ducks, hosting about 12% of the Common Eiders, 2% of the Velvet Scoters, and 35% of the Long-Tailed Ducks found in Polish marine areas.

Figure 7 Location of the marineoffshore part of the planned Project in relation to protected areas



Source: EIA Report, 2023

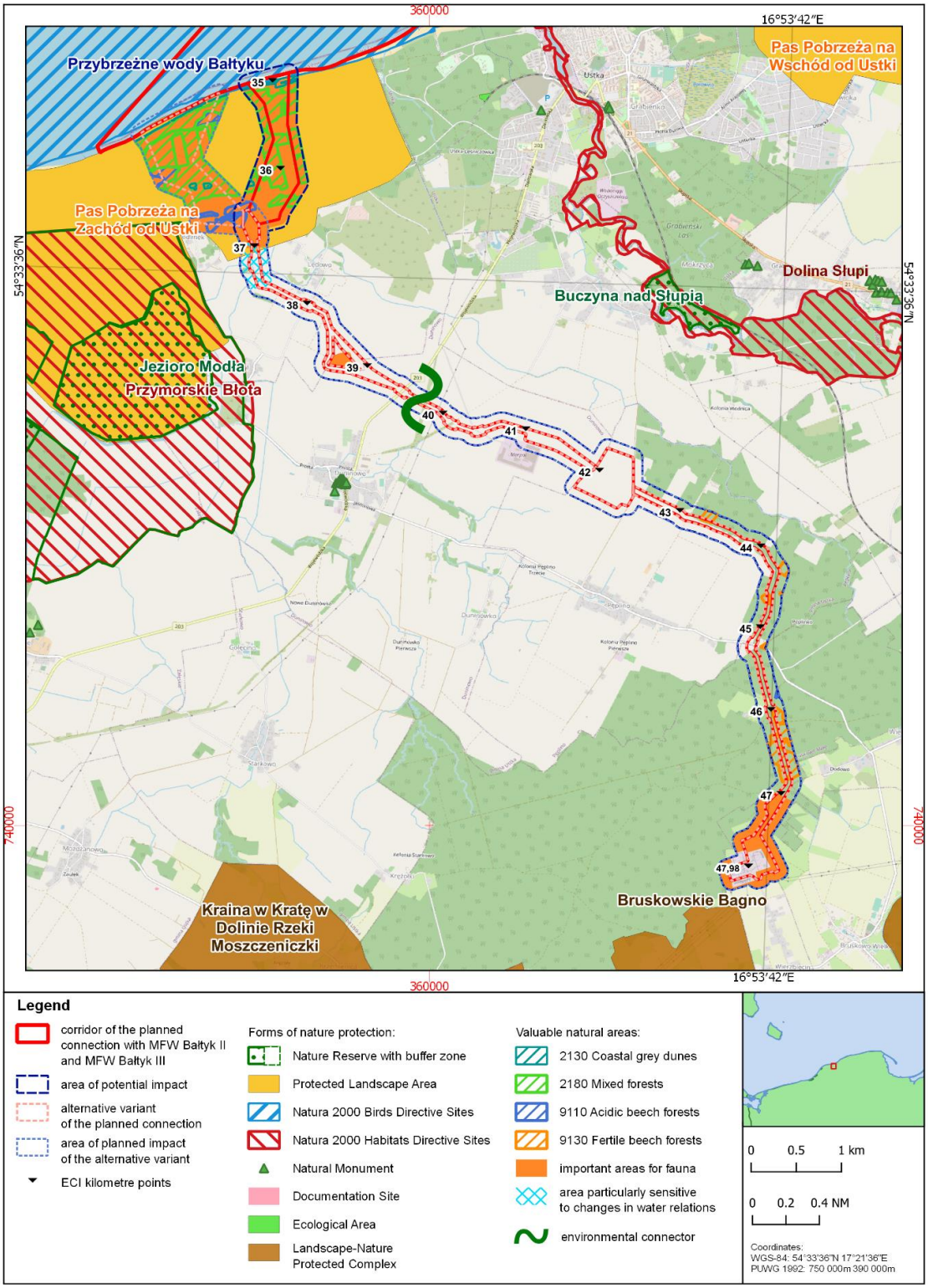
Land area

The planned project in the northern part will be located within the boundaries of the Protected Ladscape Area Pas Pobrzeża na Zachód od Ustki (Protected Landscape Area of the Coastal Strip to the West of Ustka) (for approximately 2 km), which is characterized by high landscape value due to its mosaic of morainic uplands, extensive coastal plains, dunes, and beaches.

Approximately 300 meters from the boundaries of the planned connection corridor lies the Natura 2000 site Przymorskie Błota PLH220024 (Coastal Swamps). This area was designated by the Commission Decision of November 13, 2007. The conservation targets in this area include the following habitats: Old River Meanders and Natural Eutrophic Lakes (3150), Lowland and Mountainous Fresh Meadows Used Extensively, Mainly Molinietum (6410), Extensively Used Lowland Meadows (6510), Raised Bog with Sphagnum Vegetation (7110), Degraded Raised Bogs Capable of Natural and Stimulated Regeneration (7120), Transitional Bogs and Quaking Bogs (7140), Peatland Depressions with Rhynchosporion Vegetation (7150), Old Silver Fir Forests and Mixed Forests on Slopes (9190), Swamp Forests and Bog Forests (91D0), and Floodplain Forests with Elm, Oak, and Ash (91F0).

Within 2 km of the ECI, the following areas are located: Nature Reserve Jezioro Modła (Lake Modła) (approximately 800 meters), Nature Reserve Buczyna nad Słupią (approximately 1.6 km), Natura 2000 Dolina Słupii PLH220052 (Słupia Valley), (approximately 1.5 km), Natura 2000 Jezioro Wicko i Modelskie Wydmy PLH320068 (Lake Wicko and Modelskie Dunes) (approximately 1.4 km), 23 Natural Monuments (approximately 1 km), a Group of Ecological Sites (approximately 1.8 km), the Nature and Landscape Complex of the Kraina w Kratę in the Moszczeniczka River Valley (approximately 270 meters), and the Nature and Landscape Complex of Bruskowskie Bagno (approximately 1.4 km).

Figure 8 Location of the onshore part of the planned Project in relation to protected areas



Source: EIA Report, 2023

3.10.1 Ecological corridors

Maritime area

For the Southern Baltic area, where the offshore wind farms MFW Bałtyk II and MFW Bałtyk III are planned, no concept or documentation defining ecological corridors has been developed. The current planning document – the POM Plan – does not present ecological corridors at sea.

In summer, in July and August, the migration of sea ducks (mainly males of the Common Scoter (*Melanitta nigra*)) is observed from the Gulf of Finland towards moulting grounds in the Danish Straits. They are accompanied by Eiders (Somateria mollissima) and Velvet Scoters (Melanitta fusca), but the numbers of these two species are significantly lower than the scoters. These birds only exceptionally stop in our waters. The autumn migration period of sea birds is very extended. As early as August, various species of water birds can be seen within the POM area. Some of them only pass through and do not stay for winter (e.g., terns of the genus *Sterna* and *Chlidonias*), while others are observed throughout the migration and wintering period (sea ducks, auks, divers, grebes). In spring, large flocks of sea ducks (Long-tailed Ducks, Velvet Scoters, Common Scoters) are observed moving towards their breeding grounds, stopping in the Polish sector of the Baltic Sea..

Figure 9 Migration routes of birds in the South Baltic area. Classic direction of autumn migration

Source: EIA Report, 2023

Land area

The onshore part of the planned connection infrastructure is entirely located in the northern zone, in the area of the corridor of national rank Pobrzeże Słowińskie[6] and within the Korytarz Nadmorski (Coastal Corridor) of supra-regional rank[7] .

In addition, mammal, bird and bi-environmental fish migration routes and, on a much smaller scale, amphibian migration may occur in the ECI area.

3.10.2 Cultural values, monuments and archaeological sites and objects

Maritime area

Making comparisons between objects selected from different sources allowed the precise location of areas of existing stonework and gravel pits. The location of the SWEPOLLINK power cables was confirmed in all types of surface surveys (bathymetric and sonar) and during magnetometric profiling, apart from which no signs of other cables or pipelines were recorded in the surveyed area. No objects with characteristics of potentially hazardous objects such as torpedoes or mines were identified. No wreck objects were recorded in the corridor of the projected ECI area by any of the surveys. The anthropological objects selected by the archaeologists for visual inspection with the ROV were only fragments of damaged fishing equipment. Minor magnetic anomalies outside the Swepollink area were not confirmed by bathymetric and sonar recordings, which does not exclude the presence of buried objects.

In the area of MFW Bałtyk II and MFW Bałtyk III, 8 wrecks were found. 4 of them have KEZA (National Register of Archaeological Monuments) cards:

MFW Bałtyk II offshore wind farm

1. Steamer found in 2010 and reported to the Bureau of Naval Hydrography (BHMW). The find has no historic value.
2. A wooden sailing ship, most likely a merchant ship. It represents an extremely valuable archaeological site. It is the second such monument located in Polish sea waters. The wreck has been reported to the Voivodeship Conservator of Monuments and entered in the Register of Polish Ships and Cannons (EPSA). Given that the extent of the revealed archaeological site below the bottom surface has not been investigated, the need for a safety zone must be assumed.
3. The wreck (located within the boundaries of the buffer zone) was identified as that of a timber or timber-metal unit with its keel turned upwards. On the basis of the surveys carried out, it is not possible to determine what its historic value is.

MFW Bałtyk III offshore wind farm

4. The wreck is tentatively dated to the early 20th century. The wreck is not of high historical value and can be made available for tourist diving

[6] Map of ecological corridors in Poland prepared by the Mammal Research Institute of the Polish Academy of Sciences in Białowieża under the direction of Prof. Dr. Włodzimierz Jędrzejewski

[7] Pomeranian Regional Planning Office: Concept of ecological network of Pomorskie Voivodeship for spatial planning, Gdansk 2014

Land area

In the area of the connection infrastructure there are high scenic qualities due to the banded pattern of landscapes of morainic highlands, extensive coastal plains, dunes and beaches. In the corridor of the planned connection (35.1 km), there is a fortification complex of the 9th Permanent Battery in Lędów (9 BAS) listed in the provincial register of historical monuments. Apart from this, there are no archaeological sites or historical objects in the corridor of the planned Project. In the area of potential impact there are archaeological sites and the complex of the Naval Training Centre, 46 buildings of which are listed in the register of historical monuments. In addition, the planned Project is crossed by a disused historic railway line (39.7 km), the embankment of this line is currently used as a tourist trail, popular for horse riding.

3.10.3 Resource management

Marine area and

The use of the marine area is mainly due to shipping and fishing. It does not cross major transport routes. In the fishing squares encompassing the discussed projects the presence of fishing vessels heading from the ports of Łeba and Ustka to the fishing area within the Rynna Słupska (Słupsk Gutter) was recorded. Traces of trawling or netting can be seen throughout the area of the planned investment but their quantity is not great. The analysis of catch and fishing effort in these squares showed that they do not constitute important fishing grounds for commercial species in Polish marine areas.

In the area of MFW Bałtyk II there are no areas with hydrocarbon deposits - so there is no conflict of coexistence of the MFW and potential exploitation. In the area of the planned MFW Bałtyk II and in its vicinity, there are no valid concessions for exploration, prospecting and extraction of hydrocarbons from deposits.

The area of the planned MFW Bałtyk III partially overlaps with areas of hydrocarbon deposits (without the conflict of coexistence of the MFW and potential exploitation). In the area of the planned MFW Bałtyk III and in its vicinity, there are no valid concessions for exploration, prospecting and extraction of hydrocarbons from deposits issued under the provisions of the Geological and Mining Law.

Land area

According to Corine Land Cover 2018, the route of the ECI runs mainly through forest, agricultural and seminatural ecosystems. Areas of agricultural use are visible in the middle course of the planned Project. Further on, the cable route runs through forest edges and woodland up to the PSE S.A Słupsk Wierzbięcino substation. Woodland is also present in the area of the coastal belt.

3.10.4 Landscape, including cultural landscape

Maritime area

Within the range of the potential landscape impact zone of the Projects are the following localities: Ustka (municipality of Ustka), Rowy (rural municipality of Ustka), Łeba (municipality of Łeba), Lubiatowo (municipality of Choczewo), Białogóra (municipality of Krokowa), Dębki and Karwia (municipality of Krokowa). Due to the shape of the coastal zone, structural elements of the MFW Bałtyk II and MFW Bałtyk III may be visible from the beaches in this section.

In the natural marine landscape of the basins where the Projects and the ECI will be implemented, a permanent

anthropogenic element is constituted by commercial vessels travelling the usual shipping route to and from the ports of Gdynia and Gdańsk, and other smaller vessels, e.g. recreational craft and fishing boats. There will also be other offshore wind farms in the vicinity of the Project in the future.

Land area

The planned project is located within a landscape of lowlands and valleys and depressions. It is located on the Wybrzeże Słowińskie (Slovinian Coast) and the Wysoczyzna Choczewska (Choczewo Upland). It runs mainly through forest areas and to a small extent on agricultural land, which can be seen in the area of the planned subscriber station - the landscape of these areas should be regarded as a cultural disharmonious landscape, where human activity relatively strongly transforms the surrounding landscape. The cultural landscape in the vicinity of the planned project is manifested by archaeological sites in the form of cemeteries (Osieki Lęborskie 1 and Osieki Lęborskie 2). In addition, in Osieki Lęborskie there is an object listed in the provincial register of monuments - Roman Catholic Church of the Blessed Virgin Mary Star of the Sea together with the churchyard.

The planned project will be located within the Coastal Landscape Protection Area, which is characterised by very high landscape value due to the band-like arrangement of moraine uplands, extensive coastal plains, dunes and beaches. In the area of the coastline, the planned project is directly adjacent to the scenic axis.

3.10.5 Population and living conditions of the people

Maritime area

Fishing

The planned investments cross L8, L7, L6, L5, M8, M7, N8 and N7 fishing squares. The MFW Bałtyk II includes square L8, while the MFW Bałtyk III includes squares M7, M8, N7, N8.

The total economic catch in the fishing squares analysed was significantly higher in 2018-2019 (over 1,348 tonnes) than in 2020-2021 (over 892 tonnes). In the first period, the highest catches were recorded in fishing square M8 and the lowest in square N8. In contrast, between 2020 and 2021, the highest catches were found in square L8 and the lowest in square N7. The largest increase in catch weight (by 53 tonnes) was recorded for square L8, while the largest decrease (by over 124 tonnes) was found in square M8.

The catch of salmonid species in 2018-2019 recorded a total of 57 kg and 415 individuals of Atlantic salmon and 492 kg and 3231 individuals of sea trout. The catch of both species together accounted for 5.79% of the total catches in the POM from this period recorded in units. In contrast, between 2020 and 2021, a total of 160 kg and 1,344 pieces of Atlantic salmon and 1,061 kg and 766 pieces of sea trout were recorded. The catch of the two species together accounted for 6.25% of the total catch in the POM from this period recorded in pieces. The total catch of both species in 2018-2019 was 549 kg and 3646 individuals, and in 2020-2021 was 1221 kg and 2110 individuals. There has therefore been a significant increase in Atlantic salmon catches and a decrease in sea trout catches.

In 2018-2019, cod catches accounted for 36% of the total commercial fish catch in the fishing squares analysed. In the following period, this value dropped to 3%, which is likely to be bycatch and a direct result of the ban on this species from mid-2019. The cod ban has resulted in an increase in catches of other commercial species, in particular sprat and herring.

According to information in the EIA reports, fishing productivity in the study area was highest in 2018. (249 kg/km2), decreasing to 177 kg/km2 in 2021. The average value for all analysed fishing squares over the analysed period is 189 kg/km2, with the highest productivity found in squares M8, L8 (open sea zone) and L5 (including coastal zone). The lowest values were found in squares N8 and N7. Fishing productivity in the area is relatively low, with approximately 4.6% of the average value for Polish marine areas in 2014-2019.

In terms of value, the total catch in the potentially affected squares was:

- 1.15 million in 2019, of which 47% was cod;
- 0.58 million in 2020, with cod accounting for 22% of this value;
- 0.62 million in 2021, with cod accounting for 11% of this value;

Catches have not only decreased in terms of gross weight, but have also significantly reduced in value. From a value perspective, the affected squares represent about 0.5% of the value of catches along the entire Polish Baltic coast.

Vessel traffic

MFW Bałtyk II

As a result of the vessel traffic monitoring carried out in 2013-2014 and the measurements taken, information was collected on the positions, movements and berthing of 2,554 vessels of various types and purposes that temporarily stayed in the area bounded by a radius of 15 km from the focal point.

Recently, the number of fishing vessels has decreased significantly due to the European Union's maritime policy and the reduction of the fishing fleet. The number of fishing vessels currently passing through the project area has been estimated at 127 per year. The movement of yachts and non-commercial vessels will also not be a hindrance and will not affect the safety of the project, as these vessels will naturally divert to the recommended shipping routes once the project is completed and the area is closed to navigation.

MFW Bałtyk III

As a result of the vessel traffic monitoring carried out in 2013-2014 and the measurements made, information was collected on the positions, movements and berthing of 2653 vessels of various types and purposes that temporarily stayed in the area bounded by a radius of 15 km from the focal point. The traffic was mainly on the ship routes from Klaipeda, Riga to the area of the ports of Szczecin, Świnoujście and Sasnitz and Mukram.

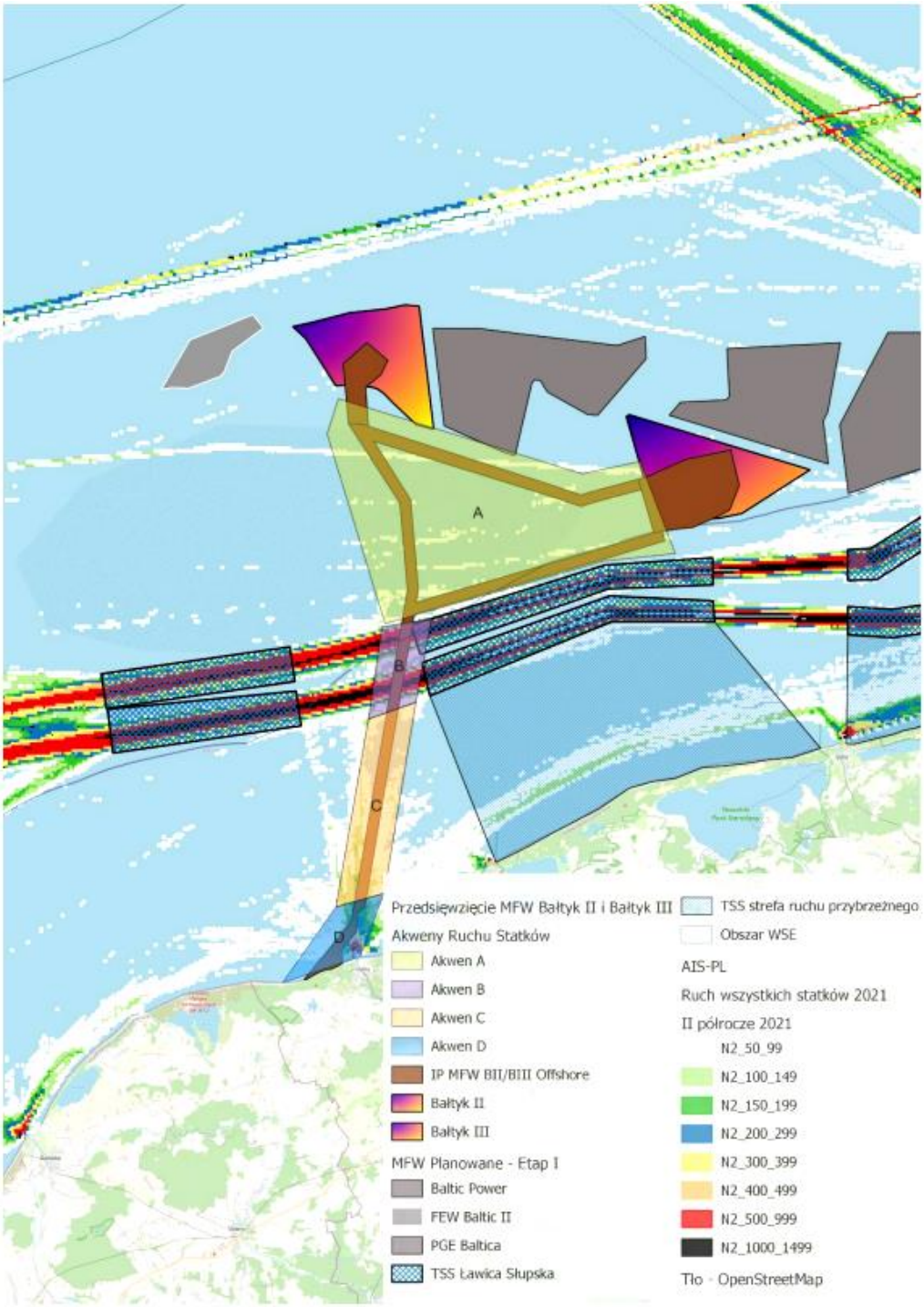
On the maps illustrating intensity of vessel traffic in the southern part of the area of the MFW Bałtyk III there is a visible crossing of routes of fishing vessels heading from the ports of Łeba and Ustka to the fishing area within the Słupsk Gutter Traces of trawling or netting can be seen throughout the area of the planned investment, but their number is not great. This is evidenced by the complicated passage routes of fishing vessels.

Connection infrastructure (ECI)

In the area of the planned Project, four basins were identified with different locations and anticipated vessel traffic. The analysis of vessel traffic showed that Basins A, C and D are dominated by the presence of fishing vessels, which account for nearly 60% of the total, while in Basin B, commercial vessels account for more than 60% of the total. In basin A, 11.5% is accounted for by service vessel traffic, which is related to preparatory work related to offshore wind energy. Given the large number of projects in the area under consideration, an increase in the presence of vessels in this category is to be expected. In basins C and D, which are closer to shore, recreational shipping accounts for a

significant share of almost 25%. With the buoyant development of tourism, an increase in the number of vessels in this category can be expected in the future.

Figure 10 Navigation areas in the area of the ECI



Source: EIA Report, 2023

Land area

The ECI route is planned mainly in agricultural and forest areas, outside the residential areas. In the coastal zone (the area of the Ustka commune) these are partly areas under the administration of the Maritime Office in Gdynia, and partly closed areas belonging to the Polish Army and the State Forests. In the area of the Słupsk Municipality, the route runs mainly through forest areas of the State Forests.

On the route of the planned Project 25 objects (material assets, residential buildings, watercourses) were identified, for which Field Inspection Cards were prepared, 22 of which are located in the municipality of Ustka and 3 in the municipality of Słupsk. The planned Undertaking will cross a total of 8 public roads, 2 railway lines (one of them is the non-existent, historical railway line "Route of the rolled-up tracks"), 2 bicycle routes, and 2 watercourses: Struga Lędowska and Pogorzeliczka.

4 Impact modelling methodologies

4.1 Modelling the propagation of underwater noise

It contains the results of numerical modelling of the propagation of sound due to the generated noise caused by the construction works in the form of foundation piling for the variant selected for implementation and the reasonable alternative offshore wind farm. The generated sound levels were compared with the recorded background sound spectrum to demonstrate changes in the sound field during the construction of the wind farm.

Modelling for the Projects carried out in 2020 considered 2 options for noise propagation: without mitigation measures and with a bubble curtain to reduce sound propagation, allowing the predicted effectiveness of this solution in minimising underwater noise propagation to be determined.

As part of the modelling exercise, distances were also calculated from the sound sources (pile driving) to the point where the acoustic energy or pressure dropped below the respective threshold values. Threshold values for the impact on harbour porpoises and seals were used for the assessment, and these distances were related to the Natura 2000 area (where these mammals are protected).

4.2 Modelling atmospheric noise propagation

To carry out the calculations, a three-dimensional acoustic model of the substation and its surroundings was created, including elements such as landforms and land use, as well as significant sources of noise emissions, including primarily the power transformers and chokes designed to be installed in the substation area. The conditions related to the noise generated by the station rails i.e. short fragments of connections operating at 400 kV voltage, which are led out ofthe area of the planned substations towards the PSE S.A. substation (Słupsk Wierzbięcino), were also characterised . Particular attention was paid to the different nature of this noise (compared to the noise generated by transformers and chokes) and its strong dependence on weather conditions.

4.3 Modelling the distribution of the electric and magnetic components of the electromagnetic field

Calculation of magnetic field distribution in the surroundings of projected cable lines - realisation variant

All field strength distribution calculations were performed using the PolE-M computer program, the algorithm of which took into account all technical aspects of the Projects affecting emissions.

The magnetic field distribution calculations for the individual solutions (variants) were made by identifying the values of the aforementioned quantity at heights of 0.2, 1.0 and 2.0 m above sea level, in accordance with the recommendation indicated in the regulation[8] .

The results of the calculations show that, irrespective of the implementation of the cable trains (4 tracks operating at 220 kV or 2 tracks operating at 400 kV), the highest values of the magnetic field strength over the cable trains can be expected just above the ground surface (0.2 m above sea level). At 2 m above ground level, the values will be more than three times lower.

The estimations carried out clearly show that even with the maximum loading of the individual cable lines, and consequently of the entire cable route, the field strength limit (60 A/m) established by the aforementioned regulation will not be exceeded above ground level, particularly at a height of 2.0 m above sea level. This means that the presence of the public (environmental exposure) even directly above the cable routes will be permitted without any time restrictions.

Calculation of electric and magnetic field strength distribution in the vicinity of an overhead line.

An analysis of the theoretical relationships determining the calculation algorithm for an overhead line, shows that the maximum value and distribution of the electric (E) and magnetic (H) field strengths in the vicinity of an overhead line are mainly influenced by the parameters related to the phase voltage of the individual tracks of the line, the current, the distance from the ground of the conductors and the spacing between them, as well as their arrangement in multi-track lines.

The calculations that were carried out for the smallest distance from the ground of the phase conductors ($h = h_{min}$) showed that the electric field strength (E) under the line (at any point at a height of 2.0 m above ground level) will not exceed at any point the value of: 8.5 kV/m, and this value can only occur at the maximum cable sag, i.e. under the most unfavourable operating conditions of the line. This means that the expected maximum values of the electric field intensity, regardless of the analysed span,, do not exceed the limit value of this magnitude (E_{dop} = 10 kV/m) set by the applicable regulations for places accessible to people.

In the area to -25 m ÷ +25 m from the axis of the line, the permissible electric field strengthlimit set for areas intended for residential development (1 kV/m) may be exceeded, which means that in the area under the 50 m wide line, residential development is not allowed. If the alternative option, i.e. the construction of a double-circuit 400 kV overhead line, is implemented, this issue will be sanctioned by establishing a transmission easement in a 70 m wide area (2 x 35 m).

The calculations, which were carried out for the smallest distance from the ground of the phase conductors ($h = h_{min}$), showed that the magnetic field strength (H) under the line (at any point at a height of 2.0 m above sea level) will not

[8] Regulation of the Minister of Climate of 17 February 2020 on ways of verifying compliance with permissible levels of electromagnetic fields in the environment (Dz.U.2020.258 as amended).

exceed the value at any point: 16.5 A/m, and this value can only occur at the maximum sag of the conductors and at the maximum current load of the line (I_{max} = 1250 A), i.e. under the most unfavourable operating conditions of the line. This means that the expected maximum values of the magnetic field strength, irrespective of the bay under consideration, do not exceed the permissible value of this magnitude (H_{dop} = 60 A/m) established in the current regulations for places accessible to people and areas intended for residential buildings.

4.4 Modelling the thermal impact ECI

Maritime part

The thermal impact of ECI was performed based on literature data on the impact of offshore cables laid on or in the seabed to derive power from offshore wind farms. Key conclusions of the analyses:

1. At present, there are no unambiguously defined values in Polish legislation for the permissible temperature rise of the seabed in which power cables that derive power from offshore wind farms have been laid. There is also no uniform analysis methodology adopted in other EU countries and worldwide.
2. On the seabed of the Baltic Sea, mainly in its southern part, large movements of seabed sediments (sands) reaching up to 80 cm occur. Thus, it is virtually impossible to determine the impact of a temperature change on the benthos above the cables, as the seabed sediment layer is cycled along with the benthos.
3. All the studies cited in the EIA Report show that when cables in the seabed are buried in materials with higher specific thermal resistivity (clays and fine sands), the area of thermal influence of the cable practically ceases to exist as early as 0.4-0.5 m from the outer sheath of the cable. In contrast, in materials with lower specific thermal resistivity (coarse sands and gravels), the cable itself is better cooled, but the displacement of heated moisture layers reaches higher levels.
4. The extent of the thermal impact of offshore power cables is very much influenced by the actual load characteristics of the cables. Experience from recognised installations shows that the cable loads only in short periods of time are close to the maximum load of 100% of the assumed values. The average load values of such cables vary between 60%-80% of the maximum values, which has a significant impact on the temperature of the cable conductors and thus the amount of heat emitted into the environment.
5. It should also be borne in mind that the process of installing the cable deeper in the seabed itself will have a much greater impact on the natural environment of the seabed than a possible localised impact at a depth of 20 cm below the seabed level. The temperature of the water near the seabed at a depth of about 30 m varies over the course of the year over a much greater range (from a few to several degrees).
6. Given the above, the impact of cable heat on water temperature and on the benthos can be regarded as negligible.

Land part

The calculation models used for this analysis are based on IEC 60287 standard, and the temperature distribution in the study is based on the so-called mirror reflection method, which assumes the existence of two linear heat sources: the real source, which is a representation of the power losses on the resistance of the working core and the dielectric losses in the primary insulation of the cable line, and its symmetrical representation with respect to the ground surface with an identical power value as the real source, but with a negative sign. In this method, it is also assumed that for

a homogeneous medium, the thermal resistance of the ground is constant and does not depend on the temperature field distribution in the ground itself. In order to determine the cumulative thermal impact for the considered cable laying system, the superposition principle was applied to the thermal fields coming from the individual cable lines.

The calculations carried out for the assumed conditions of laying 220 kV and 400 kV cable lines, show that the thermal impact of the cables introduces a slight change in temperature at the ground surface in the area above the laid cables. Taking into account that the calculations carried out were made for a maximum load factor of 1, which assumes continuous transmission of maximum power through the designed cable lines, it can be concluded that the actual thermal impact of the designed cable lines will be less, as the actual power generation of the wind farm is closely linked to weather conditions (dependent on wind speed) and only reaches maximum generation at short periods of time during the year.

4.5 Modelling of hydrographic, wave and sediment conditions (spreading of suspended solids)

The hydrographic model for the MFW was largely based on existing models developed by the company that built them (DHI): a 3D hydrodynamic model and a wave model for the Baltic Sea and Danish waters. The modelling was carried out using the MIKE by DHI software, which includes various calculation modules for different purposes:

- MIKE 3 HD (Hydrodynamic model): to simulate currents, water level, salinity and water temperature,
- MIKE 21 SW (Spectral Wave Model): for the simulation of wave conditions,
- MIKE 3 MT (Sediment Transport): for the simulation of sediment transport as a result of dredging. The model calculates seabed deposition and suspended solids concentrations in the water column.

The modelling was based on the use of a heavy gravity foundation (CFG) design, as its installation has the greatest impact on hydrodynamics, sediment uplift and wave action. It is crucial to verify the impact on hydrodynamics and sediment uplift of the construction phase. Hydrographic modelling was carried out with the aim of:

1. Identify the area covering the baseline conditions in terms of waves, currents, salinity and water temperature.
2. An assessment of the permanent hydrodynamic impacts of the proposed wind farm and the temporary and permanent impacts associated with the dredging works. In this context, permanent impacts are those that occur after the wind farm has been commissioned, while temporary impacts are those that occur during construction.
3. Support the process of identifying and analysing the distribution of habitats suitable for marine mammals and waterbirds (temporal and spatial distribution e.g. salinity fronts, currents, depths etc.).

The total area of the MWF that is the subject of the 2021 and 2022 EIA Reports, is slightly smaller and is within the area described in the 2015 EIA Reports containing the receptor-specific impact assessment. Thus, the impacts identified in the 2015 NIS scenario are the least favourable and are known to be less.

In order to assess the impact of the implementation of the ECI, the results of mathematical modelling of the spread of suspended solids during the laying of the submarine cable in the corridor for the MFW Bałtyk II and MFW Bałtyk III IP were used. In order to enable the assessment of the environmental impact of the project, the most unfavourable hydro-meteo scenario was assumed in the simulations, i.e. the calculations were performed for acceptable limit values, i.e. wave height of significant wave H_s = 1.5 m and wind blowing at a constant speed of 10 m/s throughout the simulation. The prevailing wind direction was assumed to be westerly. The calculations were performed for two scenarios of cable submergence speed: 100 m/h (V100 scenario) and 200 m/h (V200 scenario).

5 Description of the predicted environmental effects in the event of a decision not to proceed with the project, taking into account available environmental information and scientific knowledge

MFW Bałtyk and MFW Bałtyk III

The EIA Reports for MFW Bałtyk II and MFW Bałtyk III additionally analysed 3 scenarios for the variant of not undertaking the project:

1. offshore wind energy will not be developed in Polish maritime areas, and therefore neither the project under assessment nor similar projects, including the mining industry, will be implemented,
2. offshore wind energy will be developed in Polish maritime areas, but the project under assessment - MFW Bałtyk II/ MFW Bałtyk III - will not be implemented,
3. offshore wind energy will not be invested in in Polish maritime areas, but the mining industry will develop.

In the first case, the environment of the water bodies designated for the Projects will remain unchanged from the state found in the environmental study programme. They will continue to be affected by existing anthropogenic pressures related mainly to marine fishing and transport of goods and people by ship.

The second scenario represents similar impacts that would occur in the event of a cumulative impact of the Projects and other proposed farms in the vicinity.

In the third scenario, the pressure of impacts from the mining industry will increase, including a possible increase in the risk of oil spills, but, other than that, the pressure on the environment will not be significant.

Connection infrastructure (ECI)

The offshore grid connection infrastructure is an investment prerequisite for the operation of offshore wind farms. Its purpose is to lead out the produced power and transmission to the National Power Grid. Failure to realise the connection infrastructure will result in the loss of the essence of the operation of offshore wind farms and no basis for their implementation.

The development of offshore wind energy requires adequate electricity infrastructure. A lack of investment will contribute to the inability to meet key climate and energy goals and targets. Diversification of energy sources, especially those geared towards renewable sources, fundamentally affects the reduction of atmospheric emissions and dependence on electricity imports. Connecting infrastructure will be part of the energy sector.

Not undertaking the ECI means that there will be no impacts on the marine and terrestrial environment as described in the EIA Report. The impacts are mainly related to the construction phase and are mostly local, temporary and in most cases reversible. The lack of implementation of the planned Project does not mean that the natural environment will remain in its present state. Anthropogenic pressure, climate change are external factors that shape regional and local natural conditions on a continuous basis.

The ECI will not have a significant negative impact on protected natural valuable areas, including Natura 2000 sites, and no significant benefits to the protection of these areas are expected in the absence of the project.

6 Identification and assessment of project impacts

The summary of the environmental impact assessment results for MFW Bałtyk II and MFW Bałtyk III presented below is based on the EIA Reports from 2015, prepared for the issuance of environmental decisions in 2016 and 2017, as well as the EIA Reports for the amendments to the EIA decisions. The assessment presented in the 2015 EIA Reports was conducted for the most far-reaching scenario NIS 2015, i.e., the scenario that could potentially have the greatest environmental impact[9]. NIS may vary for different environmental components, as their sensitivity to the type of impacts was taken into account in the analyses. For example, in the case of impacts on mammals, the most far-reaching scenario is the installation of wind turbines on monopile foundations (highest noise emission during installation), while for impacts on benthic organisms, the most far-reaching scenario is the use of gravity foundations (greatest seabed disturbance and sediment resuspension during construction work).

All analysed project variants, including the variant for which the environmental decisions were issued in 2016 and 2017, do not impact the environment to a greater extent than NIS 2015. At the stage of amending the environmental decisions, the main assumption of the applied environmental impact assessment concept was to determine how changes in the implementation and operation parameters of the Project affect the impacts of the offshore wind farms identified during the environmental impact assessment on which the environmental decisions were based, i.e., whether the parameter updates affect the nature of the impacts and how they influence the identified significance of the impacts.

The variant selected for implementation, which is the subject of the amendment to the EIA decisions for both Projects, differs from the variant for which the environmental decisions were issued in 2016-2017, including a reduction in the number of turbines from a maximum of 120 to a maximum of 60, thereby reducing impacts both during construction and operation. The impacts of the offshore wind farms for the implementation parameters evaluated in the EIA Report for the decision amendment will most often be proportionally smaller due to the significantly reduced number of turbins compared to NIS 2015 and the abandonment of using gravity and tripod foundations for the wind turbines (the chosen technology is monopiles and jacket foundations. At the current stage of the Projects, it is known that there will be 50 turbines on each farm, which further reduces the considered impacts.

The summary of the results of the environmental impact assessment of the connection infrastructure of MFW Bałtyk II and MFW Bałtyk III presented below is based on the 2021 EIA report for this project.

The summary of the environmental impact assessment results for the connection infrastructure of MFW Bałtyk II and MFW Bałtyk III presented below is based on the 2021 EIA report for this project Variant t implementation

6.1.1 Construction phase - offshore part

6.1.1.1 Impact on geological structure, bottom sediments and access to raw materials and deposits

MFW Bałtyk II and MFW Bałtyk III

Works carried out during the construction phase, in particular the laying of foundations, the laying of power cables and the associated need for frequent anchoring of vessels, will disturb the structure of the bottom sediments. This

[9] *NIS 2015 for all potential impacts is indicated in Table 7.*

will cause a large amount of suspended matter to rise and float in the water. Various substances, including pollutants and biogenes, will be released into the water from this suspension. However, their quantities will be relatively small.

In addition, if layers of stones and boulders are placed around the foundations to protect them from scouring, the composition of the sediment will change. Construction of the MFW will also result in the occupation of the seabed surface within the farm boundaries, which will also make access to mineral deposits difficult or impossible. During the construction works, the seabed sediments will be moved and the structure of the seabed will be disturbed, which may cause their washing out or additional cover. There may also be the use of sand from exposed deposits as ballast for gravity foundations, possibly for their production.

Connection infrastructure (ECI)

Impacts during the construction phase of the ECI connection infrastructure will only affect bottom sediments. No impacts on geological structure and access to raw materials and deposits are anticipated.

During the construction works, the bottom will be disturbed as a result of the excavation of trenches with an average depth of 1.5 m and a trench width of 1.5 m in which the cables will be buried. In the context of the above disturbance, the most sensitive area is the reef zone, which is subject to systematic wave action and continuous bottom reshaping. Therefore, a trenchless passage is planned in this section using the so-called HDD method. A section of this zone may optionally be included in the construction range if the trenchless passage does not extend beyond the last reef. In this case, deeper excavations - up to 5 m - will be required for a short section (up to 800 m max.). Taking into account the overall impacts on the seabed within the area of the planned Project, it is concluded that these will be local, limited directly to the works, and any resulting disturbance of the seabed surface will be short-term and reversible with natural hydrodynamic processes.

Where the nature of the bottom will prevent excavation (e.g. stonework, boulder clusters) the cable will be laid on the bottom and protected by, for example, a stone surcharge or concrete mattress. In this section, the character of the bottom will change and local irregularities will be created, but these will be minor in relation to the relief and character of the surrounding bottom.

During the preparation and construction phase, depressions will occur in the seabed at the berths of vessels installing elements of the connection infrastructure. These disturbances will be local - point-like (up to a maximum depth of 3 m - depending on the type of sediment), short-lived and reversible, so the impact of the anchorage on the water body is considered insignificant.

Summarising the overall impacts on the seabed shape, it was concluded that in most cases the scale of the impacts would be small (within the corridor boundary) and the impacts insignificant.

6.1.1.2 Impacts on the quality of marine waters and seabed sediments

MFW Bałtyk II and MFW Bałtyk III

Sediment modelling results indicate that the maximum increase in concentrations above background during the MFW phase will nowhere exceed 20 mg/l within the wind farm boundary and 10 mg/l outside the wind farm.

Sediment deposition levels will reach a maximum of 2-3 mm during and after the dredging works. This relatively small value indicates that the lifted material is deposited over a relatively large area, resulting in a small long-term effect.

Temporary deposition may occur during the dredging works. The results indicate that temporary deposition will take place and that during the period of the dredging works the thickness of the deposited sediments can reach 3.5 mm.

Given the negligible impact outside the wind farm area, cumulative impacts from neighbouring wind farms are not expected.

Connection infrastructure (ECI)

Sediment deposition occurs over a small area and the thickness of new deposition is trace. The extent of sediment deposition depends mainly on the magnitude of the debris input and is greater in areas with cohesive sediments than on sandy bottoms. Jetting results in an increase in suspended solids concentration comparable to that occurring during heavy storms.

The agitation (disturbance) of the bottom sediment associated with the construction (foundation) of the foundations for the farm facilities, the anchoring of ships or the burial of the cable is a process that favours the passage of contaminants from the sediments to the water depths. This is how they can get into the water:

- pollutants, including heavy metals and PAHs and PCBs;
- nutrient elements - nitrogen and phosphorus.

However, as confirmed by the results of sediment tests performed for the preparation of the EIA Reports, the concentrations of these pollutants do not exceed standards, so the impact of sediment redeposition on marine water quality was considered insignificant.

6.1.1.3 Impact on biotic factors

Bentos

The following impacts affecting benthos are anticipated to occur during the construction phase:

1. Disturbance of sediment structure.
2. Increase in suspended solids concentration in the water tone.
3. Deposition of suspended solids on the seabed.
4. Release of pollutants and nutrients from the sediment into the water body.

The results of the assessment of the impacts of the implementation of offshore wind farms on benthos indicate that no significant impacts will occur. The significance of the vast majority of impacts in the 2015 NIS was mostly determined to be low or negligible, and in a few cases moderate.

With regard to the impacts of the ECI it was found that they will be moderate in the case of the connection from MFW Bałtyk II. Impacts will not occur in the case of the connection from MFW Bałtyk III and the so-called inter-farm connector, as no macroalgae beds were found there.

During the laying and burial of the cables there will be removal of benthic assemblages in a strip approximately 5 m wide for each cable. These changes will be most evident in the immediate area of operations, i.e. in the area of excavation approximately 1.5 m wide and 1.5 m deep along most of the route. In total, the impact associated with bottom disturbance will affect less than 2.5% of the bottom area (in the IP corridor) where a large biomass of benthic animals was found, totalling approximately 0.23% of the bottom area covered by the environmental decision application.

Following the completion of the construction works, the first recolonisation will take place - probably within a few weeks or so. Restoration of the structure and function of the soft-bottom benthic communities can be expected several years after the cessation of the works. Due to the habitat destruction and the long-term effect, this impact is considered to be moderate.

Ichthyofauna

MFW Bałtyk II and MFW Bałtyk III

At the stage of MFW construction, the most significant negative impacts on fish will occur, primarily noise and vibration emissions associated with the driving of foundation monopiles and an increase in the concentration of suspended solids in water (affecting primarily juvenile forms, with the greatest intensity if gravity foundations are used).

The results of the assessment of MFW impacts on fish indicate that there will be no significant impacts. The significance of the vast majority of the impacts in the NIS 2015 has been determined to be negligible or low (mainly in the case of cod), provided that measures are taken to minimise the impacts from piling. The impacts of the variant selected for implementation will mostly be proportionally smaller (due to significantly fewer foundations - 50 units for each MFW instead of 200 units).

Connection infrastructure (ECI)

During cable burial works, the maximum extent of suspended matter spreading will only occur in the bottom layer of the water, potentially impacting bottom-dwelling fish species. For bi-environmental migratory fish, which mainly use the middle and surface layer of water, the impact will be less. After completion of the works, a layer of no more than 1.0 mm thickness will be deposited on the bottom surface. Therefore, the impact of the suspended matter deposited on the seabed on the spawning and feeding grounds of fish will be local and insignificant.

The main impact of the construction phase will be increased noise emissions from equipment and vessels used for the works. Taking into account the sensitivity of the different fish groups to increased noise levels, it can be assumed that the impact will be greatest for fish with swim bladders: cod, herring, sprat, which show the highest sensitivity to noise. The level of noise sensitivity of Atlantic salmon and sea trout is lower. In contrast, demersal species without swim bladders such as flounder, plaice and turbot, as well as protected species (small goby, sand goby, sea bass) show lower sensitivity to noise impacts. Noise impacts have been assessed as medium and impact significance as moderate.

The disturbance of the seabed structure and temporary removal of benthic habitats within the trench will result in local disturbance of habitats and spawning grounds of ichthyofauna along the entire cable burial route. Particularly valuable ichtyofauna habitats are located in the area of Słupsk Bank, which is protected under the Natura 2000 network. In terms of impact on spawning grounds, the impact is considered to be local, insignificant in the scale of the Baltic Sea and negligible in the case of reduction of fish food base due to habitat disturbance.

Seabirds

MFW Bałtyk II and MFW Bałtyk III

At the stage of construction of the MFW there will be the most significant negative impacts on seabirds, resulting from noise emissions, light, increased ship traffic, which will cause their displacement from the area of the investment and moving to places with more favourable living conditions.

The significance of the vast majority of impacts in the 2015 NIS was determined to be negligible or low. The exceptions are the impacts of the construction phase on birds of high importance (divers, long-tailed duck, velvet scooter), causing their displacement from the existing habitats in the MFW area, which were determined as moderate. Out of these species only the long-tailed duck stays in the area of investment, but the displacement of birds from the MFW area will not be significant for the population of this species due to the presence of rich feeding grounds nearby, e.g. in shallower waters in the area of Słupsk Bank.

Connection infrastructure (ECI)

Potential impacts of the ECI construction phase on seabirds will be related to:

- scaring of birds wintering and resting in the basin during migration periods as a result of increased ship traffic;
- an increase in the concentration of suspended solids in the watercourse associated with construction work;
- noise emissions from vessels and equipment necessary to lay and bury the cable line;
- exhaust emissions from vessels involved in construction work.

and mainly concern the most valuable sites for marine ornithofauna in the northern part of the connections, i.e.: the connection with MFW Bałtyk II and the connection between MFW Bałtyk II and MFW Bałtyk III, crossing the Natura 2000 area PLC90001 Ławica Słupska.

Installation of the transmission cables will result in disturbance of migrating and wintering birds in the area of the works, resulting in their displacement to other parts of the basin. The period of occurrence of migrating and wintering birds in the study area is from October to the end of April. This impact has been determined to be of short-term duration as it will cease immediately after construction and the increased vessel traffic associated with the construction works will not be significantly different from the standard traffic in the area. However, due to the particular importance of the Ławica Słupska and its immediate surroundings and the sensitivity of birds, this impact has been assessed to be moderate.

The other analysed impacts related to temporary increases in suspended solids concentration and noise and atmospheric pollutant emissions as a result of vessel traffic were considered insignificant .

The presence and movement of vessels will be the main source of underwater noise and the main cause of disturbance to seabirds in the area affected by the construction of the connection infrastructure. However, the effect of disturbance will be local, short-term and reversible as the impact will cease immediately after construction and the noise from the project will not be different from that generated by numerous vessels operating in the Baltic Sea, especially in the vicinity of the main fairway of the TSS Ławica Słupska, adjacent to the area PLC990001 Ławica Słupska. Therefore the impact is considered to be insignificant.

Marine mammals

MFW Bałtyk II and MFW Bałtyk III

At the stage of construction of the MFW, the most significant negative impacts on marine mammals will occur, primarily noise and vibration emissions associated with the driving of foundation monopiles and an increase in the concentration of suspended solids in water (with the greatest intensity if gravity foundations are used).

The results of the assessment of MFW impacts on marine mammals indicate that there will be no significant impacts. The significance of the vast majority of impacts in the 2015 NIS was determined to be negligible (seals) or low (harbour porpoise). The exception is noise from piling, which could lead to impacts of moderate significance on mammals, and this would occur with minimisation measures. The impacts of the implementation alternative will

mostly be proportionally lower (due to fewer foundations and thus, among other things, a shorter total duration of mammal noise exposure).

Connection infrastructure (ECI)

Potential impacts of the ECI construction phase on marine mammals will be related to the following factors:

- noise and vibration,
- increased vessel traffic (spatial blockage).
- increase in suspended solids concentration,
- obstruction/restriction of feeding grounds,

remobilisation of pollutants from sediments.

Of the above-mentioned analysed impacts, only noise and vibration were considered to be moderately negative. The others were assessed as insignificant.

Bats

More wind farm structures under construction may be used as new hiding places and stops along the migration route. In addition, increased vessel traffic and the emerging structures above the water surface are associated with an increase in insect concentrations. Bats, thus attracted to the construction area, will be vulnerable to collisions with vessels and the emerging power plants.

6.1.1.4 Impact on protected areas

MFW Bałtyk II and MFW Bałtyk III

The most important impact of the construction phase is the disturbance of birds, which may partly migrate to nearby Natura 2000 areas, i.e. Ławica Słupska, Przybrzeżne Wody Bałtyku and Pobrzeże Słowińskie increasing competition for habitat resources.

The projects themselves will not significantly affect the integrity of the coherence and the conservation object of the Natura 2000 sites in any of the options considered through the impacts they will have on seabirds.

The Natura 2000 areas within the impact range of the project where marine mammals are protected are Ostoja Słowińska (18.9 km away), Zatoka Pucka i Półwysep Helski (53 km away) and Kaszubskie Klify (55 km away). During the assessment, it was found that effective impact minimisation measures could be applied in the form of noise abatement and the use of breaks in the piling process to allow marine mammals to move between areas. With these measures in place, no significant negative impacts of the Projects (individually or in combination) on the integrity and coherence of the Ostoja Słowińska area or on the harbour porpoises and grey seals that it protects were found.

Connection infrastructure (ECI)

The ECI implemented in the marine part will have an impact on Natura 2000 sites:

PLC990001 Ławica Słupska,
PLB990002 Przybrzeżne wody Bałtyku,

- PLH220052 Dolina Słupi.

The assessment did not identify any potential for significant negative impacts on Natura 2000 sites that cannot be eliminated or minimised. Minimisation measures have been formulated which have enabled the elimination or

significant reduction of the occurrence of negative impacts on habitats and species of conservation concern in these areas.

6.1.1.5 Impact on ecological corridors

MFW Bałtyk II and MFW Bałtyk III

During the construction and decommissioning phases of the MFW there will be impacts on migratory birds in the form of barrier effect and collisions with vessels. The barrier effect will be of negligible significance as the rerouting associated with avoiding the construction site will only represent a small part of the overall migration route, so the additional energy costs will be very small. Collisions of birds with vessels have been assessed to be negligible to small as vessel traffic will be limited to a relatively small area.

Connection infrastructure (ECI)

The construction phase is associated with an increase in vessel traffic. The planned IP crosses the migration routes of spawning and feeding fish species of economic importance. Consequently, the conduct of cable laying/placement works and potential storage of dredged materialmay represent a periodic underwater physical barrier to fish migration. The barrier effect will be caused by a combination of increased vessel traffic in the area, increased water turbidity and underwater noise emissions. Negative effects of the works (especially in the coastal zone, during autumn) will be felt on spawning migration of Atlantic salmon and sea trout, especially for the population using the River Słupia as a breeding ground. This may constitute a potential negative impact on these species and given the conservation status of the Atlantic salmon in the Natura 2000 area Dolina Słupi PLH220052 (spawning population assessment B) - the impact has been assessed as significant for salmon and sea trout mainly in the context of generated submarine noise causing a scaring effect. In the EIA Report and the issued environmental decision, mitigation measures were proposed through the appropriate selection of the timing of selected works in the coastal zone, outside the spawning period of salmon and sea trout.

6.1.1.6 Impact on biodiversity

MFW Bałtyk II and MFW Bałtyk III

It is not expected that the construction of the MFW will result in a reduction of biodiversity in the Baltic Sea area where it will be located. Taking into account the possible impacts of the planned wind farm, it was concluded that its implementation will not cause:

- the degradation of ecosystem services on which the sustainable persistence of local populations of species and benthic habitats and protected natural habitats would depend;
- significant loss of area and fragmentation of species habitats, including benthic habitats; and protected natural habitats;
- isolation of species habitats, including benthic habitats and protected natural habitats;
- loss of species diversity in marine organisms;
- loss of intra-species genetic diversity in organisms.

Connection infrastructure (ECI)

The corridor designated under the IP crosses Natura 2000 protected areas, i.e. PLC990001 Ławica Słupska and PLB990002 Przybrzeżne Wody Bałtyku, characterised by moderate natural value and only in places high, bypassing the most valuable fragments of the bed in the analysed area.

The impacts of the ECI construction phase on biodiversity will be a composite of all impacts identified for individual biotic elements of the marine environment and will be primarily related to:

- direct seabed intervention works associated with construction activities;
- increased vessel traffic and underwater noise emissions due to works involving the laying and burial of cable lines.

The most negative impact of the ECI likely to affect biodiversity is the destruction of benthic habitats, including phyto- and macrozoobenthos. The construction works will result in the complete removal of phytobenthic and macrozoobenthic habitats along the route of the ECI. Achievement of a similar mussel size structure prior to the ECI will occur approximately 2 years after the cessation of works. Considering the above, impacts on biodiversity in the context of benthos are considered moderate. For the other biotic components, the impact will be insignificant.

6.1.1.7 Climate impact, including greenhouse gas emissions and impacts significant in terms of adaptation to climate change, impact on air quality

MFW Bałtyk II and MFW Bałtyk III

Increased emissions and decreases in air quality are expected to be isolated to this phase of the MFW construction project. There will be a periodic local increase in greenhouse gas emissions (traffic of vehicles and machinery on the construction site, deforestation, waste generation); a periodic increase in energy demand for construction purposes leading to an indirect increase in greenhouse gas emissions; greenhouse gas emissions indirectly related to the energy consumption of the project e.g. due to energy use for material production, transport, etc. Impacts affecting the climate will be minor.

Connection infrastructure (ECI)

During the construction phase, the only sources of air emissions will be the internal combustion engines of vessels and equipment used for construction works. For the purposes of the assessment, the maximum daily exhaust emissions arising from the combustion of diesel fuel by small vessels engaged in 10h/day operations and medium and large vessels engaged in 24h/day operations were estimated.

6.1.1.8 Impact on the landscape

MFW Bałtyk II and MFW Bałtyk III

During the construction phase, there will be impacts on the landscape associated with specific works, which include: construction (design) and transport of components, assembly/installation of turbines at sea, and construction of internal, external infrastructure and the shore power cable. The magnitude of impact associated with vessel traffic during the construction phase of the Projects (for both adopted alternatives) is classified as insignificant, mainly due to the significant distances between traffic routes, construction ports and the construction site. As the landscape significance was classified as medium, the impact significance was assessed as negligible.

6.1.1.9 Impact on cultural values, monuments and archaeological sites and objects

MFW Bałtyk II and MFW Bałtyk III

The following impacts on underwater cultural heritage were found to have the potential to occur during MFW Projects: damage or complete destruction by ship anchors, damage during the installation of pile foundations, ground subsidence, exposure of archaeological features and deposition of disturbed sediment.

In addition, unplanned emissions may occur at any stage of the project, such as contamination of the water table and bottom sediments with oil-based substances, contamination of the water table with accidentally released chemicals, which may indirectly affect sites of importance for the protection of cultural heritage.

Military objects, including unexploded ordnance, may also be encountered during construction work. In such cases, the relevant operating procedures must be followed.

For the purpose of the impact assessment, it was assumed that to ensure the safety of the crews working in the area of the farm at each stage, i.e. construction, operation and decommissioning, a protection zone would be established around each of the identified wrecks, within the boundaries of which the anchoring of vessels and the placement of farm components, including the laying of cables, would be prohibited. It is assumed that a 50 m protection zone will be set up around the first ship and a 280 m zone around the second valuable ship.

It was concluded that all potential impacts of the MFW on exposed wrecks would be of negligible to moderate significance.

The results of the assessment showed that the MFW project will not have a significant negative impact on heritage sites in any of the considered project options, at any of the stages, i.e. construction, operation and decommissioning.

Connection infrastructure (ECI)

To the best of our current knowledge, there is no protected site or body of water within the boundaries of the ECI corridor, established under heritage protection and care regulations. In view of the above, it was concluded that no impacts affecting cultural heritage are expected to occur.

6.1.1.10 Impact on ambient noise

MFW Bałtyk II and MFW Bałtyk III

For the purpose of assessing noise propagation during the construction phase, the numerical model was updated to the current 2021-2022 parameters of the project, i.e., a maximum of 60 turbines at each farm. The model determines whether distress and injury noise exposure will occur, including TTS (temporary sound threshold shift) and PTS (permanent sound threshold shift).

The analyses showed that the TTS impact zones with a maximum distance of 34 km from the source for the seals clearly exceeded the distances to the Natura 2000 area. The mitigation effect was modelled assuming a single bubble curtain reducing the noise impact values. With this mitigation measure, none of the thresholds were exceeded at the border of the Ostoja Słowińska Natura 2000 site. However, the results of the modelling study indicate that with this mitigation measure none of the thresholds for potential impact on cetaceans and seals (TTS, PTS) will be exceeded at the boundary of the Ostoja Słowińska Natura 2000 site. Model calculations have shown that one bubble curtain is sufficient to achieve the desired results. A hammer energy of 4500 kJ can also be seen as a worst-case scenario, so

additional mitigation can be achieved with a lower hammer energy if possible. Additionally, given that the predicted ranges of underwater noise impacts in the form of TTS and PTS in marine mammals and fish from a single impact are up to two orders of magnitude smaller than the ranges of the same impacts from multiple (cumulative) impacts, it can be inferred that the use of a gradual piling initiation procedure (soft start) is effective in protecting these groups of organisms.

Connection infrastructure (ECI)

Acoustic impacts will only occur during the construction phase and will be associated with ship traffic and the operation of equipment and underwater vehicles used for construction works. The extent of the impact on the acoustic background will be limited in time to the period of cable laying works and in space, as a result of noise attenuation by water. Taking into account the number of vessels used for IP construction and the level of noise they generate, it was considered that the impact on the acoustic background will be short-term, local and insignificant.

6.1.1.11 Impacts on the use and development of the basin and on material assets

MFW Bałtyk II and MFW Bałtyk III

For the purposes of the EIA, the NIS assumes that the area occupied by the farm will be completely excluded from fisheries use from the commencement of construction works. Thus, the impact of the farm on fisheries will be similar regardless of the alternative analysed.

The results of the assessment showed that the offshore wind farm project will not have a significant negative impact on fisheries at any stage of the project, i.e. construction, operation and decommissioning.

Connection infrastructure (ECI)

The potential impact of the planned ECI on fisheries relates mainly to the construction phase and will be related to restrictions on the movement of fishing vessels in the vicinity of the cable installation units.

Given the relatively short construction period and the occupation of only a small part of the area at any given time during the works, the impact on fisheries during the construction phase in the occupied fishing squares viz: BL5, BL6, BL7, BL8, BM7, BM8, BN7 and BN8 were determined to be negligible. The impact of the planned Project on the food resources of ichthyofauna and populations of commercially exploited fish species, taking into account the magnitude of the seabed intervention works within the above-mentioned fishing squares, was assessed to be insignificant/minor.

6.1.1.12 Impacts on human population, health and living conditions.

MFW Bałtyk II and MFW Bałtyk III

<u>Maritime tourism</u>

The MFW was found to have the potential to cause the following impacts on coastal tourism during the construction phase:

1. impact on the landscape due to the increased traffic of vessels involved in the construction of the farm,
2. the appearance of individual wind farm facilities as part of the progressive construction process of the project, surface noise emissions from construction activities.

It was concluded that the impacts of the MFW on coastal tourism would be most related to the impacts of the project on the landscape.

The results of the assessment showed that the implementation of the Projects will not have a significant negative impact on coastal tourism in any of the project options considered, at any of the stages, i.e. construction, operation and decommissioning, or in cumulation with other projects.

Recreational fishing

It was concluded that MFW s during the construction phase have the potential to cause the following types of impacts on recreational fisheries:

1. the need to change existing flow routes
2. the need to relocate to other fisheries,
3. surface noise emissions.

The significance of recreational fisheries (as a receptor of impacts) for the purposes of assessing the significance of impacts of the Projects was categorised as low. It was concluded that the demonstrated potential impacts of the Projects on recreational fisheries at all stages would be of negligible significance.

Water sports

The Project has not been identified as a source of potential impacts on water sports.

Military operations

The projects do not occupy water bodies where naval manoeuvres are carried out. Therefore, no impact assessment has been carried out in this regard.

Radio and communication systems

No impacts were identified during the construction phase of the Projects in this regard.

Civil and military aviation

On the basis of the positive approval of the location of the planned project by the President of the Civil Aviation Authority and the positive opinion of the Head of Air Traffic Services of the Polish Armed Forces, it was concluded that the Projects would not affect civil and military aviation in any of the project options considered in the reports.

Shipping

It was concluded that due to the increase in vessel traffic in the project area at all stages (i.e. construction, operation and decommissioning), relative to the baseline - i.e. pre-investment situation, offshore wind farms could potentially have a negative impact on marine shipping, causing:

1. disruption of the existing order and restriction or obstruction of navigation, which force changes to existing vessel routes (provided they passed through the farm area). The increase in vessel traffic is particularly noticeable during the construction (or eventual decommissioning) phase of the farm. During the operation phase, the situation stabilises, the volume of vessel traffic involved in the operation of the farm decreases, and the traffic is characterised by a certain regularity and predictability resulting from the maintenance schedule;

2. the risk of electrocution in the event of a vessel dropping anchor in an emergency and damaging the cable. However, such a risk is minimised as automatic protection devices are fitted to the substations to switch off the cable in the event of damage.

It was concluded that due to the increase in vessel traffic, the MFW may give rise to impacts on shipping as described above, including existing and planned shipping routes, but these will not be significant. If the right of way through the farm area is restricted, it will be necessary to change the customary routes of some vessels and divert them to other routes, depending on the planned destination.

Exploration, identification and exploitation of the mineral resources of the seabed and the interior of the earth beneath it

It was stated that offshore wind farms may limit the possibilities of exploration, prospecting and exploitation of mineral resources of the seabed and the interior of the earth underneath, in the case, when in the area of the MFW the process of development with particular elements of the farm has started or the farm is already built. In such cases, traditional exploration methods are not applied, and the possibilities of setting up a drilling (for deposit exploration) or extraction platform become limited due to the necessity to maintain certain safety zones.

There was no significant impact of the Projects on the ability to explore, identify and exploit the mineral resources of the seabed and the interior of the earth beneath it at any stage of the project, or in cumulation with other planned MFWs.

Maritime industry

The demand for skilled workers means that the offshore wind energy sector can have a significant impact on education courses and the labour market in Poland, especially in the shipbuilding, electrical machinery and offshore construction sectors, and lead to the creation of a number of new jobs.

Health and human life

None of the Project impacts were considered, on the basis of conducted analyses, to have a significant negative impact on human health and life. A threat to human health and life may arise mainly in the case of collisions of ships or vessels with MFW elements, however, such situations are classified as so-called unplanned events, whose probability of occurrence is very low.

Connection infrastructure (ECI)

The EIA Report analysed the impacts on:

- fishing: during construction, in order to provide a protection zone during the installation of the cables, parts of the fishing squares through which the planned Project passes will be excluded from fishing. Due to the low fishing productivity within the aforementioned squares against the POM, it was concluded that the disruption associated with the construction phase will be insignificant;
- Shipping: During the construction phase, vessels sailing the TSS and the usual route to and from the ports of Gdynia and Gdansk will have to modify their sailing course due to the presence of vessels engaged in cable line construction, which may involve increased fuel consumption and/or increased sailing time. Given the progressive nature of the works, it was concluded that the disruption would be minor and the extent of the impact on shipping would be localised and short-lived;
- The fairways of the Polish Navy, viz: 0025, 0026, 0208, 0209 and Zone No. 6, where military activities take place (P-20 training ground). It has been identified that there will be a temporary restriction of use of the above areas during construction works;

- Limited access to the coastal zone during the trenchless crossing phase: It has been identified that there may be a temporary exclusion from use of this zone, which may be partially used for tourism and recreational purposes. However, this impact is not significant due to the fact that the marine cable landfall area is located within a military unit and therefore an area with limited access for tourism and recreational purposes for reasons other than the implementation of the Projects.

The above disruptions will be short-lived and will cease immediately after construction. Impacts on human health and life during the construction phase are considered to be insignificant.

6.1.2 Construction phase - on land

6.1.2.1 Impact on the ground surface

As a result of the trenchless technology, the coastal zone (i.e. approximately 160 m from the shoreline) will not be transformed - the impacts of the construction phase on the shore will not occur.

The following impacts will occur during the construction phase:

- temporary occupation of land for a construction and installation strip,
- implementation of temporary access roads,
- levelling in the substation area (ONS)

The impact of the construction phase of the ECI on the ground surface will be moderate.

6.1.2.2 Impact on geological structure and deposits

During the construction of the ECI, there will be no works affecting the geology, mainly surface formations, and will be associated with open excavation and levelling of the site.

The most sensitive areas to impacts from resulting the construction phase of the ECI are dune areas and areas with high levels of groundwater. In the case of crossing areas with a high water levels or areas of low-bearing areas that are difficult to cross with an open trench, trenchless methods will be used, with a maximum drilling depth of 5 m below ground surface. Only when cables are passing under a military area, drilling up to 25 m below ground level is planned.

An analysis of the geological conditions of the underground cable line, offshore and onshore cable connection sites, access roads and onshore substations has shown that ECI poses no threat to the geological structure.

The impact of the construction phase of the planned Project on the geological structure and deposits will be insignificant.

6.1.2.3 Impact on soils

The main impacts of the construction phase on soils will be related to open excavation and drainage, land levelling, heavy construction and installation equipment traffic, preparation of entry and exit chambers for trenchless crossings, land occupation.

The impacts of the construction phase of the planned Project on soils will be moderate. These will be reversible impacts, as properly executed soil placement should not result in a long-term reduction in the fertility of the restored soil. There will be no change of land use to non-agricultural purposes or taking the land out of production.

6.1.2.4 Impact on surface and groundwater and flood risks

The impact of the construction phase of the planned Project on water resources will involve crossing watercourses (Struga Lędowska and Pogorzeliczka) and ditches, dewatering of excavations and levelling and hardening of the land.

Impacts of the construction phase on the Struga Lędowska will be local and short-term and, with the use of a trenchless crossing, will not lead to disturbance of the hydrological conditions of Lake Modła. Soil and water contamination is unlikely and will only affect the short-term construction phase of the underground cable lines. In addition, the application of the proposed solutions will reduce the possibility of the formation of a depression funnel and drainage of the hydrogenic soils present here.

The Pogorzeliczka can be crossed by an open excavation, as this does not require interference with the watercourse across the entire width of the construction strip only at a width of about a few metres. The assessment carried out has shown that the impact of the construction phase on the Pogorzeliczka will be localised and short-term.

The implementation of the underground cable lines will be associated with land levelling. The planned levelling will be local in nature and will not contribute to changes in the infiltration of rainwater and snowmelt. Water from drainage will be discharged off-site into existing drainage ditches

The impact of the construction phase of the planned Project on groundwater will involve the need for dewatering of excavations.

The impact of the construction phase of the planned Project on water resources will be moderate, with the proviso that work in the Struga Lędowska area should be carried out using the proposed solutions: it is forbidden to draw water necessary for drilling mud from Lake Modła and to discharge water into this lake and adjacent watercourses.

The planned Project, in the coastal zone, is fragmentarily located within the areas of special flood hazard (construction site for the landfall of cables and connection sites for marine and land-based cables). The trenchless crossing of the coastal zone practically eliminates flood risks from the sea.

6.1.2.5 Impact on nature

Vegetation and natural habitats

The main impacts of the construction phase on the vegetation and natural habitats will be related to the temporary occupation of the area for the construction strip. This will be an area where topsoil destruction, tree and shrub removal will occur.

The impact of the construction phase of the planned Project on vegetation and habitats will be moderate, due to the transformation and occupation of land and the removal of vegetation and natural habitats in the construction strip. These impacts can be significantly reduced by implementing trenchless crossings and metaplanting.

Forests

There will be felling in the construction strip in connection with the planned Project, with a maximum area of 23.1 ha.

The impact of the construction phase of the planned Project on forests will be moderate, reduced as a result of the trenchless crossings.

Biota of macrofungi and lichens

The main impacts of the construction phase on the biota of macrofungi and lichens will be associated with the temporary occupation of land for the construction belt. This will be an area where the topsoil will be permanently destroyed, resulting in the removal and destruction of fungal mycelium and the sites of terrestrial lichen taxa (reindeer lichen (*Cladonia arbuscula*), forked cup lichen (*Cladonia furcata*), and reindeer moss (*Cladonia rangiferina*)).

These impacts will be moderate, related to the temporary transformation and occupation of the land, and can be mitigated by protecting the tree trunks on which these species occur.

Invertebrate fauna

The construction phase will result in the disturbance of invertebrates and possibly the destruction of their habitats. The species found during the nature inventory can be considered to be nationally common (red ant, bumblebees). The impact of the construction and operation phases of the planned Project on invertebrate fauna will be insignificant.

Ichthyofauna

Due to the poor composition of the ichthyofauna of Struga Lędowska, no significant impacts of the planned Project on ichthyofauna are expected at any of its stages.

Herpetofauna

Impacts during the construction phase will mainly consist of destruction of breeding sites, migration routes and habitat conversion or fragmentation. The impact of the construction phase of the planned Project on herpetofauna will be moderate and limited following the application of minimising and compensatory measures.

Birds

Impacts during the construction phase will mainly consist of the transformation of the environment, due to the destruction of habitats, e.g. through deforestation of the construction strip, construction of new access roads, occupation of land for electricity substations, and habitat fragmentation caused by deforestation and construction of access roads. These will be moderate impacts.

Terrestrial mammals

Small mammals occupying habitats that will be eliminated during construction will be most vulnerable to works associated with the construction phase: the European mole and the common squirrel. In addition, the earthworks, which will be carried out, will periodically impede the migration of mammals, particularly ungulates. Nevertheless, the above-mentioned species are common in the country and region.

The impact of the construction phase and operation of the ECI on terrestrial mammals will be insignificant.

Bats

The impact of the construction phase of the ECI on bats will be moderate. This impact can be minimised by, amongst other things, carrying out construction works outside the bat wintering period, i.e. from 1 April to 15 November, or carrying out works under the supervision of a chiropterologist.

6.1.2.6 Impact on protected areas

Impacts on the Protected Landscape Area during the construction phase will mainly relate to temporary transformation and occupation of the site, removal of forests, vegetation and periodic disturbance of fauna. These impacts can be mitigated by implementing the minimising measures proposed for the various nature elements, including the implementation of trenchless crossings. The planned Project is a public purpose investment and, in accordance with Article 24 of the Nature Conservation Act, the prohibitions indicated in the Resolution do not apply to it.

The possibility of significant negative impacts on Natura 2000 sites has not been identified at any stage of the planned Project.

6.1.2.7 Impact on ecological corridors

The impact of the construction phase of the planned Project on ecological corridors will be insignificant.

6.1.2.8 Impact on biodiversity

The impact of the construction phase of the planned Project on biodiversity will be moderate, mainly related to the transformation and occupation of land and the removal of vegetation in the construction strip. These impacts can be mitigated by implementing the minimisation measures proposed for the various nature elements, including the implementation of trenchless crossings,

6.1.2.9 Impact on the landscape

The impact of the planned Project on the landscape during the construction phase will be related to the necessity to remove trees and shrubs in the construction strip of 30-32 m width with local widening up to 50-100 m in the area of trenchless crossings and in the construction site area in the vicinity of the connection of offshore and onshore cables, construction works, the presence of construction machinery and equipment, excavation works and will cease upon completion of the works.

The impacts of the construction phase on the landscape will be moderate and will mainly relate to temporary transformation and occupation of the site and cuttings. These impacts can be reduced by implementing trenchless crossings.

6.1.2.10 Impact on cultural values, monuments and archaeological sites and objects

In the corridor of the planned Project there are 2 sites numbered 503 and 504 (gun emplacements) and site number 511 - crew shelter 503 and 504 being part of the 9th Fixed Artillery Battery in Lędów . The location of the HDD

transition launch chamber, the location of the sea and land cable connection posts and further open excavations is planned for this area. Remains of fortifications are located here. In addition, on satellite maps as well as on hypsometric maps, within the boundaries of the IP corridor there is a facility described as a school firing position, which is not under conservation protection.

Before commencing construction, the Investor will apply to the Voivideship Conservator of Monuments for the relevant approvals. According to the preliminary opinion of the Pomeranian Voivodeship Conservator of Monuments of 2022; there is a possibility of locating the planned infrastructure from the cannon barrage No. 4 under conservation protection at a minimum distance of 10 m from its foundations.

6.1.2.11 Impact on climate and atmospheric cleanliness

The planned Project will have no significant impact on the climate during the construction phase, while the impact on air quality will be minor. Impacts of the construction phase on climate and air quality will be insignificant.

6.1.2.12 Impact on the acoustic climate

The impact on the acoustic climate during the construction phase will be generated by vehicles and machinery used during construction, and will vary depending on the phase of the project and the type of equipment used.

The planned Project will not have a significant impact on the acoustic climate during the construction phase. These will be insignificant impacts.

6.1.2.13 Impact on electromagnetic fields

The impact on electromagnetic fields relates only to the operational phase.

6.1.2.14 Thermal impact

Thermal impacts only apply to the functional phase.

6.1.2.15 Impact on people

The impacts of the construction phase of the planned Project on people, health and living conditions and material assets will be insignificant and will mainly relate to nuisance related to noise, emissions, pollution and increased traffic and restrictions on access to agricultural land and forests. Positive impacts will relate to the potential increase in employment of local professionals and the development of services during the construction period. With regard to material assets, impacts will primarily be related to the use of existing road infrastructure.

It should also be emphasised that the vast majority of the land for the land cable project has been acquired or secured (transmission easement) by the Investors through amicable civil agreements, in the course of negotiations. As a result of the transmission easement, the rights to use the land in the current manner will not be restricted. However, the construction phase will be negatively impacted, due to noise emissions, air pollutants, temporary land occupation

- the work of heavy equipment in the vicinity of residential areas. Therefore, additional surveys and analyses were carried out by the Investors, which confirmed that these impacts will not be significant. There are no people living or residing in the immediate vicinity of the ECI corridor who are particularly vulnerable to the Projects, i.e.: elderly, disabled, children. The implementation of the Projects also does not restrict the right of landowners to lease their land. The landowners were informed in detail, at the negotiation stage, of restrictions on the future use of the parts of the property covered by the easement regarding the possibility to plant trees and shrubs or buildings. The results of these studies were included in the Livelihood Restoration Plan (LRP) document prepared for the onshore part of the Projects, as required by the financial institutions.

6.1.3 Exploitation phase - offshore part

6.1.3.1 Impact on geological structure, bottom sediments, access to raw materials and deposits

MFW Bałtyk II and MFW Bałtyk III

During the operation of the farm, the disturbance of the bottom sediments in the immediate vicinity of the foundations and the associated leaching of harmful substances into the water will occur at a level many times lower than during construction, especially if protective layers against leaching are used.

In addition, zinc or aluminium used to protect the foundations from corrosion will seep into the water. There is also the possibility of a slight increase in the temperature of the water and sediment in the immediate vicinity of the cables due to heating.

During the operation of the farm, access to mineral deposits on the surface of the farm will be significantly impeded or impossible, and the leaching processes of the bottom sediments in the immediate vicinity of the foundations may, at least minimally, affect the sand deposits.

Connection infrastructure (ECI)

The operation of the Connection Infrastructure will be associated with a slight increase in the temperature of the bottom sediments in the immediate vicinity of the cables, due to the temperature emissions generated by the cables during the transmission of power from the offshore wind farms. If the cable is buried to an assumed depth of approximately 1 m to a maximum of 5 m, there will be heating of the sediments only in the immediate vicinity of the cable. As you move away from it, the temperature will decrease. If alternative methods of cable laying are used (e.g. mattress or stone bedding cover) similarly to burial of the cable, the temperature of the conductor will be reduced to that of seawater. This impact is considered to be insignificant.

6.1.3.2 Impact on marine dynamics

<u>Sea currents</u>

Impacts on currents are only of the order of up to 0.5 cm/s in July and up to 1 cm/s in January for both alternatives. The difference between the impacts for both alternatives is small. The average impact on currents relative to baseline conditions is small, with the reduction the current speeds in the area designated for the wind farm being balanced by a slight increase in speed around the farm . The greatest impact on currents will undoubtedly be from foundations of the type and number that will reduce flow to the greatest extent. In this context, CFG (Heavy Gravity Foundation)

foundations will be the greatest barrier. However, as has already been shown, even the impact of structures with CFG foundations is only minor, so any type of foundation (CFG, single-pile, tripod or truss) can be chosen without causing a significant impact on the current regime. It has also been shown that there is only a small difference between the two options for this type of impact. If measures were needed to reduce the impact on the current regime, the flow blockage effect would have to be reduced, which can only be achieved by increasing the distances between the windmills, using structures with the smallest possible cross-sections and using the most streamlined shapes possible. However, given the low impact for both options, mitigation measures were considered unnecessary.

Wave attenuation

The January 2013 conditions were chosen to assess the impact of the two alternatives on the wave regime. 2013 was also the year for which wave data was available. In addition, wave action in winter is stronger than in summer. Wave simulations were performed for the situation with and without wind turbines and the differences between the two were assessed.

The modelling results indicate that the maximum impact is minor (1 cm for the adopted option and 4 cm for the reasonable alternative) compared to the undisturbed waves and can therefore be considered negligible.

The type and number of foundations that cause the greatest rebound will have the greatest impact on the ripple. The greatest rebound is caused by CFG foundations, and the strongest impact, will be associated with the rational alternative. However, as already demonstrated, the impact of the CFG foundations on the waves will only be minor, and therefore it is acceptable to choose any type of foundation (CFG, single-pile, tripod, truss) as none of them will significantly impact the wave regime.

Given the negligible scale of the impact, cumulative impacts from neighbouring farms are not expected.

6.1.3.3 Impacts on the quality of marine waters and seabed sediments

During operation of the farm, disturbance of the bottom sediments in the immediate vicinity of the foundations and the associated leaching of harmful substances into the water will occur at a level many times lower than during construction, especially if protective layers against leaching are used. On the other hand, zinc or aluminium used to protect the foundations from corrosion will seep into the water. There is also the possibility of a slight increase in the temperature of the water and sediment in the immediate vicinity of the cables due to heating.
During the operation of the farm, access to mineral deposits on the surface of the farm will be significantly impeded or impossible, and the leaching processes of the bottom sediments in the immediate vicinity of the foundations, may, at least minimally, affect the sand deposits.

The analysis of impacts presented in the EIA Reports showed no significant impacts of the project during the construction phase on the quality of marine waters. The exploitation phase, which assumes much lower impacts, will also not generate significant negative impacts on this component.

The operation of the ECI will be associated with a slight increase in the temperature of the bottom sediments in the immediate vicinity of the cables, due to the temperature emissions generated by the cables during the transmission of power from the offshore wind farms. If the cable is buried to an assumed depth of approximately 1 m to a maximum of 5 m, there will be heating of the sediments only in the immediate vicinity of the cable. As you move away from it, the temperature will decrease. When the cable is buried to a depth of approx. 1 - 1.5 m, the temperature will increase slightly by approx. 2ºC in the near-surface layer of sediments (at a depth of approx. 20 cm from the bottom surface), which is particularly sensitive due to the benthic organisms that live there. As a result of the close contact with

seawater and bottom water flows, there will be an effective reduction of the sediment temperature to that of the seawater. If alternative methods of cable laying are used (e.g. mattress or stone bedding), as with buried cable, the temperature of the conductor will be reduced to that of seawater. This impact is considered to be insignificant.

The impacts of the planned Project on current water levels, both during construction and operation, are considered to be insignificant. During both construction and operation there will be no deterioration in the current water status of the Bornholm Basin Sub-areas 36 Open Waters and 38 Polish Coastal Waters of the Bornholm Basin.

6.1.3.4 Climate impact, including greenhouse gas emissions and impacts significant in terms of adaptation to climate change, impact on air quality (atmospheric cleanliness)

MFW Bałtyk II and MFW Bałtyk III

Wind turbines will have a local impact on wind energy and atmospheric pressure changes in the immediate vicinity of the rotors. Wind turbine towers can interfere with local water velocities and directions and reduce wave energy as manifested by a decrease in wave height.

During operation of the MFW, the direct and local impacts of the project, such as vessel use and fuel consumption, will not have a significant impact on climatic conditions. Although this impact will be permanent, its extent will remain local. Nevertheless, the operation of the wind farm will contribute to the reduction of greenhouse gas emissions from other sources, such as coal-fired power plants in the country.

Connection infrastructure (ECI)

ECI will not be a source of permanent emissions to the atmosphere and will not exacerbate the effect of climate change

6.1.3.5 Impact on ambient noise levels

No negative impact of wind farms on noise levels is expected during the operational phase.

Connection infrastructure (ECI)

During the operational phase of the ECI, noise sources will be vessels used for technical inspections. Inspections of the buried/secured condition of the cable will be carried out by the Investor using seismo-acoustic methods, in the first, third and fifth year, and every 5 years thereafter, after completion of the construction works. It is planned to use catamarans (medium sized vessels) for the aforementioned purpose. Considering the above, both the intensity of ship traffic and the level of noise generated will be sporadic, short-term and reversible. The impact is considered to be insignificant.

6.1.3.6 Impact on electromagnetic field systems

It is evident from the operation of offshore wind farms to date that the operation of wind turbines and certain types of tower structures can adversely affect the operation of offshore and onshore navigation equipment and other systems. This mainly concerns radar, communication systems and radar equipment.

According to the conditions included in the permit for the erection and use of artificial islands, constructions and devices in Polish maritime areas, the Applicant will be obliged to cooperate with the users of the systems using electromagnetic fields. This cooperation is aimed at the implementation of countermeasures, which will allow to accept the impact of the MFW on the communication and radiolocation systems. Therefore, it can be assumed that the impact of the Projects on these installations will be insignificant.

6.1.3.7 Impacts on biotic components in the marine area

Benthos

The most important impacts on macrozoobenthos during the operational phase will be related to habitat loss (bottom area) and the creation of an 'artificial reef' (positive impact). The surface area of the hard substrate of the underwater wind turbine structures will be (in the 2015 NIS) almost the same as the surface area of the environment degraded by the construction works. In a short time it will be colonised by epiphytic organisms and, in the overexposed zone, also by phytobenthos species. The taxonomic composition and quantitative structure of the benthos will be similar to that found in the mussel assemblage Mytilus trossulus.

During the operation of the ECI, with the cables buried in the bottom, the impact on phytobenthos will be neutral as the existing habitat conditions will not change. Negative impacts may only occur in small areas of the seabed, where alternative methods of securing the cable in the form of stone surcharge or concrete mattresses are used; such methods are considered for hard bottom where it will not be possible to lay cables in the seabed. This impact is considered to be local and insignificant.

During the operation of submarine cables, impacts on macrozoobenthos may occur related to:

reef effect - the creation of new habitat due to the use of alternative methods to protect the cable in the form of stone erratics or concrete mattresses,

- electromagnetic field emissions from cables,
- heat emission through the cables.

The creation of a stone bed or the use of a concrete mattress on a soft bottom will locally result in a change of habitat type. The new substrate will be colonised by species typical of stony bottoms.

The impacts of the operation phase of the planned Project on macrozoobenthos are considered to be insignificant.

Ichthyofauna

MFW Bałtyk II and MFW Bałtyk III

The most important impacts on fish at the exploitation stage will be related to the creation of an "artificial reef" (positive impact), where fish can find shelter and favourable conditions for breeding, especially if commercial fishing is banned or restricted in the area of the farm (such a decision can be taken by the maritime administration at the stage of investment implementation).

The results of the assessment of impacts of the MFW on fish indicate that there will be no significant impacts. The significance of the vast majority of NIS 2015 impacts has been assessed to be negligible or low (mainly for cod, which is an important commercial species), provided that mitigation measures are applied to minimise noise impacts from piling. The impacts of the implementation variant will generally be proportionally smaller (due to the reduced number of foundations).

Connection infrastructure (ECI)

The disturbance of the bottom structure and temporary removal of benthic habitats within the trench will result in localised disturbance of habitats and spawning grounds for ichthyofauna along the entire cable burial route. The effects of reduced habitat quality will also occur during the operational phase of the IP, until the disturbed marine habitats are restored. In summary, the impact associated with habitat conversion is considered to be moderate.

The impact of electromagnetic fields is considered to be insignificant.

Seabirds

MFW Bałtyk II and MFW Bałtyk III

The MFW may affect migratory birds through the creation of a barrier and the occurrence of collision risks throughout the operational phase. The barrier effect is a low-intensity impact for all bird species, as bypassing or flying over the farm area (or construction vessels) involves little additional energy expenditure. Therefore, this impact is assessed as low or negligible for all species. Some species may collide with wind turbines, but this impact will be negligible or low for all species analysed.

The potential impact of the operational wind turbines on seabirds will mainly relate to increased mortality due to collisions with the turbines, and changes in the distribution, and behaviour of birds (avoidance of the water body occupied by the project). It should be noted that these changes in bird behaviour will greatly reduce the risk of collisions.

The significance of the vast majority of NIS impacts was identified as negligible or low.

Connection infrastructure (ECI)

Potential impacts during the operational phase of ECI on seabirds will be related to localised habitat/foraging area alteration. Destruction of benthic communities in the cable laying/laying strip will result in a temporary reduction of bird feeding areas, primarily for long-tailed ducks. This impact is considered to be insignificant due to the proximity of water bodies with an abundant food base.

Marine mammals

MFW Bałtyk II and MFW Bałtyk III

The most important impacts on marine mammals during the operational phase will be related to the creation of an 'artificial reef' (positive impact), where mammals can potentially find an abundant supply of fish as their primary food.

The results of the assessment of the Project impacts on marine mammals indicate that there will be no impacts of significance. The significance of the vast majority of NIS impacts has been determined to be negligible (seals) or low (harbour porpoise). The exception is noise from piling, which may lead to impacts of moderate significance on mammals and this is subject to mitigation measures. WR impacts will most often be proportionally lower (due to fewer foundations and thus, among other things, a shorter total duration of mammalian exposure to noise).

Connection infrastructure (ECI)

The potential impacts of the offshore cable operation phase will result in permanent impacts in the form of magnetic field emissions. Periodic surveys of the IP will be carried out (once every 5 years, with the first three surveys planned in the first, third and fifth year, following the completion of construction) using seismic methods and will be a source

of noise of short duration. In view of the sporadic occurrence of marine mammals in the area of the planned Project, this impact should be considered insignificant.

Bats

The potential main cause of bat mortality during the operational phase will be collisions with power station structures and barotrauma (death from alveolar rupture). The farm facilities themselves and the lights they will be fitted with may attract insects. They may also be attracted by the increase in temperature as a result of the operation of the blades. This could potentially create foraging areas for bats.

6.1.3.8 Impact on protected areas

The Natura 2000 areas within the range of influence of the project, where seabirds are protected, are Ławica Słupska (5.5 km away), Przybrzeżne Wody Bałtyku (8.3 km away) and Pobrzeże Słowińskie (22.3 km away).

There will be a permanent displacement of birds from the wind farm site during the operational phase. There will also be a barrier effect on locally migrating birds (e.g. in search of food), some of which at least temporarily use the Natura 2000 areas, which will involve increased energy inputs and collisions with the power plants. Birds inhabiting nearby Natura 2000 areas are also unlikely to benefit from the abundance of food that will, in time, appear on the 'artificial reef' created on the underwater elements of the farm.

- The projects themselves will not significantly affect the integrity of the coherence and the conservation object of the Natura 2000 sites in any of the options considered through the impacts they will have on seabirds.
- The projects, in combination with other offshore wind farms that may be developed in its immediate vicinity on the north-eastern slope of Ławica Słupska, will not have a significant impact on the integrity, coherence and object of protection of Natura 2000 areas through the impact on birds migrating to wintering grounds being the subject of protection of the Ławica Słupska area, provided that a minimising measure is applied in the form of a recommendation by a competent authority to take into account, when designing further investments in offshore wind farms located on the north-eastern slope of Ławica Słupska, undeveloped migration corridors with a width of no less than 4 km between successive projects.

The Natura 2000 areas within the range of influence of the Project, where benthic habitats are protected, are Ławica Słupska (5.5 km away) and Przybrzeżne Wody Bałtyku (8.2 km away). The only significant planned impact of the Projects up to the limits of the Natura 2000 areas will be the redeposition of suspended matter raised by the works on the seabed. However, at this distance, the "extra" layer of sediment will be no more than 0.2 -0.4 mm, which should be considered a negligible impact. Therefore, no significant negative impacts of the Projects (alone or in cumulation) on benthic habitats and species protected within the Natura 2000 network, including on its integrity and coherence, are anticipated.

6.1.3.9 Impact on ecological corridors

No significant negative impacts on the integrity, coherence and conservation status of Natura 2000 sites are expected. Due to the lack of significant impacts in terms of barrier to Eurasian migratory populations and collision mortality affecting the conservation status of these populations, the MFW is not expected to cause transboundary impacts on birds. The cumulative effect of the barrier was assessed for the four most abundant migratory bird species: long-tailed duck, common scoter, crane and geese. It was assumed that migrating birds changed their flight route and circled the MFW at a distance of 1-2 km. The modelling results indicate that even if the birds avoid several wind

farms, the additional distance they will cover and the increase in the energy cost of migration associated with it will be very small, certainly within the range of differences in distance covered by different individuals and differences caused by atmospheric factors. With the recommended mitigation measures of leaving a migration corridor that provides access to the Ławica Słupska, which is an important wintering ground for the Long-tailed duck, even the most far-reaching offshore wind development scenario will not result in significant impacts. The cumulative collision risk calculated for the likely scenarios for offshore wind energy development in Polish maritime areas also showed no potential for significant impacts on any of the migratory species in the area. Due to the lack of significant barrier impacts already identified at the environmental decision stage in 2015 for Eurasian migratory populations, as well as collision mortality affecting the conservation status of these populations, the Projects are not expected to cause transboundary impacts on migratory birds.

6.1.3.10 Impact on biodiversity

It is not expected that the construction of the MFW will result in a reduction of biodiversity in the Baltic Sea area where it will be located.

The impact of the ECI operation phase on biodiversity was assessed as negligible. This is because the only permanent impacts on the marine environment relate to magnetic field emissions and temperature, the effects of which on living organisms, were assessed as negligible in the previous chapters on the individual components of animate nature.

6.1.3.11 Impact on cultural values, monuments and archaeological sites and objects

The results of the assessment showed that the MFW project will not have a significant negative impact on heritage sites in any of the considered project options, at any of the stages, i.e. construction, operation and decommissioning.

To the best of our current knowledge, there is no protected site or body of water within the boundaries of the ECI corridor, established under heritage protection and care regulations. In view of the above, it was concluded that no impacts affecting cultural heritage are expected to occur.

6.1.3.12 Impacts on the use and development of the basin and on material assets

For the purposes of the EIA, the NIS 2015 scenario assumes that the area occupied by the farm will be completely excluded from fisheries use from the commencement of construction works. Thus, the impact of the farm on fisheries will be similar regardless of the option analysed.

Due to the low importance of these areas for fishing, all potential impacts of the MFW on fisheries will be of negligible or no significance ("no change"). In addition, displacement of fishing vessels previously fishing in the MFW area to other fishing areas can be expected. Of key importance for the gradual disappearance of the marine fisheries industry are: the introduced limits on fishing for individual fish species and the total ban on cod fishing in the Baltic Sea introduced from the beginning of 2020.

The results of the assessment showed that the MFW project will not have a significant negative impact on fisheries at any stage of the project, i.e. construction, operation and decommissioning.

Connection infrastructure (ECI)

During the operation phase, it is envisaged that a protection zone for the cable lines will be established by the Director of the Maritime Office in Gdynia. This will restrict the use of bottom fishing gear in the area of the IP location. This will be a permanent, local impact.

Given the low importance of the ECI area as a fishery for major species of economic importance, the indicated impacts during the construction and operational phases on fisheries were considered negligible.

A significant impact of the construction phase is to carry out works in the areas with the most intensive ship traffic, i.e. TSS Ławica Słupska and in the area of the port of Ustka. Also anchoring of installation vessels may cause temporary difficulties in ship traffic. In order to maintain safety, the entity in charge of implementation, prior to the commencement of the installation works, will prepare a navigation safety plan with a schedule taking into account the division of labour and areas of activity, the implementation of which will ensure safe conduct of cable laying along the entire route, including the most sensitive section of the TSS Ławica Słupska, and increasing the cable laying speed to the highest possible, will allow faster cable installation, shortening the time of works.

This impact was considered to be of short duration, limited to the location and duration of the works and therefore insignificant.

6.1.3.13 Impact on landscape, including cultural landscape

For the assessment, vantage points were selected which, due to their exposure and relevance to public perception of potential impacts, were considered potentially sensitive to impacts from the Projects. The following vantage points with marine exposure were selected for both Projects:

- pier in the vicinity of the town of Ustka,
- beach in the vicinity of the village of Rowy,
- dunes within the Słowiński National Park
- beach within the boundaries of the Slovinski National Park
- beach in the Łeba area,
- the lighthouse in Stilo,
- the beach near the village of Białogóra,
- the beach in the vicinity of Lubiatowo,
- the beach in the vicinity of Dębki,
- the beach near Karwia.

Photography 3 MFW overview

Source: Equinor& Polenergia, 2024

The analysis carried out for each of the selected observation points showed that, regardless of the option considered, the visual impacts of the Project on the landscape during the operational phase will be similar. The visibility of the Projects decreases with increasing distance of the observer from the project and disappears within a radius of up to approximately 45-50 km. The greatest visual impact will be generated by the Project on observers located within the boundaries of Słowiński PN (dunes and beach) and on the beach near Łeba. However, even from these points the impact significance was assessed to be moderate. At the remaining points impact significance was assessed to be low. In none of the cases considered will the Projects constitute a landscape dominant, significantly altering the perception of the seascape from the main viewpoints.

6.1.3.14 Impact on people

Maritime tourism

The MFW was found to have the potential to cause at the operational stage:

3. the impact on the landscape of the wind turbines and other farm components (e.g. transformer stations, metering and testing stations),
4. surface noise emissions from wind turbines and farm service vessels,
5. luminous phenomena (shadow flicker, light markings).

It was concluded that the impacts of the MFW on coastal tourism will be mostly related to the impacts of the project on the landscape. The MFW may potentially have a visual impact on the coastal section stretching from Ustka on the western side to Karwia on the eastern side. Therefore, coastal tourism along this section was considered to be the receptor of the MFW impact. The importance of coastal tourism (as a receptor that could be affected by the Projects) was categorised as medium. It was concluded that the potential impact of the Projects on coastal tourism associated with the visual impact of the Project on the landscape at all stages would be of negligible significance.

Recreational fishing

The following impacts on recreational fisheries were identified to have the potential to occur during the operational phase:

1. the need to change existing flow routes,
2. the need to relocate to other fisheries.

The significance of recreational fisheries (as a receptor of impacts) for the purposes of assessing the significance of impacts of the Projects was categorised as low. It was concluded that the demonstrated potential impacts of the Projects on recreational fisheries at all stages would be of negligible significance. The results of the assessment showed that the MFW Project will not have a significant negative impact on coastal tourism in any of the Project options considered, at any of the stages, i.e. construction, operation and decommissioning, or in cumulation with other projects.

As stated during the preparation of the projects for implementation, the recreational fishery has been significantly affected by the total ban on cod fishing in the Baltic Sea from the beginning of 2020. The industry is now disappearing and many boats standing in harbours are not being used.

Water sports

The Project has not been identified as a source of potential impacts on water sports.

Military operations

The projects do not occupy water bodies where naval manoeuvres are carried out. Therefore, no impact assessment has been carried out in this regard.

Radio and communication systems

Offshore wind farms were found to have the potential to cause the following types of impacts on communication and radio communication systems:

1. lack of signal from shore and ship-based communication and radar systems - the turbines are a physical barrier to waves thus blocking the signal of transmitting/receiving stations,
2. difficulties in locating ships correctly by shore-based radar stations due to the phenomenon of radar echoes,
3. impediments to the proper operation of the ship's radar systems,
4. communication difficulties due to interference with communication systems - interference is caused by radio waves reflected from wind turbines.

Where, on the basis of simulations performed for the most far-reaching scenario (NIS 2015), assuming a maximum number of turbines of 200, it was found that negative impacts extended beyond a zone of 2 km from the boundary of the turbines, corrective measures were proposed to install additional transmitting devices on selected turbines. These devices would compensate, for example, for lack of signal or interference caused by the presence of the MFW. The zone width of 2 km was adopted on the basis of the risk analysis performed, a review of publications and the results of simulations included in the expert report. The possible maintenance of a distance of 2 km from the wind farm by ships will eliminate all risks with a risk level defined as high and very high.

Civil and military aviation

Offshore wind farms were found to have the potential to impact civil and military aviation primarily during the operational phase, being the source of the following impacts:

1. wind turbines (under construction or built), due to their height, can constitute a physical obstacle to aviation (including for helicopters operating oil platforms or taking part in rescue operations),
2. offshore wind farm components (particularly turbines) can cause interference with radar systems used in aviation.

On the basis of the positive approval of the location of the planned project by the President of the Civil Aviation Office and the positive opinion of the Head of Air Traffic Services of the Polish Armed Forces, it was concluded that the Projects will not affect civil and military aviation in any of the project options considered in the report.

Shipping

It was concluded that due to the increase in vessel traffic in the project area at all stages (i.e. construction, operation and decommissioning), relative to the baseline - i.e. pre-investment situation, offshore wind farms could potentially have a negative impact on marine shipping, causing:

1. disruption of the existing order and restriction or obstruction of navigation, which force changes to existing vessel routes (provided they passed through the farm area). The increase in vessel traffic is particularly noticeable during the construction (or eventual decommissioning) phase of the farm. During the operation phase, the situation stabilises, the volume of vessel traffic involved in the operation of the farm decreases, and the traffic is characterised by a certain regularity and predictability resulting from the maintenance schedule;
2. the risk of electrocution in the event of a vessel dropping anchor in an emergency and damaging the cable. However, this risk is minimised as automatic protection devices are fitted to the substations to switch off the cable in the event of damage;
3. interference with radar and communications systems.

MFWs can also be a source of positive impacts:

1. resulting in additional revenue at the ports serving the vessels involved in the construction/operation or eventual decommissioning of the farm;
2. elements of the IMF can provide a place of refuge for survivors;
3. aiding navigation and allowing better orientation in space (thanks to the labelled elements of the farm).

It was concluded that due to the increase in vessel traffic, the MFW may give rise to impacts on shipping as described above, including existing and planned shipping routes, but these will not be significant impacts. If the right of way through the farm area is restricted, it will be necessary to alter the customary routes of some vessels and divert them to the north or south of the MFW area, depending on the planned destination.

Exploration, identification and exploitation of the mineral resources of the seabed and the interior of the earth beneath it

It was stated that offshore wind farms may limit the possibilities of exploration, prospecting and exploitation of mineral resources of the seabed and the interior of the earth underneath, in the case, when in the area of the MFW the process of development with particular elements of the farm has started or the farm is already built. In such cases, traditional exploration methods are not applied, and the possibilities of setting up a drilling (for deposit exploration) or extraction platform become limited due to the necessity to maintain certain safety zones.

There was no significant impact of the Projects on the ability to explore, identify and exploit the mineral resources of the seabed and the interior of the earth beneath it at any stage of the project, or in cumulation with other planned MFWs.

Maritime industry

The demand for skilled workers means that the offshore wind energy sector can have a significant impact on education courses and the labour market in Poland, especially in the shipbuilding, electrical machinery and offshore construction sectors, and lead to the creation of a number of new jobs.

Material goods, health and human life

MFW Bałtyk II and MFW Bałtyk III

None of the impacts of the Projects was found, on the basis of conducted analyses, to be likely to significantly adversely affect material assets, health and human life. A threat to human health and life may arise mainly in the case of collisions of ships or vessels with MFW elements, but this type of situation is classified as so-called unplanned events, whose probability of occurrence is very low.

The impact on material assets may result from the occupation of the MWF fisheries for different fish species. However, as demonstrated by the data and research collected during the Projects, the key impacts on marine fisheries are the reduction of fishing quotas and the total ban on cod fishing in the Baltic Sea introduced from the beginning of 2020. Currently, many fishing vessels are being decommissioned and fishermen are applying for subsidies for cessation of fishing activities and for scrapping of boats and cutters. Preliminary analyses of the impact of the Projects on the welfare of fishermen have been made in the Livelihood Restoration Framework (LRF) document, prepared in accordance with the requirements of financial institutions.

Connection infrastructure (ECI)

During the operation phase, the impact on the use and development of the basin will result almost exclusively from the establishment of a safety zone for cable lines by the Director of the Maritime Office in Gdynia, within which prohibitions and restrictions on use will be in place to protect submarine cables from damage or destruction.

6.1.4 Onshore phase

6.1.4.1 Impact on land surface

During the operation phase of the planned Project, no impacts are anticipated that may adversely affect the ground surface and the relief of the land, including in the shoreline and dune belt area.

6.1.4.2 Impact on geological structure and deposits

During the operation phase of the planned Project, no impacts are anticipated that may adversely affect the geological structure and deposits.

6.1.4.3 Impact on soils

The impact of the ECI operation phase on soils will be moderate and will mainly relate to the permanent occupation of land for substations with a total area of up to 16 ha and the exclusion of soils of high quality class from agricultural use.

6.1.4.4 Impact on surface and groundwater and flood risks

The impact of the operation phase of the planned Project on water resources will be insignificant **-** the operation of the planned Project is a virtually maintenance-free process with respect to the underground cable line.

The implementation of the planned Project does not threaten the achievement of the environmental objectives indicated in the *"Oder River Basin Management Plan".*

6.1.4.5 Impact on nature

Vegetation and natural habitats

The impact of the operation phase of the planned Project on the vegetation and habitats will be moderate and will be mainly related to the change of species composition and the possibility of invasive plant species appearance. In order to limit the impact of the operation phase on the plant cover and habitats, it is proposed to include in the post-completion natural monitoring of the technological strip for the expansion of invasive plant species.

Forests

During the period of operation, there will be no possibility of afforestation in the technological strip with a width of 20 m for the 400 kV line and 10-31 m for the 220 kV line - vegetation will be regularly removed. At the design stage, the width of the corridors was optimized, with widths of approximately 10-16 meters for the 400 kV line and 10-31 meters for the 220 kV line (with local widening in the area of the cable exit to land).

The impact of the operation phase of the planned Project on forests will be moderate and associated with an increase in the pressure of non-forest species (including invasive species) on the remaining forest phytocoenoses.

Biota of macrofungi and lichens

During the operation of the planned Project, potential negative impacts on the biota of macrofungi and lichens may be associated with the destruction of habitats and microhabitats as a result of the cyclical cutting of greenery in the process belt.

These impacts will be insignificant.

Invertebrate fauna

The impact of the construction and operational phases of the planned Project on invertebrate fauna will be insignificant.

Ichthyofauna

Due to the poor composition of the ichthyofauna of Struga Lędowska, no significant impacts of the planned Project on ichthyofauna are expected at any of its stages.

Herpetofauna

During the operation phase of the planned Project, potential negative impacts on herpetofauna may be related to habitat destruction as a result of cyclic vegetation clearance. These will be insignificant impacts.

Birds

During the operational phase of the planned Project, potential impacts on birds may be related to changes in habitat conditions and cyclical felling and maintenance works. These will be insignificant impacts.

Terrestrial mammals

The impact of the construction phase and operation of the ECI on terrestrial mammals will be insignificant.

Bats

During the operational phase of the ECI, potential impacts on bats may be related to scaring during maintenance works and periodic vegetation clearance. Once the construction works are completed, the land in the process belt will undergo succession processes. New habitats will be created that can be used by animals, which will mitigate the effects of the transformation and fragmentation of the site during construction. The impact of the ECI operation phase on bats will be insignificant.

6.1.4.6 Impact on protected areas

Due to the nature of the planned Project, including primarily an underground route, no significant impact on the landscape subject to protection in the Protected Landscape Area Pas Pobrzeża na Zachód od Ustki. is anticipated. The impact of the operation phase will be moderate, involving the emergence of a deforested area approximately 10-31 m wide over a length of about 1.5 km.

The potential for significant negative impacts on Natura 2000 sites has not been identified at any stage of the implementation and operation of the ECI connection infrastructure.

6.1.4.7 Impact on ecological corridors

The ECI will not affect the ecological corridors of the Pobrzeże Słowińskie (Slowinski Coastal corridor of national importance), the Nadmorski (corridor of supra-regional importance) or the East Atlantic bird migratory route.

Once the construction phase has ceased, the site will be restored to its original state, with the exception of substations and service strips from underground cable lines:

- 220 kV with a width of 10-31 m,
- 400 kV with a width of 20 m.

The areas within the boundaries of the aforementioned strips will be permanently deforested in the forest part. The agricultural areas will revert to their original state and be used for agriculture. The impacts of the operation phase on the ecological corridors will be neutral.

6.1.4.8 Impact on biodiversity

After the cessation of the construction phase, the land will be restored to its original state, with the exception of a technological strip 20 m wide for the 400 kV line and 10-31 m for the 220 kV line, which will be permanently deforested. In these areas, it will be possible for plants with a shallow root system to return. There will be secondary succession towards leek and grassland habitats and species. Agricultural areas will return to their original state and be used for agriculture. Negative impacts on biodiversity will mainly relate to succession and the possibility of invasive plant species. A positive aspect is the creation of new habitats that can be used by animals.

Impacts of the operational phase on biodiversity will be neutral.

6.1.4.9 Impact on the landscape

Due to the type of planned Project - underground power cables - no significant negative impact on the landscape during the operation phase, including the Protected Landscape Area, is expected.

6.1.4.10 Impact on cultural values, monuments and archaeological sites and objects

During the operation phase, the planned Project will have no impact on archaeological sites, the historic buildings of the Naval Training Centre and the Gajki Forester's Lodge 1. The operation of the planned Project is a virtually

maintenance-free process, limited to conservation and maintenance works. Due to the nature of the works carried out, the impact during the operation phase will be neutral.

6.1.4.11 Impact on climate and atmospheric cleanliness

There will be no significant sources of air emissions during the operation phase, these will only be associated with maintenance and servicing works and will be limited to specific locations. The impact of the planned Project on atmospheric air and climate during the operation phase is assessed to be positive, due to the construction of the MFW Bałtyk II and MFW Bałtyk III and the extraction of energy from the wind.

6.1.4.12 Impact on the acoustic climate

The results of the model calculations showed that the functioning stations with all noise source devices operating continuously (24 h/day) at maximum acoustic power will not cause exceeding of the permissible sound level set for the night time (40 dB) in the area of the nearest planned protected development (forest area located in the vicinity of the station, to the north-east, designated for residential development in the MPZP[10]). These will be moderate impacts.

6.1.4.13 Impact on electromagnetic fields

The calculations carried out clearly show that even at the maximum load of the individual cable lines, and consequently of the entire cable route, the field strength limit (60 A/m) will not be exceeded above ground level, particularly at a height of 2.0 m above sea level. This means that the presence of the public (environmental exposure) even directly above the cable routes will be permitted without any time restrictions.

Magnetic field impacts from underground cable lines were considered neutral.

6.1.4.14 Thermal impact

The calculations carried out for 220 kV and 400 kV cable lines, show that the thermal impact from the cables introduces slight temperature changes at the ground surface in the area above the laid cables. Thermal impacts from underground cable lines were considered to be neutral.

6.1.4.15 Impact on people

The ECI is virtually maintenance free during the operation phase; periodic maintenance may be carried out. During the operation phase there will be permanent impacts from noise emissions from substations and minor heat emissions from underground cables. In addition, the Project during operation will have potential human benefits, mainly socio-economic related to improved energy security and financial benefits from land rent and taxes.

[10] Resolution No. XL.514.2022 of the Ustka Commune Council of 19 May 2022 on adopting the local spatial development plan for the area encompassing the geodesic precinct of Pęplino, commune of Ustka

As mentioned in section 6.1.1.27, the transmission easement disclosed in the property registers entails certain restrictions on the future use of these parts of the parcels: no trees or tall shrubs can grow here and no buildings will be allowed to be erected. Bearing in mind that the land is mostly used extensively for agriculture, these restrictions are not significant. The plot owners were made aware of them during the negotiation of the easement agreements.

6.1.5 Decommissioning phase - maritime area

Connection infrastructure (ECI)

Two ways of implementing the decommissioning phase are assumed - decommissioning by inactivation and leaving the Connection Infrastructure in the bottom (the Investor's preferred method) and decommissioning by complete IP dismantling (cutting the cables into sections and pulling them on board the CLV).

If the cables are left in the seabed, no impacts on animate and inanimate elements of the marine environment are expected. In the case of dismantling, the impacts and their significance will mostly be the same as those identifiedfor the construction phase, due to the assumed scope of the dismantling works being very similar to the construction works.

A final decision on how the Project will be decommissioned will be made once the connection infrastructure is operational.

The impacts of the MFW at the decommissioning stage are presented in the following chapters.

6.1.5.1 Impact on geological structure, bottom sediments and access to raw materials and deposits

Impacts occurring during the decommissioning phase of the project will be similar to those during the construction phase, but of lower intensity. Interference with the seabed will not be as great as in the case of foundation driving. Some structural elements may be left on the seabed, e.g. foundations. Piles will most likely be cut 3 m below the seabed. Transmission cables may be partially removed. Decommissioning works may affect mineral resources by covering them with an additional layer of shaken sediments. After removal of the farm components, the entire farm area will be available for exploration and possible exploitation of mineral deposits.

6.1.5.2 Impacts on the quality of marine water and seabed sediments

Impacts occurring during the decommissioning phase of the project will be similar to those during the construction phase, but of lower intensity. Interference with the seabed will not be as great as in the case of installation of foundations in it. Some structural elements may be left on the seabed, e.g. heavy gravity foundations. The piles will most likely be cut 3 m below the seabed. Transmission cables may be left in place or partially removed. The decommissioning works may affect mineral resources by covering them with an additional layer of shrugged off bottom sediments. After removal of the farm components, the entire farm area will be available for exploration and possible exploitation of mineral deposits.

6.1.5.3 Impact on biotic factors

Benthos

Negative impacts of the decommissioning phase on the benthos will mainly consist of permanent destruction of the epiphytic communities on the underwater structures of the wind turbines and partial destruction of the communities of benthic organisms around the foundations. Full habitat regeneration at the site of dismantled foundations may take up to 5 years.

Ichthyofauna

The negative impacts of the decommissioning phase on fish will mainly consist of the permanent destruction of the artificial reef's epiphytic communities and the negative impact of increased suspended solids in the water.

Seabirds

Negative impacts of the decommissioning phase on seabirds (disturbance), will primarily be caused by noise, light emissions during demolition works or increased vessel traffic.

At the decommissioning stage of the MFW there will be impacts on migratory birds in the form of a barrier effect and collisions with vessels. The barrier effect will be of negligible significance as the rerouting associated with avoiding the construction site will only represent a small part of the overall migration route, so the additional energy costs will be very small. Collisions of birds with vessels have been assessed to be negligible to small as vessel traffic will be limited to a relatively small area.

Marine mammals

The negative impacts of the decommissioning phase on mammals, will mainly consist of noise emissions during demolition works, destruction of the artificial reef (reduction of the food base) and the negative impact of increased suspended solids in the water.

The results of the assessment of impacts of the MFW on marine mammals indicate that there will be no significant impacts.

Bats

Impacts occurring during the decommissioning phase of the project will be similar to those during the construction phase, but their intensity will be lower. Increased traffic in the project area will attract insects, followed by bats, which may crash into the remaining power plant structures and vessels.

6.1.5.4 Impact on protected areas

During the decommissioning phase, similar impacts may occur as during the construction phase. The analysis carried out for the construction phase has shown that there are no significant negative impacts on Natura 2000 sites within the impact range of all the projects discussed.

6.1.5.5 Impact on ecological corridors

During the construction and decommissioning phases of the MFW there will be impacts on migratory birds in the form of barrier effect and collisions with vessels. The barrier effect will be of negligible significance as the rerouting associated with avoiding the construction site will only represent a small part of the overall migration route, so the

additional energy costs will be very small. Collisions of birds with vessels have been assessed to be negligible to small as vessel traffic will be limited to a relatively small area.

6.1.5.6 Impact on biodiversity

The decommissioning of the MFW is not expected to result in a reduction of biodiversity in the Baltic Sea area where it will be located

6.1.5.7 Impact on landscape, including cultural landscape

During the decommissioning phase of the project there will be a temporary reduction in the aesthetic value of the landscape as a result of the demolition works. These impacts will consist of increased traffic of vessels involved in the decommissioning of the farm. The significance of the impact on the seascape for this phase was assessed to be negligible for both alternatives considered.

6.1.5.8 Impact on cultural values, monuments and archaeological sites and objects

The results of the assessment showed that the MFW project will not have a significant negative impact on heritage sites in any of the considered project options, at any of the stages, i.e. construction, operation and decommissioning.

6.1.5.9 Impacts on the use and development of the water body and on material assets

The results of the assessment showed that the MFW project will not have a significant negative impact on fisheries at any stage of the project, i.e. construction, operation and decommissioning.

6.1.5.10 Impact on population, health and living conditions of people

<u>Maritime tourism</u>

The MFW was found to have the potential to cause the following impacts on coastal tourism:

1. impact on the landscape due to increased traffic of vessels involved in dismantling elements of the farm,
2. Surface noise emissions due to dismantling works; loss of the tourist attraction of the MFW.

The results of the assessment showed that the MFW project will not have a significant negative impact on coastal tourism in any of the considered project options, at any of the stages, i.e. construction, operation and decommissioning, or in cumulation with other projects.

<u>Recreational fishing</u>

It was concluded that the MFW, during the decommissioning phase, has the potential to cause the following types of impacts on recreational fisheries:

1. the need to change existing flow routes,

2. the need to relocate to other fishing areas,
3. surface noise emissions,

The significance of recreational fisheries (as a receptor of impacts) for the purposes of assessing the significance of impacts of the Projects was categorised as low. It was concluded that the demonstrated potential impacts of the Projects on recreational fisheries during all phases would be of negligible significance.

6.1.6 Decommissioning Phase – land area

Water sports

The Project has not been identified as a source of potential impacts on water sports.

Military operations

The projects do not occupy water bodies where naval manoeuvres are carried out. Therefore, no impact assessment has been carried out in this regard.

Radio and communication systems

No impacts were identified during the construction phase of the Projects in this regard.

Civil and military aviation

On the basis of the positive approval of the location of the planned project by the President of the Civil Aviation Office and the positive opinion of the Head of Air Traffic Services of the Polish Armed Forces, it was concluded that the Projects would not affect civil and military aviation in any of the project options considered in the report.

Shipping

It was concluded that due to the increase in vessel traffic in the project area at all stages (i.e. construction, operation and decommissioning), relative to the baseline - i.e. pre-investment situation, offshore wind farms could potentially have a negative impact on marine shipping, causing:

1. disruption of the existing order and restriction or obstruction of navigation, which force changes to existing vessel routes (provided they passed through the farm area). The increase in vessel traffic is particularly noticeable during the construction (or eventual decommissioning) phase of the farm. During the operation phase, the situation stabilises, the volume of vessel traffic involved in the operation of the farm decreases, and the traffic is characterised by a certain regularity and predictability resulting from the maintenance schedule;
2. the risk of electrocution in the event of a vessel dropping anchor in an emergency and damaging the cable. However, such a risk is minimised as automatic protection devices are fitted to the substations to shut down the cable in the event of damage;

It was concluded that due to the increase in vessel traffic, the MFW may give rise to impacts on shipping as described above, including existing and planned shipping routes, but these will not be significant impacts. If the right of way through the farm area is restricted, it will be necessary to alter the customary routes of some vessels and divert them to the north or south of the MFW area, depending on the planned destination.

Exploration, identification and exploitation of the mineral resources of the seabed and the interior of the earth beneath it

It was stated that offshore wind farms may limit the possibilities of exploration, prospecting and exploitation of mineral resources of the seabed and the interior of the earth underneath, in the case, when in the area of the MFW the process of development with particular elements of the farm has started or the farm is already built. In such cases, traditional exploration methods are not applied, and the possibilities of setting up a drilling (for deposit exploration) or extraction platform become limited due to the necessity to maintain certain safety zones.

There was no significant impact of the Projects on the ability to explore, identify and exploit the mineral resources of the seabed and the interior of the earth beneath it at any stage of the project, or in cumulation with other planned MFWs.

Maritime industry

The demand for skilled workers means that the offshore wind energy sector can have a significant impact on education courses and the labour market in Poland, especially in the shipbuilding, electrical machinery and offshore construction sectors, and lead to the creation of a number of new jobs.

Health and human life

None of the Project impacts were considered, on the basis of conducted analyses, to have a significant negative impact on human health and life. A threat to human health and life may arise mainly in the case of collisions of ships or vessels with MFW elements, however, such situations are classified as so-called unplanned events, whose probability of occurrence is very low.

6.1.6.1 Impact on ambient noise

Impacts during the decommissioning phase will be associated with construction activities and may be similar to those presented for the construction phase.

6.2 Rational alternative

MFW Bałtyk II and MFW Bałtyk III

The current rational alternative is the option of implementing 120 wind turbines with a smaller capacity at each site, for which EIAs were issued in 2016 and 2017. The parameters of both projects have been significantly reduced (currently 50 wind turbines at each site and implementation of monopile foundations) and all identified impacts are within the impacts found in the 2015 EIA reports. **All those presented in section 6.1 apply to both the implementation and alternative options.**

This chapter presents the identified impacts of the ECI alternative, which consists of an overhead cable line instead of an underground line and a cable exit from the MFW slightly further west. It is described in chapter 2.3 of this document.

6.2.1 Impact on the ground surface

The impact of the construction and operation phases of the alternative on the land surface will be significant, **due to the** high probability of starting aeolian processes in the area of the Lędowskie dunes.

6.2.2 Impact on nature

6.2.2.1 Vegetation and natural habitats

The impact of the construction phase of the alternative on vegetation cover and habitats will be significant and will mainly relate to the permanent transformation and occupation of the site and the removal of vegetation cover and natural habitats, which may lead to the initiation of eolian processes.

The impact of the alternative's operational phase on vegetation and habitats will be moderate and, as with the Developer's alternative, will primarily relate to succession and the potential for invasive plant species.

6.2.2.2 Forests

There will be felling in the construction strip associated with the ECI in the alternative option, with an estimated maximum area of 19.3 ha.

The impact of the construction phase of the alternative on forests will be significant, as deforestation of the mixed forest and coniferous forest habitat on the coastal dunes (2180) may intensify aeolian processes.

The operation of the mid-forest 400 kV overhead line involves permanent felling in an approx. 32 m wide strip. This is a factor that differentiates the scale of the planned works, as a 20 m wide permanent felling strip is required for the 400 kV underground cable line. During the operation phase in the Investor's variant, the cuttings will cover 14.2 ha. Whereas in the alternative variant: 18 ha. At a later stage of the design process, it was determined that the clearance during the operational phase of the line will be approximately 4 hectares.

The impact of the operation phase of the alternative option on forests will be moderate and associated with an increase in pressure of non-forest species (including invasive species) on the remaining forest phytocoenoses.

6.2.2.3 Fungal and lichen biota

During the construction phase of the alternative, the main impacts on the biota of macrofungi and lichens will be the same as for the variant indicated by the Investor.

Impacts of the construction and operational phases of the alternative on fungi and lichen biota will be moderate and relate mainly to temporary conversion and occupation of the site, mainly habitat Submerged or partially submerged sea caves (2180).

6.2.2.4 Birds

Felling for ECI will involve impacts on bird sites. The impact of the construction phase of the alternative on birds will be moderate.

During the operation phase of the alternative option, potential impacts on birds may be associated with the occurrence of collisions of flying birds with overhead power infrastructure, i.e. with hanging wires or pole structures of the 400 kV line . This will be a long-term impact, which will have a decidedly negative, permanent impact on birds, primarily related to their collisions with overhead lines and permanent habitat fragmentation. The impact of the operational phase of the alternative on birds will be significant.

6.2.3 Impact on the protected landscape area

The impact during the construction phase on the Pas Pobrzeże Protected Landscape Area to the west of Ustka is assessed to be significant due to the transformation and occupation of the area, particularly the habitat of mixed forests and coniferous forest on dunes (2180), which may intensify eolian processes. In addition, there will be the removal of forests, vegetation and periodic disturbance of animals.

The impact during the operational phase of the alternative option on the Protected Landscape Area Pas Pobrzeże na Zachodnie od Ustki has been assessed as significant, due to permanent changes to the landscape caused by cutting within the habitat of forests and coastal forests (2180), which may intensify aeolian processes.

6.2.4 Impact on ecological corridors

The construction phase, as in the Investor's variant, will be associated with the felling of trees, the realisation of excavations and the laying of the cable line and the construction of the ONS substation and will result in a temporary interruption of spatial continuity within:

- corridor of national importance Pobrzeże Słowińskie,
- Coastal corridor of supra-regional importance,
- Eastern Atlantic migratory bird route .

Impacts during the construction phase on ecological corridors have been assessed as moderate. Negative impacts on ecological corridors during the construction phase will mainly relate to land transformation and occupation, especially in the coastal strip in connection with the construction of infrastructure for the landfall of cables from the sea. In addition, they will be related to forest clearing, removal of vegetation and periodic scaring of fauna.

The creation of a deforested space with dominant overhead line and 2-track poles will result in the interruption of spatial continuity of ecological corridors. In the area of the planned Project runs part of the eastern Atlantic migration route . In this context, a high collision of birds with the planned 400 kV power line is predicted. The collision with the 400 kV overhead power line will also affect local birds nesting in the area.

The impact during the operational phase on ecological corridors is assessed as significant, **due to the** location in the area of the eastern Atlantic migration route corridor, which poses a risk of high bird mortality with the planned high voltage line.

6.2.5 *Impact on biodiversity*

The implementation of the planned Project will be significant for protected plant species, habitats, forests and birds. The greatest impacts will be associated with the construction phase. Due to the permanent clearing of habitats and forests, impacts on breeding birds and bat breeding habitats will be long-term and permanent. The operation of the mid-forest 400 kV overhead line will have definite negative, permanent impacts on birds, mainly related to their collisions with the overhead lines and permanent habitat fragmentation.

6.2.6 *Impact on the landscape*

During the construction phase of the 400 kV overhead line, the main impact on the landscape will be the periodic, specific physiognomy of the construction area, primarily in the area of pole stands involving construction machinery and equipment. Upon completion of the construction works, the areas around these posts will be restored to their original use.

Impacts during the construction phase on the landscape have been assessed as significant. Negative impacts on the landscape during the construction phase will primarily relate to felling in the area of the western landfall of the cables, which may result in the triggering of eolian processes.

The impact during the operation phase on the landscape has been assessed as significant**.** Negative impacts will mainly relate to power poles and onshore substations, which dominate the landscape.

6.2.7 *Impact on human health and life*

When in operation, the overhead line will be a dominant feature in the surrounding area and will cause some restrictions on the daily use of agricultural and forestry land.

The impact of the operation phase of the alternative option on human health and life has been assessed as significant due to the potential reduction in the quality of the acoustic climate along the entire route of the 400 kV overhead line .

7 Cumulative impacts of the planned project

In accordance with the provisions of the EIA Act, the assessment of cumulative impacts was subject to projects implemented, being implemented and planned to be implemented within the range of implementation and impact of the Projects.

7.1 Existing, ongoing and planned projects, including the decision on environmental conditions

MFW Bałtyk II and MFW Bałtyk III

On the basis of the performed analysis (in the EIA Reports 2021 and 2022), it was concluded that the projects that may actually cause cumulative impacts with the MFW Bałtyk II (or respectively with the MFW Bałtyk III) at the construction/ decommissioning and exploitation stages may be the investments indicated in the table below.

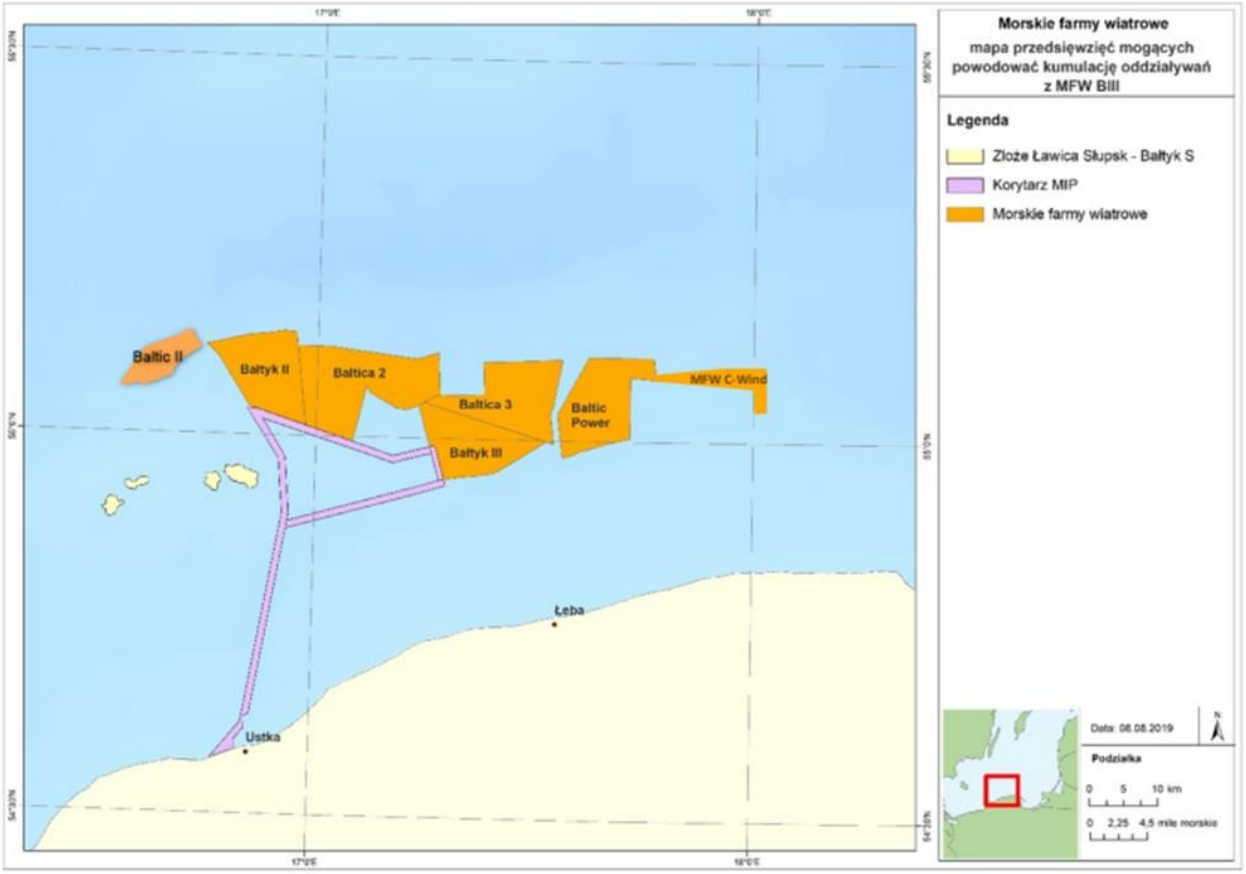
Table 11 Projects which may actually cause cumulative impacts with MFW Bałtyk II or MFW Bałtyk III at the stage of construction and operation

Project	Types of cumulative impacts during the construction/ decommissioning phase	Type of cumulative impacts during the operational phase
MFW Baltica (Baltica 3)	- Underwater noise - Birds scaring - Agitation of bottom sediments during construction/ decommissioning phase	- Landscape disturbance, - Oil spills - Barrier for migratory birds - 'Artificial reef' effect
MFW Baltica (Baltica 2)	- Underwater noise - Birds scaring - Agitation of bottom sediments during construction/ decommissioning - Spills of petroleum products	- Landscape disturbance - Oil spills - Barrier for migratory birds - Scaring effect - The "artificial reef" effect
MFW Bałtyk III	- It is assumed that the project will not be built in parallel with the MFW BII, so cumulation at this stage will not occur	- Landscape disturbance - Barrier to migratory birds
FEW Batlic II	- No impacts due to diverging construction dates	- Landscape disturbance - Oil spills - Barrier to migratory birds - Scaring effect
Baltic Power MFW	- No impacts due to diverging construction dates	- Barrier for migratory birds - Landscape disturbance
Shipping routes, including: - the planned deep water route D, - TSS Ławica Słupska, - the usual shipping route between Lubeck and Venspils	- Oil spills	- Oil spills
offshore part of EIC	- Increase in suspended solids concentration in water, - Redistribution of pollutants deposited in sediments	- Increase in temperature of sediment and water - Emission of electromagnetic fields and radiation

Source: EIA Report, 2021 for the MFW Bałtyk II

The following map shows the projects with which the impacts of the MFW Bałtyk II (or respectively the MFW Bałtyk III) may potentially accumulate.

Figure 11 Projects with whicz the impacts of the MFW could potentially cumulate

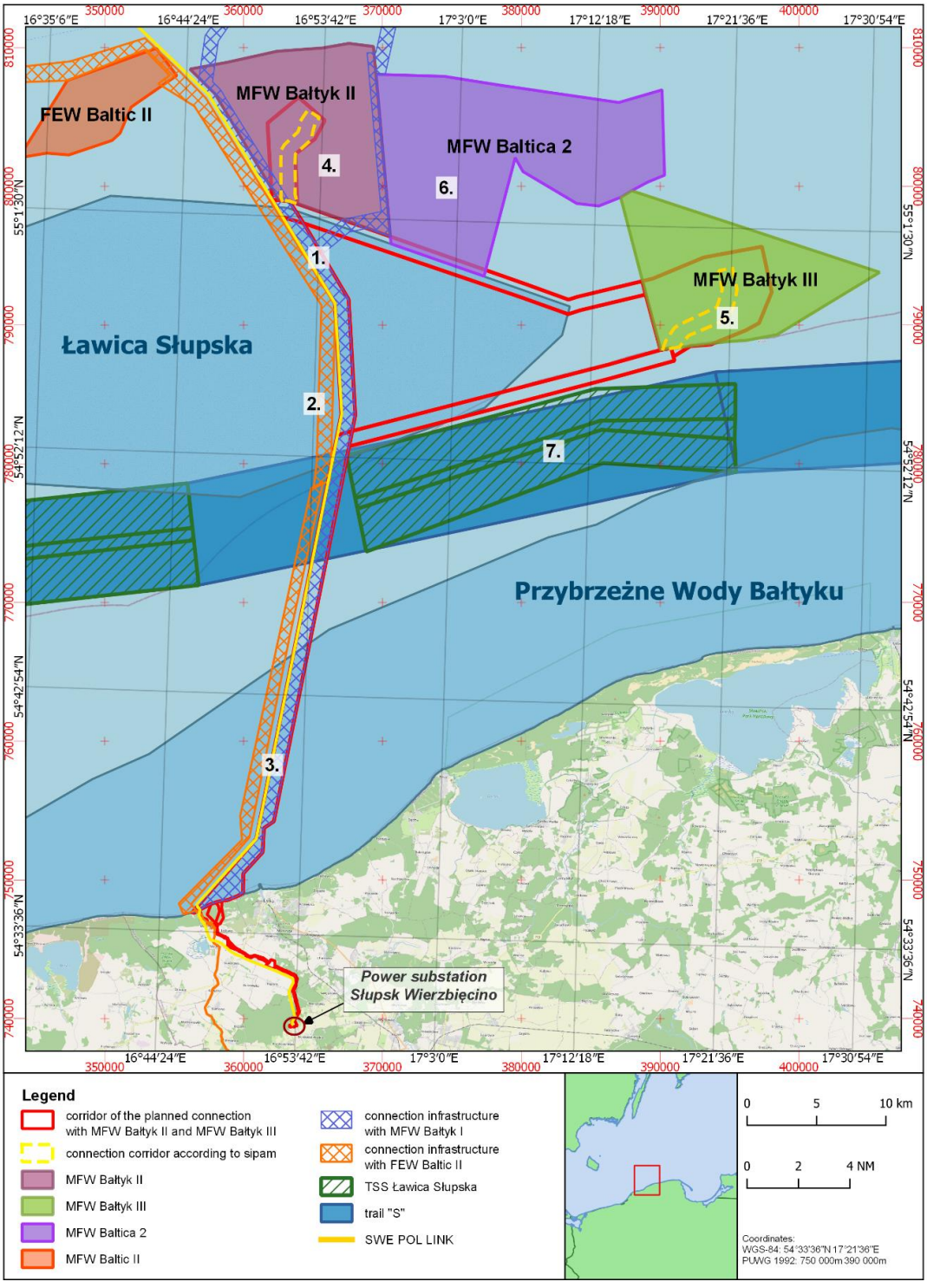


Source: EIA Reports, 2021 and 2022

Connection infrastructure (ECI)

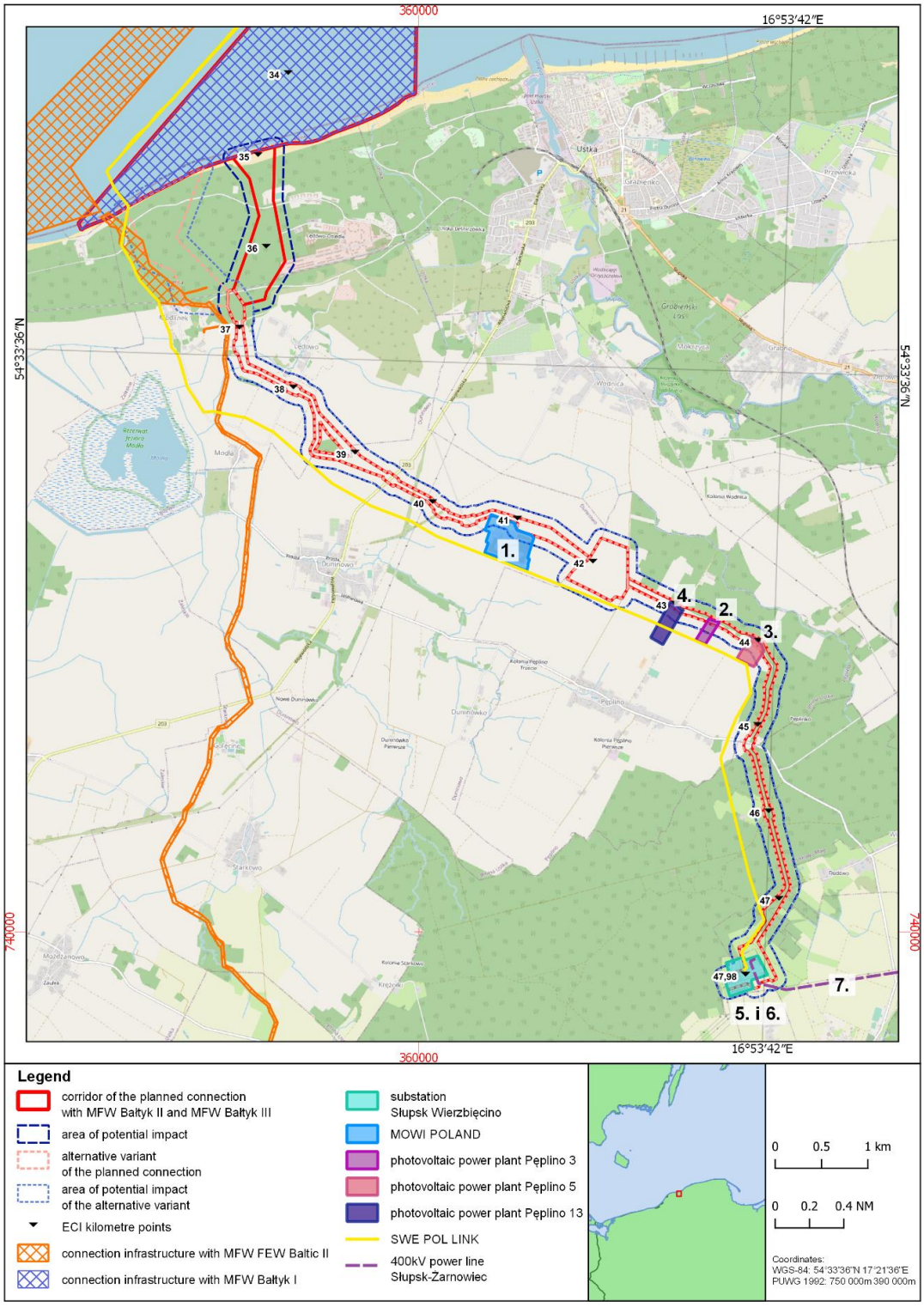
The determination of existing and planned projects in the area of the Project was carried out on the basis of the information gathered in 2022. The potential for cumulative impacts was assessed for 7 projects in the marine area and 7 projects in the onshore area (illustrative figures below). The vast majority of the projects with potential cumulative impacts concern the power transmission cable lines - SWEPOL Link and the planned power evacuation from the offshore wind farms, which connect either to the Słupsk Wierzbięcino substation or to the planned Krzemienica substation. Due to the lack of negative impacts during the operation phase, no accumulation of negative impacts is forecast.

Figure 12 Location of projects considered in the assessment of cumulative impacts for the offshore ECI



Source: EIA Report, 2023

Figure 13 Location of projects considered in the assessment of cumulative impacts for the onshore part of the ECI



Source: EIA Report, 2023

7.2 Types of impacts that may cause cumulative impacts

The 2021-2022 EIA reports outline the emissions and disturbances and their sources that may be amplified if other projects typical of the marine space are implemented in parallel and identify the zones in which impacts may interact.

In the recommendations of the 2015 Report indicated the need for noise mitigation measures for piling foundations with an effectiveness no less than that of air curtain technology, significantly limiting the range of noise impacts - up to 30 km with one foundation and up to 50 km with 2 foundations. The cumulative zone between the projects will therefore be no greater than 100 km. This means that the simultaneous piling of two foundations on two MFW projects, no less than 100 km apart, may cause cumulative impacts in terms of increased underwater noise levels.

It should be noted that new modelling of the noise propagation associated with the installation of the 10 m diameter monopile foundations was performed in the 2021 and 2022 EIA reports. With the application/introduction of the damping effect of a single bubble curtain and a corresponding reduction in SEL and SPL values at the source, this led to a situation where none of the threshold values were exceeded at the boundary of the Natura 2000 area Ostoja Słowińska.

The second type of impact, which may generate cumulation in a significant zone around the source of emission, is the impact of large structures raised above sea level, especially wind power plants, which may reach a height of up to 330 m and rotor diameter of up to 260 m. Such structures, spread over large areas, can cause cumulative impacts on the landscape within a radius of tens of kilometres (the visibility of the MFW in the seascape can reach up to 50 km, so the maximum cumulative zone can reach about 100 km).

Another type of impact, which may cumulate significantly as a result of the implementation of separate projects off-site , is the deposition of agitated sediment during the construction process. Under conditions of slight currents in the South Baltic Sea, the spreading zone of disturbed sediment with a concentration of 4 mg/m^3 does not exceed 5 km, while its redeposition with a thickness of 1.5 mm reaches 2 km. The zone of reciprocal accumulations from the two different projects will therefore not exceed 10 km.

The MFW may furthermore have cumulative impacts on birds and bats in the form of barrier effects and displacement from habitats. According to the assessment of the impact on birds, the zone of avoidance of the MFW by migrating birds, depending on the bird species, may reach up to approx. 4 km from the furthest power plants. The cumulative zone between individual farms may therefore cover up to 8 km. Another impact on birds, which may be amplified in the case of cumulation, is the crowding effect associated with a further emission, namely surface noise and rotor wing movement. This applies to a buffer of approximately 2 km around the farm. The cumulation zone will therefore be up to 4 km.

It should also be emphasised that the cumulation of impacts may be caused by different activities carried out as part of the construction, operation or decommissioning of the project itself (the so-called internal cumulation). These may be cumulations connected with parallel execution of different activities - e.g. sediment disturbance caused by preparatory work for the installation of foundations and sediment disturbance caused by the anchoring of vessels performing the works in the area of the farm or/and works connected with the laying of marine cables in the area of the dam at the same time. There may also be cumulative impacts associated with successive activities - e.g. piling of successive foundations one after the other or sediment disturbance as a result of preparation of the seabed for the installation of successive foundations.

7.3 Assessment of cumulative impacts

MFW Bałtyk II and MFW Bałtyk IIII

Taking into account the location of the project and the predicted range of its impacts, the analyses of potential cumulative impacts mainly took into account Polish MFW projects, which are likely to be realised in the foreseeable future. These are MFW Bałtyk II (or respectively MFW Bałtyk III), Baltica MFW (Baltica 3 and Baltica 2), FEW Baltic II, Baltic Power.

However, due to the nature of the proposed technical changes to the Projects, most notably: limiting the number of wind turbines to 50 units at each site compared to as many as 200 units at each site analysed in the 2015 NIS scenario, it should be emphasised that cumulative impacts with other projects, including offshore wind farms in particular, will be significantly reduced.

An additional element contributing to further mitigation of cumulative impacts is the introduction of solutions to ensure a corridor free of building elements of wind farms: with a minimum width of 4 km between the MFW Bałtyk II infrastructure and FEW Baltic II, and with a minimum width of 5 km between the MFW Bałtyk III infrastructure and the MFW Baltica 2 and Baltica 3. These corridors will allow free and safe navigation between wind farms and will contribute to shorten the routes of fishing vessels to the fishing grounds.

Consequently, the proposed changes to the parameters of the Project should be considered as contributing to the mitigation of the cumulative impacts of the implementation, operation and decommissioning of both MFW Bałtyk II and MFW Bałtyk III.

Connection infrastructure (ECI)

Summarising the collected information on projects, the impacts of which may cumulate with the planned Project (ECI connection infrastructure), it should be emphasised that the vast majority of them concern cable lines for electricity transmission - both the existing SWEPOL Link and the planned power evacuation from offshore wind farms, which connect either to the Słupsk Wierzbięcino substation or to the planned Krzemienica substation.

Linking linear infrastructure into infrastructure corridors is a deliberate planning exercise and is beneficial in terms of seabed fragmentation. Negative impacts, of a short-term and local nature, may occur during the construction phase of offshore wind farm connections. Impacts of the construction phase will be minimised at the most critical location, i.e. in the coastal zone, by the execution of cable line entry onshore for both connections from MFW Bałtyk II and MFW Bałtyk III, as well as from MFW Bałtyk I.

Investments planned or completed onshore are also related to the development of electricity grids resulting from the political decision to develop offshore wind energy, including the expansion of the existing Słupsk - Wierzbięcino substation.

Additionally, 3 planned projects for which the environmental decision was issued in the area of Ustka Municipality were identified (three planned photovoltaic farms in the area of Pęplino). At this stage, no possibility of negative cumulative impacts of the construction and operational phases of the Projects and the planned photovoltaic farms is anticipated. The realisation of these investments will require an agreement between the investors and at the stage of the construction design to adopt non-colliding solutions and a schedule of works.

The nature of the planned Projects results in practically no negative impacts in the operation phase, i.e. over a long period of time, so no accumulation of negative impacts should occur. The potential accumulation of negative impacts

of heat emission and magnetic fields is possible as a result of laying several cable lines in one corridor. These impacts can be minimised by choosing the optimum cable technology.

The impacts of the construction phase may be cumulative, however, the Investor plans to minimise these impacts as much as possible by simultaneously realising the power evacuation from both MFW Bałtyk II and MFW Bałtyk III, taking into account during construction the potential possibility of realising the landfall connection from MFW Bałtyk I.

8 Transboundary impact

The proposed offshore wind farms MFW Bałtyk II and MFW Bałtyk III will not cause transboundary environmental impacts, provided that the recommended minimising measures, in particular regarding the reduction of underwater noise, are followed. Also as a result of their update, in decisions amending the original environmental decisions, RDEP did not identify the possibility of transboundary environmental impacts of the Projects.

With regard to the connection infrastructure - due to the type and location of the project, the possibility of the planned project affecting areas located outside Poland both at the stage of construction and operation was excluded. There were no prerequisites to carry out the procedure of environmental impact assessment in a transboundary context.

9 Analysis and comparison of the alternatives considered and the environmentally preferable option

MFW Bałtyk II and MFW Bałtyk III:

The variants approved by the 2016 and 2017 environmental decisions were the most favourable variants at the time. They assumed the construction of no more than 120 wind power plants with a maximum rotor diameter of up to 200 m (for the MFW Bałtyk III) and 250 m (for the MFW Bałtyk II) - at each MFW.

At present, the variant selected by the Investor for implementation is the variant based on the highest capacity turbines that are announced to be launched in 2023-2027, when the MFW is planned. These will be 12+ MW class turbines. In the amended environmental decisions, the project includes the development of no more than 60 wind turbines at each MFW.

The rationale for choosing this variant is that it provides the maximum degree of achievement of the Project's objective, i.e. the greatest efficiency in the production of electricity, while optimising costs associated with the construction of fewer power plants, shorter construction time, the need for fewer vessels, construction facilities and, at the operational stage, less maintenance needs. Also, decommissioning a farm with fewer power plants will be less costly. More energy production also means achieving a greater environmental effect in terms of replacing fossil fuels and reducing CO_2 emissions from the power sector.

However, the most significant difference in the option selected for implementation, compared to the rational alternative, is the **reduction in the number of power plants by 50%, i.e. to a maximum of 60 units, compared to the 120 units originally envisaged for implementation, and 70% compared to the most far-reaching scenario, the NIS 2015, which forms the basis of the environmental impact assessment in the 2015 Reports, assuming up to 200 power plants allowed in the area according to the PSZW.**

Reducing the number of power plants and limiting the types of their foundations (monopile and jacket (lattice) foundations) in the implementation variant is essential from the point of view of the farm's impact on key environmental elements, as it reduces with it:

- area of the seabed occupied by the foundations in relation to the variant approved by the environmental decision (by approx. 95.8% for MFW Bałtyk III and by approx. 97.3% for MFW Bałtyk II), as well as the volume of seabed sediments disturbed during the construction and moving with the sea currents and the destruction of benthic organisms during the installation works;
- total rotor area in relation to the variant approved by the environmental decision (by approx. 21.8 % for MFW Bałtyk III and by approx. 50 % for MFW Bałtyk II), and thus the potential mortality of birds and bats as a result of collisions with operating power plants;
- the total installation time of the foundations and thus the period during which underwater noise will be emitted,

Thus, the Projects' option selected for implementation is more environmentally safe than the original implementation option approved in the 2016-2017 environmental decisions.

The variant selected for implementation is ultimately the most environmentally beneficial variant, as it ensures the achievement of the assumed business objectives with the least environmental impact.

Connection infrastructure (ECI)

Maritime part

The analysis of impacts of the planned Project has shown that there will be no significant impacts on non-living components of the marine environment, including water body use and human health and life, during either the construction or operational phases. Moderate to significant impacts are expected in the context of animate nature.

In the case of animate wildlife, reversible changes have been identified for most components during the construction phase, and the significance of these impacts is moderate at best. The impacts with the greatest extent - trans-local relate to fish and marine mammals, while those with a local extent relate to birds.

During the operation phase, all impacts on animate components were identified as insignificant.

In order to reduce the impacts occurring during the construction phase, a number of measures have been proposed to minimise the impact of the planned Project on the marine environment.

Land part

The analysis of environmental data showed that the Project can be implemented in the Investor's variant. The implementation of this variant, as shown in the EIA report will be more beneficial for the environment compared to the implementation of the alternative variant.

The Developer's option differs from the alternative option in the location of the cable landfall and in the technology for taking power out of the ONS. The rational alternative consists of a landfall option further to the west (western alternative) using a trenchless HDD method and the construction of a 400 kV overhead line from the ONS to the PSE substation, instead of the underground cables proposed by the Investor.

For the construction of the alternative, significant impact were identified, mainly due to the planned foundation of the exit chamber of the trenchless passage in the area of forest habitat. Impact on the area of the western landfall of the cables were classified as significant for components such as land surface, vegetation and habitats, forests and biodiversity. Also in relation to the landscape and the Protected Landscape Area Pas Pobrzeża na Zachód od Ustki the impacts will be significant.

The construction of the mid-forest 400 kV overhead power line in the alternative option would be associated with felling in a 35 m wide strip, for a distance of approximately 6 km, and the creation of a 70 m wide technological strip (35 m each from the line axis in both directions) during the operation phase. The overhead power line is also a source of electromagnetic field emissions and noise, which has been assessed as significant.

During the construction phase of the Developer's Option, changes of a short-term, reversible nature have been identified for the most part, within the limits of the ONS, and the significance of impacts is moderate at best. Moderate impacts have been classified in relation to soils, due to the permanent occupation of the site for ONS stations. For forests, negative impacts will mainly relate to tree felling. The planned Project will be a source of noise from the ONS station during the operation phase. However, its operation will not cause an exceedance of the sound level limit.

The construction and operation of the planned Project in the Investor's variant will not have a significant impact on the environment, either during the construction or the operation phase. The impacts associated with the operation phase will be of a long-term nature, but will be limited to the extent within the boundaries of the environmental decision. In order to reduce the impacts, a number of measures have been proposed to minimise the environmental impact of the planned Project.

Due to the lower risk to the environment, including natural assets and people, the Investor's option is the more favourable option for the environment.

The Investor's option was considered to be the most environmentally favourable option because:

- According to the impact assessment carried out for both alternatives, the eastern landfall of the cables was considered less intrusive for the environmental conditions identified here. The existing investment in the surrounding area (the Naval Centre), the partially paved road and the transformation of the area facilitate the location of the connection infrastructure. This location is clearly environmentally preferable to the transformation of the natural forest habitat;
- The implementation of underground cable lines will have a significantly lower impact on the environment compared to the overhead line variant, both in terms of noise emissions and electromagnetic fields. The thermal effects of the cables cause only slight changes in surface ground temperature.;
- The IP route runs through forest and agricultural land and, once construction is complete, will not cause environmental impacts or restrictions on agricultural use;
- the course of the IP poses no threat to natural assets and biodiversity as it avoids areas of natural value.

The Investor's variant, can be considered the most environmentally favourable, assuming the application of the potential minimising measures discussed in the report.

10 Comparison of the proposed technology with a technology meeting the requirements referred to in Article 143 of the Environmental Protection Act

MFW Bałtyk II and MFW Bałtyk III:

The 2015 EIA reports analysed and positively assessed the proposed technology for the construction of the two wind farms, taking into account: the use of substances with low hazard potential; efficient generation and use of energy; ensuring rational use of water and other raw materials and materials and fuels; the use of waste-free and low-waste technologies and the possibility of recovering the waste generated; the type, extent and magnitude of emissions; the

use of comparable processes and methods that have been successfully applied on an industrial scale; and advances in science and technology.

In the EIA Reports 2021-2022 prepared for the amendment to the environmental decisions , it was stated that the proposed changes are in line with the requirements related to scientific and technical progress, as they directly reflect both the increase of knowledge on the state of the environment in Polish maritime areas, as well as on the impacts caused in the course of the construction and operation of offshore wind farms, as well as the emergence of technologies related to the construction and operation of the MFW, which were not available at the time of preparing the EIA Reports in 2015. Consequently, it was concluded that the proposed amendments to the conditions of the environmental decision allow updating the planned projects and thus confirm that the technologies proposed for the execution and exploitation of the projects meet the requirements set out in Art. 143 of the Environmental Protection Act.

Connection infrastructure (ECI):

According to the conclusions of the report, the substances used during the construction and operation of the planned Project will not cause serious environmental hazards and their selection will be in accordance with the highest standards and norms for this type of installation.

The most hazardous substances used in the construction and operation of onshore substations include isolation/calibration gas SF_6[11] , mineral oil, ester oil (synthetic).

In the case of the planned connection infrastructure, two connections will be implemented - from the MFW Bałtyk II and the MFW Bałtyk III. Execution of both connections at the same time ensures optimised use of raw materials, materials, fuels and energy associated with the construction process. The construction of the connections separately would involve the re-organisation of the construction facilities, land occupation, re-use of construction machinery, employment of personnel as well as consumption of utilities and generation of waste.

Electricity transmission by cable line is a widely used solution worldwide. It is characterised by high reliability, minimum failure rate and emission-free operation. The technical solutions applied in the implementation of the project (ECI) will be the best available techniques and technologies currently used in the world, characterised by safety and high efficiency. The adopted technologies and materials that will be used during the construction of the planned Project will meet the requirements and standards of the world and Europe. They will meet all safety requirements.

The connection infrastructure cables will be protected with anti-corrosion coatings and flame retardant coatings, so they will not pose a risk to the soil and water environment.

Operation of the cable line during the operational phase will be a source of heat and magnetic field emissions. The onshore substations under normal operating conditions will be a source of noise and electromagnetic fields and negligible emissions of gases and dust into the atmosphere from maintenance and repair work (e.g. welding, painting, grinding). The equipment operated at substations is a source of electromagnetic fields with relatively low levels of individual components. Given the considerable distances of at least several metres between the said equipment and the substation fence, the electric and magnetic field strength values outside the fenced area will be negligibly small. Operation of the underground power line will not generate waste apart from small quantities associated with maintenance or fault clearing work.

[11] *SF_6 - sulphur hexafluoride/hexafluoride*

11 Description of the measures planned to avoid, prevent and reduce negative impacts on the environment

MFW Bałtyk II and MFW Bałtyk III:

According to the 2015 EIA reports, the implementation of the Projects will involve the need to implement measures to minimise its negative impacts. . In the environmental decision, the following actions were taken into account:

1. use of technical solutions to minimise the impact of underwater noise on fish and marine mammals, e.g. bubble curtains,
2. providing once every 2 months a break in piling of no less than 4 days, minimising the barrier effect for mammals,
3. schedule the work in such a way that activities causing the greatest impact on the natural environment (i.e., pile driving for foundations) are carried out between May and September.
4. starting piling with a soft start procedure, which will allow marine mammals to pass from the site before the start of the noise-intensive work,
5. construction of power plants with parameters no greater than those considered environmentally safe in the EIA report,
6. gradual filling of the farm area with power stations, which will reduce bird scaring, limiting the use of strong light, which attracts birds,
7. during bird migration periods, i.e., from early July to mid-November and from early March to mid-May, limit the use of strong light sources (e.g., spotlights) at night on ships and farm structures and avoid directing light upwards.
8. paint the tips of the blades in bright colours, taking into account the applicable regulations regarding obstacle marking for aviation [12],
9. equipping the farm with a system that allows the wind turbines to be switched off briefly in particularly severe weather conditions during bird migration,
10. establishing a protection zone for the discovered shipwreck and securing any further discoveries,
11. in the event that new, previously unidentified archaeological objects are discovered during geotechnical surveys or construction work, ensure that they are not damaged.
12. to take steps to prevent accidents involving unexploded ordnance and, in particular, chemical warfare agents that may be discovered during the implementation of the farm,
13. the use of solutions to ensure the safety of the environment in the event of unplanned events,
14. the use of solutions to ensure the safety of navigation,

[12] *This requirement is inconsistent with the currently applicable regulations. The investor obtained approval for the marking of the offshore wind farm from the President of the Civil Aviation Authority in a letter dated January 16, 2024, reference number LOŻ-2.6311.5.2024.ULC.1. in accordance with which the entire blades of the turbines will be painted white. '*

15. the use of solutions to ensure the protection of the landscape, in particular the appropriate painting of power plants.

The scope and nature of measures to avoid, prevent and mitigate negative environmental impacts were detailed for the MFW Bałtyk III in the 2016 RDEP environmental decision, subsequently amended in June 2022.

A similar situation exists with the MFW Bałtyk II: the scope and nature of the measures to avoid, prevent and reduce negative environmental impacts were detailed in the RDEP environmental decision of 2017, subsequently amended in January 2021.

The changes introduced to the environmental decisions in 2021 and 2022 did not ease the environmental protection conditions specified in the decisions from 2016 and 2017z None of the proposed amendments result in an increase in the significance of the impacts of the Natura 2000 objects of conservation and some of them instead have a beneficial effect by reducing impacts or introducing solutions that will have an additional mitigating effect on impacts.

In particular, it should be pointed out that:

1. Reducing the number of wind turbines at each site will lead to:
    a. reducing the duration of mammal exposure to noise emissions associated with foundation piling during the construction phase;
    b. reduce the likelihood of birds collisions with the power stations during the operational phase;
2. Restricting the types of foundations used for power plant foundations to monopile or jacket foundations will lead to:
    a. reduction in the area of destroyed benthic habitats;
    b. reduce the significance of impacts associated with the disturbance of bottom sediments and the resulting increase in suspended solids concentration in the water."

In both decisions it was emphasised that the proposed additional mitigation measures consisting in the widening of corridors free of development with wind farm elements will lead to the mitigation of the barrier effect for migratory birds (in the case of MFW Baltyk II this is a corridor of about 4 km in the neighbourhood with FEW Baltic II, in the case of MFW Bałtyk III - a corridor of about 5 km in width crossing the areas of MFW Bałtyk III and Baltica 2 and Baltica 3 offshore wind farms in the SW-NE direction).

Connection infrastructure (ECI):

The 2023 EIA Report includes proposed minimisation measures for the **design, construction and operational phases** for those elements of the marine and terrestrial environment that require their application to mitigate or eliminate potential negative impacts of the Project. In the environmental decision, the following actions were taken into account:

Marine Area:

1. implement the "soft-start" procedure before performing work that generates underwater noise or water turbidity,
2. to protect migrating diadromous fish, conduct work (excluding HDD drilling), such as burial/immersion operations and dredging/refilling operations, including spoil disposal, outside the protection period for Atlantic salmon, sea trout, and river lamprey migration, which occurs from September 15 to November 15 and from

March 1 to April 15 in the coastal zone within 4 nautical miles, except when ichthyological supervision determines a delay in migration or its early completion,

3. implement seabed burial of the submarine cable using the soil fluidization method, and where this is not possible, apply mechanical cutting or plowing methods,
4. within the Natura 2000 Przybrzeżne wody Bałtyku PLB990002, it is recommended to speed up the work during months outside the bird migration and wintering periods,
5. conduct both implementation and maintenance work (excluding emergency repairs) in the sea area outside the concentration period of wintering and migrating waterbird populations, i.e., outside the period from November 1 to April 30,
6. within the Natura 2000 area Ławica Słupska PLC990001, carry out all work outside the bird migration and wintering periods,
7. when performing work after dark, limit strong light sources on vessels used for the project to the necessary minimum,
8. at night, limit strong upward-directed light sources, especially during bird migration periods, i.e., from March 1 to May 31 and from July 31 to November 15,
9. conduct burial/immersion operations related to cable laying and dredging works (excluding HDD transition) in the coastal zone within 4 nautical miles outside the spawning migration periods of fish, i.e., outside the period from September 15 to November 15 and from March 1 to April 15,
10. in connection with the planned HDD trenchless transition, do not extract water from the stream Lędowska Struga or other streams/ditches flowing into Jezioro Modła - a 3150 habitat. Do not discharge water from dewatering excavations or drilling fluids into streams flowing into this lake. Water should be sourced from tankers or water supply systems,
11. if new, unidentified archaeological objects are discovered during geotechnical surveys or construction work, ensure they are not damaged,
12. take steps to prevent accidents related to unexploded ordnance, particularly chemical warfare agents, which may be discovered during the project's implementation,
13. apply solutions that ensure environmental safety in the event of unforeseen incidents,
14. implement solutions that ensure navigation safety,
15. do not exceed a 5-meter width for the technology corridor for cable laying where seabed disturbance is anticipated,
16. in Natura 2000 marine areas, where large boulder clusters occur that cannot be bypassed by adjusting the cable route, apply alternative cable protection methods such as laying cables on the seabed and covering them with stone,
17. in the Natura 2000 Ławica Słupska PLC990001 area, within the 1110 habitat – sublittoral sandbanks, do not use alternative cable protection methods, such as stone covering or concrete mattresses, along the section of the cable passing through this habitat,
18. implement a trenchless method when bringing cables ashore from the sea,

19. avoid large boulders and boulder clusters in areas where valuable phytobenthos communities and mussel assemblages have been identified.

Land Area:

1. conduct tree and shrub cutting in forest areas outside the bird breeding season, i.e., outside the period from March 1 to August 31 (confirmed by an ornithologist, as breeding periods may start earlier or end sooner); single trees and shrubs may be cut year-round under ornithological supervision, with a field verification confirming the absence of nests,
2. conduct tree cutting in forested areas where bat breeding habitats have been identified outside the breeding and peak activity period, i.e., outside the period from June 1 to September 15, and under the supervision of a naturalist - chiropterologist. Tree cutting is allowed outside this period, provided chiropterological supervision is ensured, and trees are inspected to confirm the absence of bat occupation,
3. to compensate for the loss of bird and bat habitats, install nest boxes and bat boxes,
4. prevent damage to trees and shrubs that are not intended for cutting,
5. destruction of amphibian breeding habitats should be carried out between October 16 and February 28. If this timeframe is not adhered to, it will be necessary to capture and relocate the herpetofauna individuals to substitute habitats. These activities should be conducted under the supervision of a herpetologist,
6. during amphibian and reptile migration and breeding (from March 1 to October 15), install temporary herpetological fencing where open trenches are present; fences should be erected on both sides of the trench and access roads in the form of barriers,
7. implement actions to minimize terrain damage and contamination.

The scope and nature of actions to avoid, prevent, and mitigate negative environmental impacts are detailed in the environmental decision marked RDOŚ-Gd-W00.420.40.2022.AM.32 dated November 29, 2023, issued for the "Connection Infrastructure for Offshore Wind Farms MFW Bałtyk II and MFW Bałtyk III."

12 A proposal for the monitoring of the impact of the planned investment and information on available results of other monitoring, which may be relevant for the determination of obligations in this respect

12.1 Proposal for monitoring the impact of the planned investment

MFW Bałtyk II and MFW Bałtyk III:

The 2015 EIA reports proposed the scope of the environmental monitoring programme during the construction, operation and decommissioning phases of the farm, with the caveat that the detailed methodology and timing of a comprehensive post-investment monitoring programme will only be determinable once the final siting of the power plants and other farm facilities has been determined and the construction schedule adopted.

The environmental decisions of 2016 and 2017 imposed the following obligations for monitoring the environmental impact of the MFW[13]:

1. Conduct environmental monitoring (including monitoring of the impact of the project on the objectives and objects of protection of Natura 2000 areas and their integrity) during the construction, operation and decommissioning phases of the farm, in accordance with the general scope, schedule and methods described in this decision.
2. Provide the Regional Director of Environmental Protection in Gdansk with the results of monitoring together with a proposal for preventive or minimising measures, if necessary, in the form of:
    a. interim reports - once a year, within 3 months of the end of the relevant study year,
    b. final reports (summarising the entire research cycle) - within 6 months after completion of the research for the environmental resource.
3. Where significant negative impacts on an environmental resource are demonstrated in the interim or final report, or other significant environmental risks are identified, propose preventive or minimising actions, the proposed method of implementation and control of results in the monitoring report.
4. Final monitoring reports for a given environmental resource should be drafted in two parts: first part: the results of the post-investment studies for the period in question; second part: a comparison of the results with the findings contained in the report forming the basis for this decision and in this decision, so that they can be given the character of a post-investment analysis.

In general, the scope of monitoring for both MFWs specified in the decisions includes:

1. during the construction phase: hydrological and hydrochemical surveys, benthos, marine mammals,
2. during the operational phase: background noise monitoring, seabed and bottom sediments, hydrological and hydrochemical conditions, benthos, fish, marine mammals, seabirds and birds flying over the farm surface (including migrating birds), bats, fisheries.
3. decommissioning stage: seabed and bottom sediments, benthos, cultural heritage.

Connection infrastructure (ECI):

The final form of the monitoring is set out in the environmental decision of 29 November 2023 and includes responsibilities:

1. Carry out noise measurements at the border of noise-protected areas, at the nearest points of noise-protected buildings located in each direction from the station. Carry out the first series of measurements (background measurement) after obtaining the building permit, but before the commencement of construction works or after the implementation of the project with the equipment switched off. The second series of measurements should be carried out in the period of up to three months after construction and commissioning of the designed facilities, under full operation conditions, at the same measurement points. These measurements should be made under conditions as identical as possible to those under which the first series of measurements were made. The control measurements shall be made for daytime and night time.

[13] *Actions aimed at minimization and monitoring have not changed in the amending decisions issued in 2021 and 2022*

2. The results of the aforementioned noise measurements must be communicated to the Regional Director for Environmental Protection in Gdansk, Pomeranian Voivodeship Inspector for Environmental Protection, within three months of the measurements being taken.
3. Monitoring including inspections within the technology belt on forest land (i.e. land where afforestation cannot be reintroduced):
    a. for the expansion of invasive plant species, monitoring should be carried out at a frequency of once a year for three consecutive growing seasons. If an outbreak of invasive plants (mainly *Conyza canadensis, Solidago canadensis, Solidago gigantea, Heracleum sosnowskyi, H mantegazzianum, Impatiens glandulifera, Reynoutria japonica, Reynoutria sachalinensis, Acer negundo, Prunus serotina, Quercus rubra, Robinia pseudoacacia)* the plants and their seedlings should be uprooted and then disposed of in a manner appropriate for bio-waste in the municipality. (An outbreak of invasive plants is considered to be a grouping of more than 10 individuals in an area of 10 m^2).
    b. for the occupation of bat and bird nesting boxes in the first and third year after completion of the construction work; check after the breeding season (clean the boxes on occasion).
    c. The results of the above-mentioned checks must be communicated to the Regional Director for Environmental Protection in Gdansk within four months of completion.

12.1.1 Information on the available results of other monitoring that may be relevant for the determination of obligations in this respect

As part of the State Environmental Monitoring, a number of environmental monitoring activities are carried out in Polish marine areas. These monitoring activities include the study of physicochemical parameters in water and sediments and biological parameters. The results of these monitoring activities are collected and made available to the Chief Inspectorate of Environmental Protection.

Ministry of Agriculture and Rural Development collects data on the volume of fishing conducted in Polish sea areas. Analysis of this data will make it possible to assess the impact of the planned investment on fisheries in the future.

In the perspective of 30 years, for which the operation of the MFW Bałtyk II and MFW Bałtyk III is planned, the obtained results of the monitoring research and information on other activities carried out in marine areas, including in connection with the execution and operation of other offshore wind farms (and the results of their monitoring), can be used to monitor the environmental impact of the investments.

13 Restricted use area

Wind power plants are not listed in the catalogue of projects for which it is possible to create a limited use area.

The project will also include power lines and substations. For such facilities, a limited use area may be created if standards for electromagnetic fields or environmental noise would be exceeded. The analysis regarding magnetic fields shows that there will be no breach of environmental quality standards in this respect. Similarly, in the case of the substation from the analysis in the scope of noise, it is not expected that the above mentioned situation could occur.

Therefore, there is no need to create a limited use area for the project in question.

14 Analysis of possible social conflicts related to the planned investment, including analysis of impacts on the local community

Companies MFW Bałtyk II and MFW Bałtyk III were very active from the early stages of the Projects, communicating the Projects very widely and involving the local community in the green transition.

Stakeholder engagement activities in the Projects can be divided into several periods:

1. Engagement related to the 2014-2015 education and communication campaign.

   The first education and communication campaign on the construction of the MFW Bałtyk III and the connection infrastructure was conducted by the Foundation for Sustainable Energy (FNEZ) in cooperation with Polenergia. The campaign ran from November 2014 to November 2015 and included preparatory activities, an information and education campaign, consultations with the fishing community, maritime administration, local authorities and residents.

2. Engagement with local communities adjacent to the cable route corridor in 2018-2020.

   In November and December 2018, the first meetings were held with local communities neighbouring the cable route corridor. The purpose of the meetings was to present the cable route for the onshore infrastructure of MFW Bałtyk II and MFW Bałtyk III and to answer questions from stakeholders.

   During 2019-2020, due to the constraints of the Covid-19 pandemic, the public awareness campaign took place online through the virtual MFW Bałtyk II and MFW Bałtyk III websites. Information about the Projects was also disseminated to all coastal offices, and complaint forms were distributed to allow stakeholders to send their concerns.

3. Involvement related to obtaining environmental permits for the two Projects and the connection infrastructure, in 2016-2017 and 2021-2023, when the Investors applied for environmental decisions and environmental impact assessment proceedings were conducted, in which public participation took place in accordance with the relevant regulations.

From 2021 onwards, as part of public engagement, a number of activities have been undertaken to disseminate information about the Projects and familiarise the public with the Project. These activities can be divided into the following thematic areas:

4. Presentation of information about the Projects and potential benefits for local communities;
5. Presentation of the Projects' progress to the authorities/ establishment of contact and communication channels with the authorities;
6. Employment/local cooperation;
7. Education;
8. Contact and communication with identified stakeholders whose land was to be secured for the Projects - securing access to land.

In June 2022, an information campaign on the subject was conducted among local communities. This included meetings with local authorities, group meetings with landowners, including in Duninowo, individual meetings with private landowners. The aim of this campaign was to provide stakeholders with comprehensive and transparent information on the new land acquisition policy; to present a timetable for action; to obtain initial feedback and thus minimise the risk of further complaints.

In June 2023, the Local Information Point in Łeba was opened, allowing all interested parties to contact the Projects and access up-to-date information. It is Poland's first year-round information and education point on offshore wind energy. It is a place of education for children and young people, where activities and knowledge competitions on offshore wind energy will be organised for them. It is also a place to build long-term, neighbourly relations with the local community - constant contact with Project stakeholders and building relationships based on ongoing dialogue.

Since 2023, the Investor has been organizing quarterly informational meetings for the local community, where the status of ongoing work is discussed, and the public has the opportunity to ask questions.

9. At the initiative of the Deputy Minister for Climate and Environment, representatives of the government administration and key representatives of the offshore wind energy sector signed on 15 September 2021. "Sectoral agreement for the development of offshore wind energy in Poland".

One of the 6 working groups set up under the Sectoral Agreement is tasked with developing principles that will enable offshore fisheries and offshore wind farms to coexist safely (the so-called Code of Good Practice). This includes, among others:

a. Developing principles for verifying possible losses and possible and adequate methods and scale of compensation for documented lost fishing opportunities for owners and operators of fishing vessels;

b. the development and submission to the Ministry of Agriculture and Rural Development of detailed proposals for the conditions for carrying out sea fishing in the area of the MFW and within the export infrastructure.

The main elements of the outline of the Code have been developed taking into account comments from fishing communities. Fishing communities will be involved in its final form when the Code is presented to the relevant Sectoral Agreement Group.

MFW Bałtyk II and MFW Bałtyk III:

The 2015 EIA reports assessed the impact of the MFW on selected marine users. The assessment covered: coastal tourism, commercial fishing, recreational fishing, water sports (windsurfing, kitesurfing, offshore sailing, wreck diving), military operations, radiolocation and communication systems, civil aviation, military aviation, maritime shipping, possibilities to explore, identify and exploit mineral resources of the seabed and the interior of the earth underneath, maritime industry, human health and life.

The analyses carried out did not show that the MFW would be a source of significant negative impacts on other users of the maritime areas, alone or in cumulation with other projects.

In assessing (in the 2021 and 2022 Reports) the impact of the proposed changes to the Project's construction and operation conditions - no users were identified where the proposed modifications would affect the outcome of the assessment for the Project within the parameters for which the Environmental Impact Assessment was carried out

in the 2015 Report and the Environmental Decision was issued. For these reasons, the results of the offshore wind farm impact assessment carried out in the 2015 Report remain valid.

Connection infrastructure (ECI):

According to the report (2023): The planned implementation of two independent sets of power output facilities from two offshore wind farms MFW Bałtyk II and MFW Bałtyk III is in line with the EU objectives on climate change mitigation. In view of the lack of negative impacts of the planned Project in the operation phase and the spatially and temporally limited negative impacts of the construction phase, it can be assumed that the execution of the planned Project is characterised by low conflict potential. Offshore wind energy is a sector that represents an opportunity of great development for the Polish economy, in particular for the Pomeranian region.

Community projects organised by the Investor include educational activities related to environmental protection and offshore wind energy. During the planning of the Project, dialogue is conducted with local residents and other interested parties.

15 Indication of any difficulties encountered in the preparation of the report due to lack of design or gaps in contemporary knowledge

MFW Bałtyk II and MFW Bałtyk III

During the preparation of the environmental impact reports in 2015, the authors of these studies described as a difficulty the fact that there were no similar investments in Poland, which would allow to assess the scope and scale of the impacts. In this situation, it was important to benefit from the knowledge and experience of countries where offshore wind energy is developed. There was also a lack of detailed information on investment plans of wind farms located in the vicinity of the MFW Bałtyk II and MFW Bałtyk III.

In the course of amending the original environmental decisions for both MFW (in 2021 - 2022), the environmental impact assessments took into account the change in knowledge of the environment and the impacts caused by the construction, operation and decommissioning of offshore wind farms. Since the time of obtaining the Environmental Decisions, environmental research was conducted for the purpose of execution of other MFW projects within the Polish maritime areas, which significantly enriched the picture of the state of the environment and its resources, also in relation to the immediate vicinity of the basin provided for the execution of the MFW Bałtyk II and MFW Bałtyk III. At that time also new scientific studies on the impacts associated with the construction or operation of offshore wind farms appeared, which in some aspects changed not only the previous knowledge, but also influenced the practice of estimating the environmental impact of offshore wind farms.

Connection infrastructure (ECI):

The current state of engineering knowledge related to the laying of cable lines (under the seabed and on land) and the relevant materials and technologies, as well as advances in devices to secure the operation of cable infrastructure, should be considered sufficient to assess the environmental impact, so no difficulties have been encountered in the preparation of the Report that could be due to shortcomings in technology.

However, the authors of the Report pointed out certain limitations in forecasting the impact of the planned Project on selected components of the marine environment. This concerns mainly in situ data on the impact on fish, marine mammals and benthic organisms, heat emission and magnetic field generated by the operation of the submarine cables, and the impact of noise during the construction phase on marine mammals and fish. Responses to the above-

mentioned impacts are still in the research and observation phase, and most of the analyses carried out are in laboratory conditions, where the response of organisms may differ from their behaviour in the natural environment. However, the aforementioned impacts, notwithstanding the difficulties in forecasting, will not be significant due to the localised nature of the impacts and the low (or temporary during construction) intensity of the impacts.

Another aspect relates to issues related to the sinking of cables into the seabed and the amount of bottom sediment entering the water depths as a result of this process. There is little information in the literature on this subject and most of it is mainly concerned with non-cohesive sediments, ignoring cohesive sediments that cause more turbidity in the water. Recognition of this issue is further complicated by the fact that many different methods of sinking linear infrastructure into the seabed are used in practice.

In conclusion, despite the gaps in contemporary knowledge, in the context of predicting impacts related to undersea noise emissions and the spread of suspended matter during the laying of submarine cables (during the construction phase) and the emission of heat and magnetic fields (during the operation phase), the available natural, PMS and literature data and the application of the precautionary principle made it possible to formulate potential environmental impacts and to address minimising measures that ensure the protection of the most valuable parts of the marine ecosystem.