

Non-Technical Summary



baltica2 | by PGE
& Ørsted

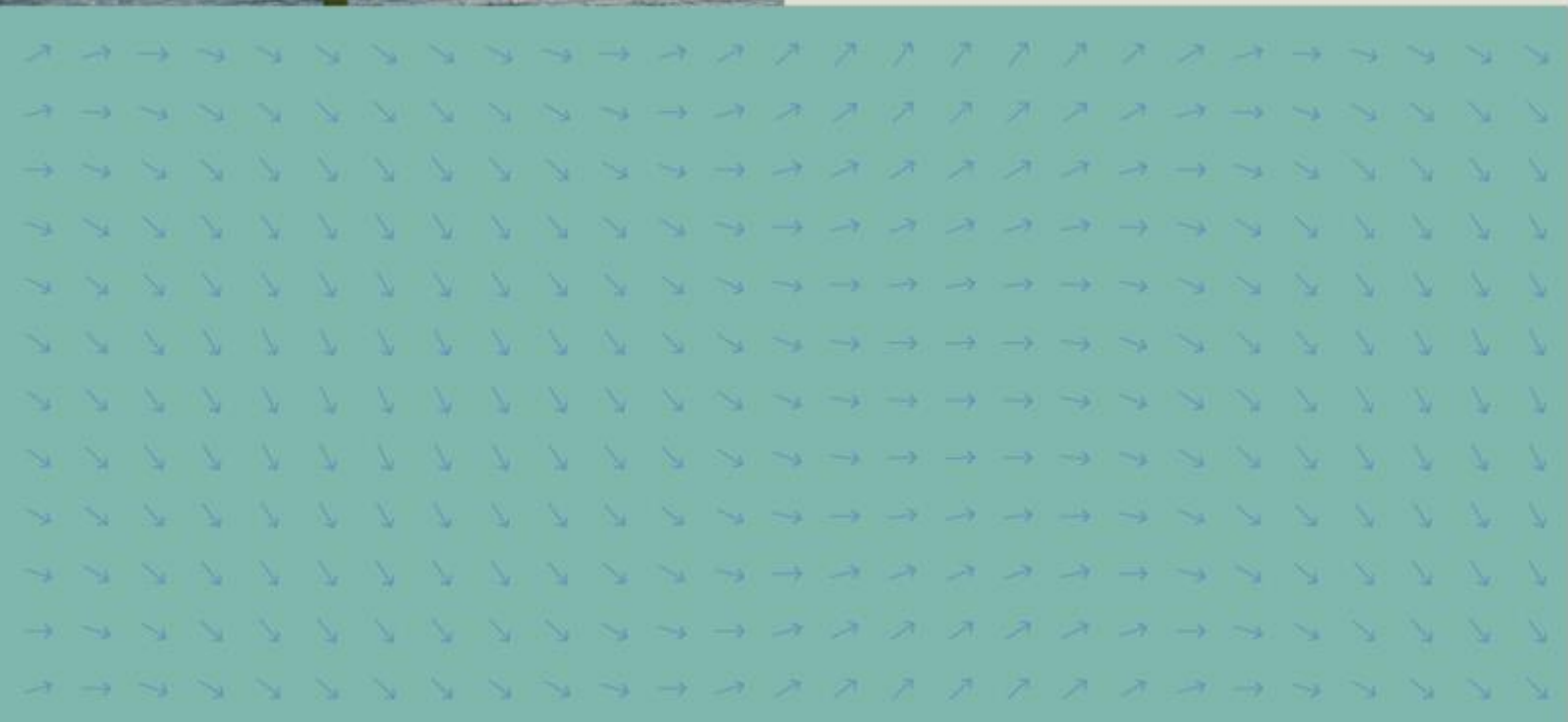


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Abbreviations and definitions

Abbreviations	Definitions
APV	Applicant Proposed Variant
Baltica 2 ; Project	Baltica 2 Offshore Wind Farm
Baltica OWF CI	Baltica Offshore Wind Farm Connection Infrastructure
BoP	Balance of Plant
CfD	Contract for Difference
CI	Connection infrastructure
CTV	Crew Transfer Vessel
D&S	Defence and Security
DSA	Development Service Agreement
EBRD	European Bank for Reconstruction and Development
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIB	European Investment Bank
EMF	Electromagnetic Field
EPC	Engineering, procurement, and construction
ERO or URE	Energy Regulatory Office or Urząd Regulacji Energetyki
HTV	Heavy Transport Vessel
HVAC	High Voltage Alternating Current
IAC	Inter-array cables
JV	Joint Venture
KIP	Karta Informacyjna Przedsięwzięcia (Information Card)
LCOE	Levelised Cost Of Electricity
MSF	module support frames

MSL	Mean Sea Level
NPS	National Power System
NTS	Non-Technical Summary
O&M	Operation and Maintenance
OLL	Offshore Location License
OnSS	Onshore Substation
Ørsted	Ørsted Wind Power A/S
OSS	Offshore Substation
OWF	Offshore Wind Farm
PGE	PGE Polska Grupa Energetyczna S.A.
PSE	Polish Transmission System Operator
RAV	Rational Alternative Variant
SHA	Shareholders Agreement
SOV	Service Operation Vessels
SPA	Spare Parts Agreement
SPV	Special Purpose Vehicle
SWA	Service Warranty Agreement
T&I	Transport and Installation
TOC	Tests on Completion
URE	Energy Regulatory Office (Urząd Regulacji Energetyki)
UXO	Unexploded Ordnance
W2W	walk-to-work vessel
WACC	Weighted Average Cost of Capital
WTGs	wind turbine generators

Preamble

The project consisting of the Baltica 2 Offshore Windfarm (the "Project") has been designed to be developed in accordance with applicable national environmental and social laws and regulations, including applicable European Union law as implemented in Polish law.

The competent authorities have granted to the Project the environmental decisions (the "Environmental Decisions") following Environmental Impact Assessments ("EIA"), prepared in accordance with the requirements of Polish laws and regulations. These Environmental Decisions contain conditions and requirements ensuring that the Project will comply with Polish laws and the *acquis communautaire* of the European Union, as transposed into Polish law during its implementation and operating phases.

The Project is expected to be financed, amongst others, by the European Bank of Reconstruction and Development ("EBRD"), at least one export credit agency ("ECA") and Equator Principles Financial Institutions ("EPFIs"). In order to be considered for financing by these potential lenders, the Project shall be required to comply with specific, additional requirements derived from each respective lenders' "Environmental and Social Standards", including the benchmarks of the Equator Principles ("EP IV"), the IFC Performance Standards ("IFC PSs") and the EBRD Performance Requirements ("EBRD PRs"), which are additional to the requirements identified by the EIA and the competent Polish authorities' "Environmental Decisions".

Actions required to ensure the Project is developed in line with these additional requirements (which the Project's promoter has committed to implement) are presented in the Environmental and Social Action Plan (the "ESAP").

Non-Technical Summary

1. Introduction

This Non-Technical Summary ("NTS") provides an overview of the Baltica 2 Offshore Wind Farm (hereinafter referred to as "Baltica 2" or the "Project"). NTS was prepared in order to outline how the Project meets environmental and social criteria of financiers and is produced as part of the due diligence procedure for financing and after all permits (for offshore and onshore part) by competent authorities was obtained.

The Project is co-owned by PGE Baltica., a subsidiary of Poland's largest electricity company PGE Polska Grupa Energetyczna S.A. ("PGE") and Ørsted Wind Power A/S. a subsidiary of global off-shore wind leader Ørsted A/S. ("Ørsted") (together, the "Sponsors").

The Project is implemented by the project company Elektrownia Wiatrowa Baltica 2 sp. z o.o., in which each of the Shareholders holds 50% of the shares.

PGE is coordinating a project finance process aimed at obtaining external financing for the Baltica 2 Project, which will be dedicated for CAPEX expenditures incurred by PGE in construction phase of the Project (Ørsted will finance its share of the project from equity).

PGE is seeking to secure financing from several commercial banks, along with potential participation from The European Bank for Reconstruction and Development ("EBRD"), European Investment Bank ("EIB") and The Export and Investment Fund of Denmark ("EIFO").

1.1 PGE Group strategy

PGE is a leader of change in the Polish energy industry. In its strategy, the PGE Group outlined the Group's transformation plan and pathway to decarbonizing generation, and announced the goal of achieving climate neutrality by 2050. The PGE Group's investment plan includes the country's largest offshore wind investments. PGE Group's Offshore Program calls for the construction of the Baltica Offshore Wind Farm, to be implemented in two phases - Baltica 2 and Baltica 3, with a total installed capacity of up to 2.5 GW by 2030. Then, after 2030, the Baltica 1 Wind Farm will be added to the Group's portfolio.

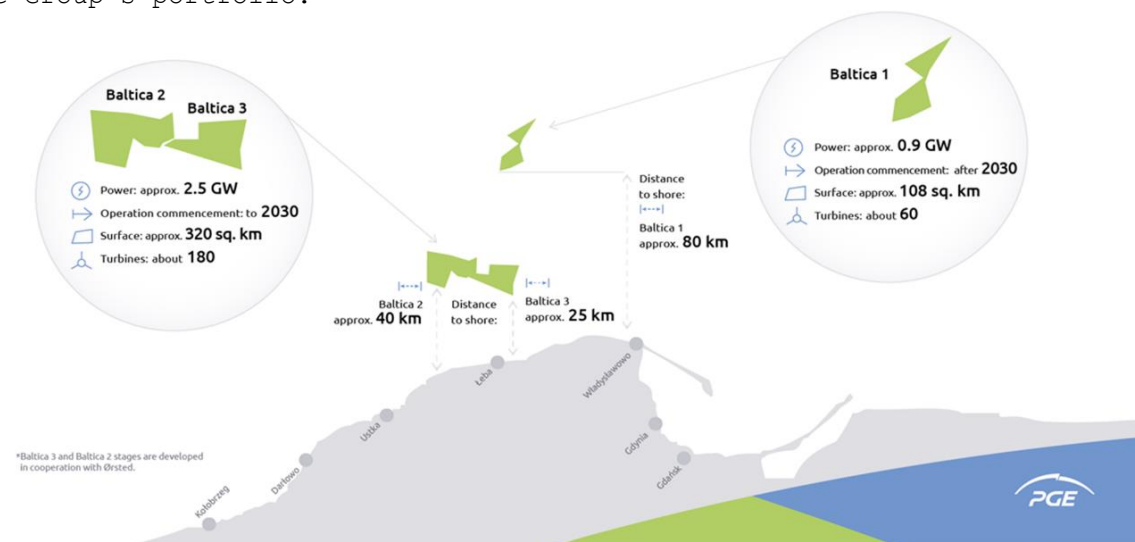


Figure 1. Main parameters of the Baltica OWF projects under development phase

According to the PGE Group's strategy, by 2030 with an outlook to 2050, the PGE Group will have up to about 6.5 GW of capacity in the Polish Exclusive Economic Zone ("EEZ") of the Baltic Sea.

To implement the strategy, PGE participated in second phase of the Offshore Location License (''OLL'') proceedings for new seabed areas, resulting in obtaining final and binding decisions for 5 new areas in 2023 (Capacity potential of new areas: over 3.9 GW), which will allow the PGE Group for developing a total of over 7 GW offshore wind capacity by 2040, making the company the largest investor in Poland.

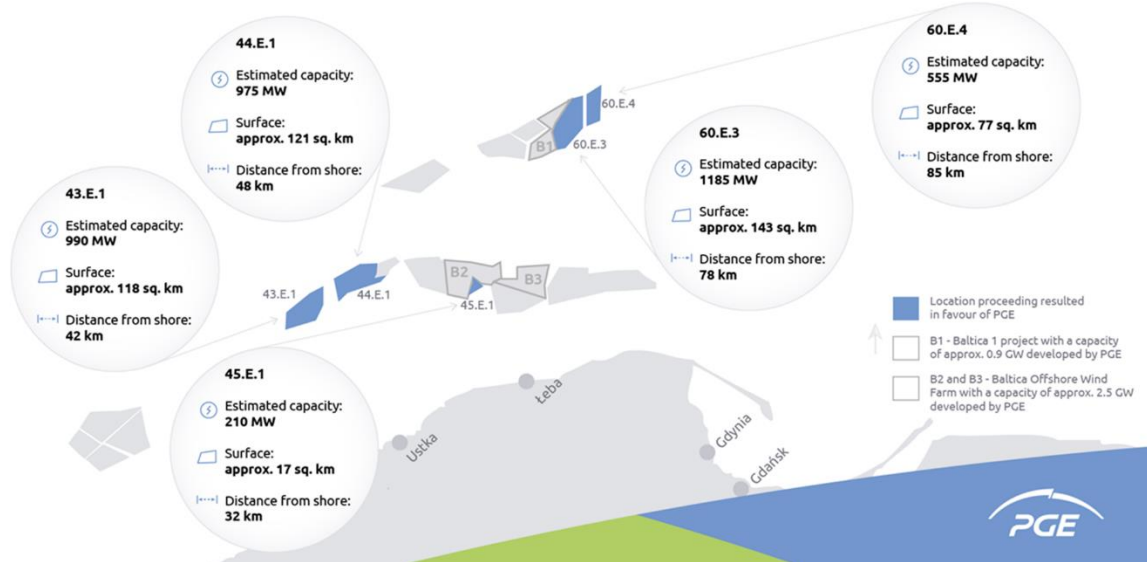


Figure 2. Main parameters of the new Offshore Location Licenses obtained in 2023

1.2 Project overview

1.2.1 Key permits

Baltica 2 project has received all the permits necessary to launch the construction phase.

		Baltica 2
	Offshore Location License (OLL)	✓ March 2012
	Environmental Decision (ED)	✓ OWF - 24.01.2020 CI - 11.08.2022
	Grid Connection Agreement	✓ 23.12.2020
	Building Permit	✓ OWF - 14.02.2024 CI - 30.11.2023
	Right to Contract for Difference	✓ 12.12.2022

Figure 3. Key permits/rights status

1.2.2 Key parameters

Baltica 2 offshore wind farm

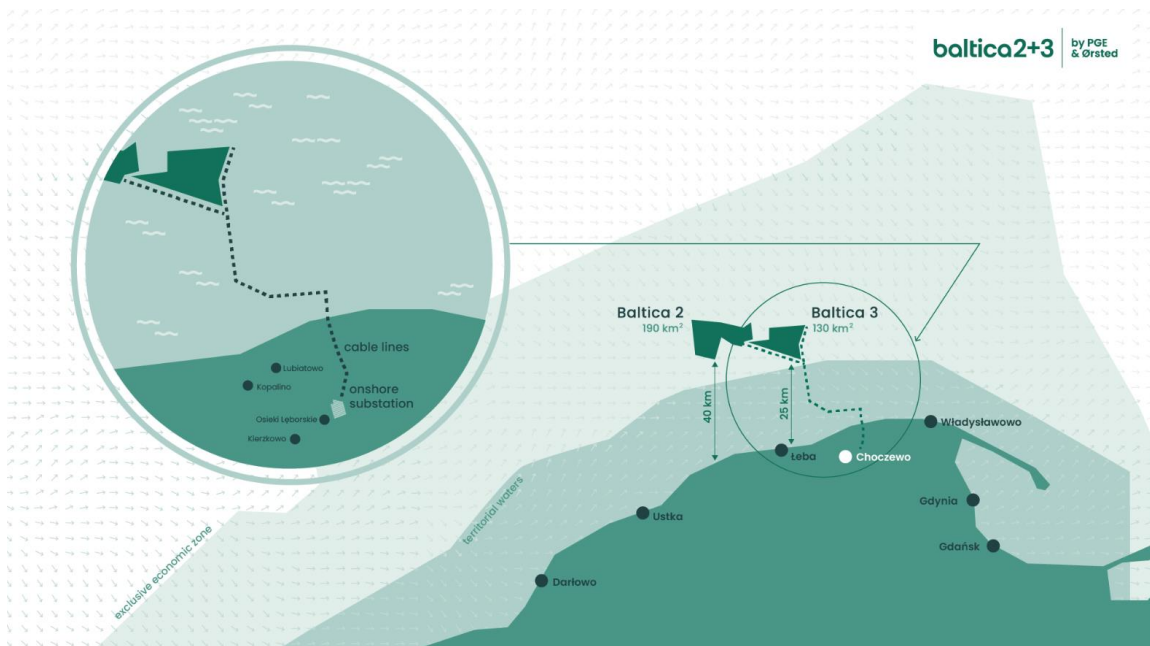
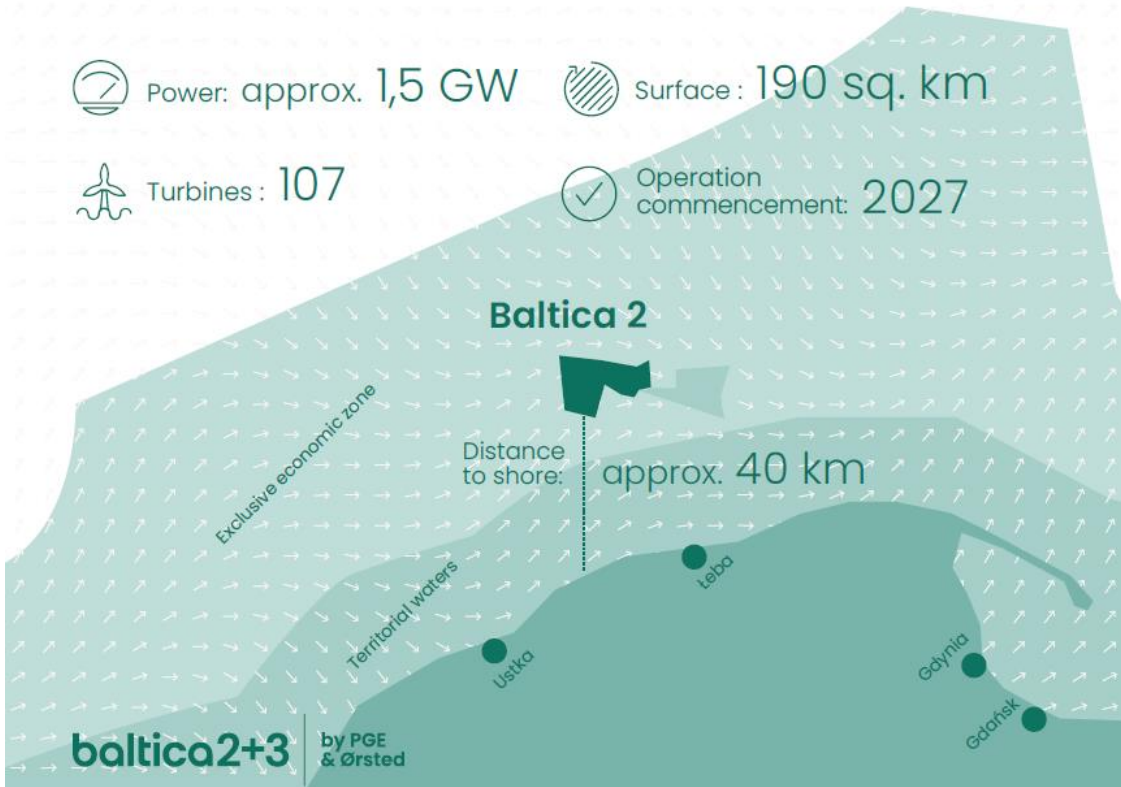


Figure 4. Baltica 2 overview

1.2.3 O&M Harbour

PGE Baltica is responsible for the construction of a service and operational base, which will be used to operate of offshore wind farm Baltica 2. Operation of offshore wind farm ('OWF') will require constant monitoring and maintenance, so a service center with the necessary infrastructure and logistics facilities is planned to be built near Baltica 2. The southwestern part of the harbour in the city of Ustka was chosen as the location for this investment, where the property was secured. The base will provide technical and storage facilities for service crews. It will include a warehouse for spare parts and tools necessary for servicing offshore wind farms, staging areas for service units, as well as office and social facilities. The base will also coordinate emergency and routine maintenance work. The project has obtained the environmental decision for the O&M Harbour issued by RDOŚ in Gdańsk on 30 October 2023, which became final and legally binding on 14 December 2023.



Figure 5. O&M Harbour visualization

1.3 JV setup

1.3.1 Path to partnership

In 2019 PGE Baltica started the process of acquiring a strategic partner for the development of the Baltica 2 project. Danish group Ørsted was among the interested investors.

As a result, at the end of 2019 PGE and Ørsted sign a non-binding memorandum of understanding allowing for negotiations begin on sale and purchase of 50 % of shares in Elektrownia Wiatrowa Baltica 2 SPV involved in developing of Baltica 2 OWF. In May 2021 PGE and Ørsted finalised an agreement to establish of a 50/50 joint ventures ('JV') for Baltica 2 project.

1.3.2 JV Scope of work

The Project's governance is regulated through a Shareholders Agreement ("SHA") which was initially signed to cover the development phase and is currently being amended and adapted to the construction and operations phase (along with other agreements between the JV partners for the construction and operation phases).

Work packages have been divided between Ørsted and PGE, each following its primary area of experience, with Ørsted taking care of the offshore part and PGE covering the onshore part.

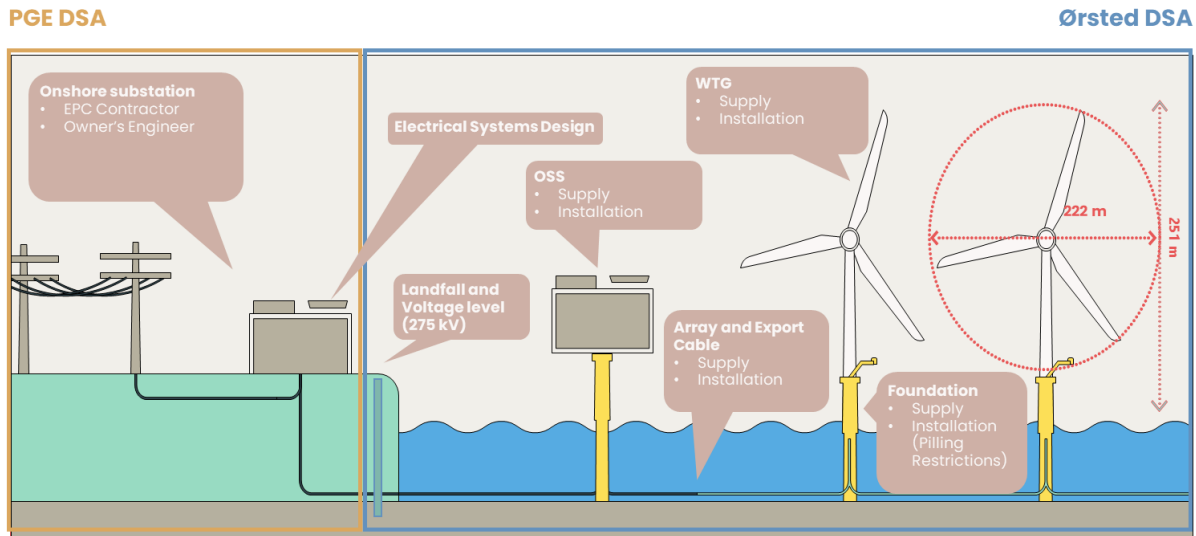


Figure 6. Development Service Agreement - scope of work division

1.4 Supply chain

Supply chain mapping in the Baltica 2 project is a systematic documentation process that analyzes activities and process steps within the supply chain. Actions we have taken to ensure competitiveness between suppliers of materials and services used for the construction or operation of an offshore wind farm:

- a) Utilities Directive to be applied - competitive tender procedures as a rule
- b) Procurement tools: suppliers' database and procurement platforms
- c) Early communication with suppliers during periodic workshops, such as Suppliers Days and external events.

The Contracting Entity will apply the Utilities Directive to ensure that public entities award contracts for works, services, and supplies competitively and that competitive tender procedures are used.

We also actively communicate with suppliers at an early stage of proceedings, using various tools:

- 1) A website with information on conducted tender proceedings
- 2) A dedicated contact box for contractors
- 3) A continuous register of contractors and potential suppliers
- 4) Suppliers Day is a series of open workshops for industry representatives. It is a good platform for industry dialogue, an internationally accepted practice that optimizes investment processes.
- 5) Besides workshops for contractors, PGE Baltica and Ørsted representatives actively participate in key conferences and events in the offshore industry and energy sector at European, national, and local levels. Each year, the company representatives actively participate in panel discussions or lectures at several dozen events.

Construction will be supervised by Ørsted and by PGE, each under a dedicated construction management agreement (containing the division of scope of works between partners - see Figure 7) and is expected to last 3.5 years with

completion scheduled in November 2027. Works will be conducted following a multi-contracting strategy.

Please note that all contractor has been already secured and disclosed..

	WTGs		Monopiles			OSSs	IACs	Export Cables		Onshore Substation
Supply	SGRE		Windar-Navantia	EEW	Steelwind	JV SEMCO & PTSC	NBO	ZTT	Hellenic Cables	GE Power & Polimex
Installation	Cadeler	Fred. Olsen	Van Oord Poland	Offshore Wind		Seway 7	Boskalis	Boskalis		

Figure 7. Contracting status of key components of OWF Baltica 2

2. Description of the planned project

2.1 General characteristics of the planned project

2.1.1 Subject and scope of the project

The project in question involves the construction and operation of the Baltica 2 OWF with a total maximum installed capacity of 1498 MW, together with technical, measurement, research and service infrastructure related to the preparatory, execution and operation stages, located in the offshore and onshore area of Poland.

The scope of the project covers its implementation consisting of four basic stages: construction, operation, overlapping construction and operation, and decommissioning. The project will consist of the following main components:

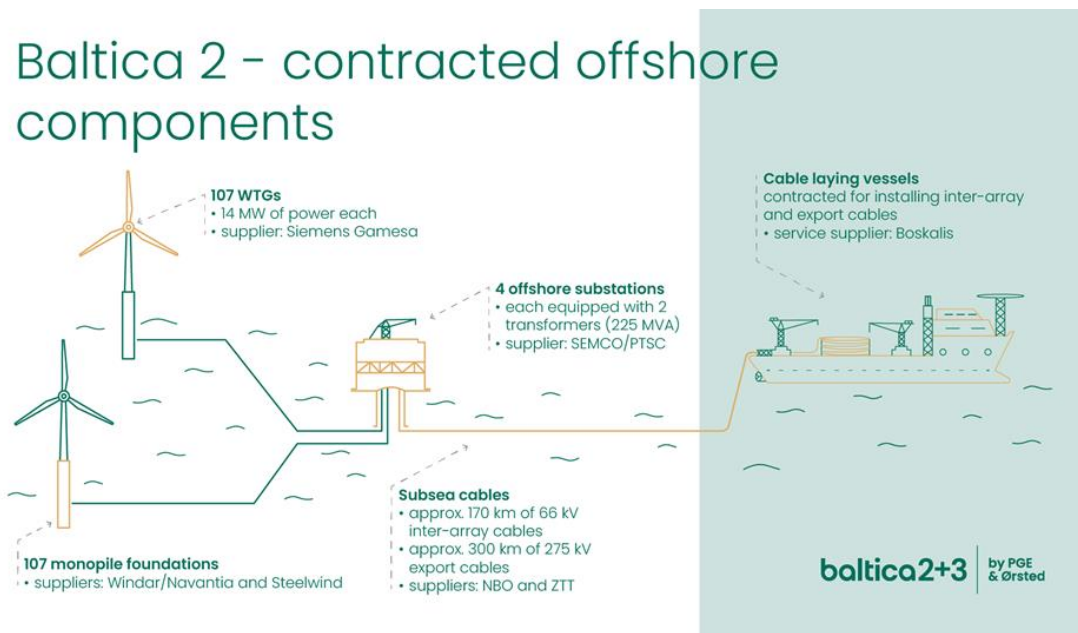


Figure 8. Baltica 2 contracted offshore components

Connection infrastructure OFW Baltica 2 – cable bench and onshore substation

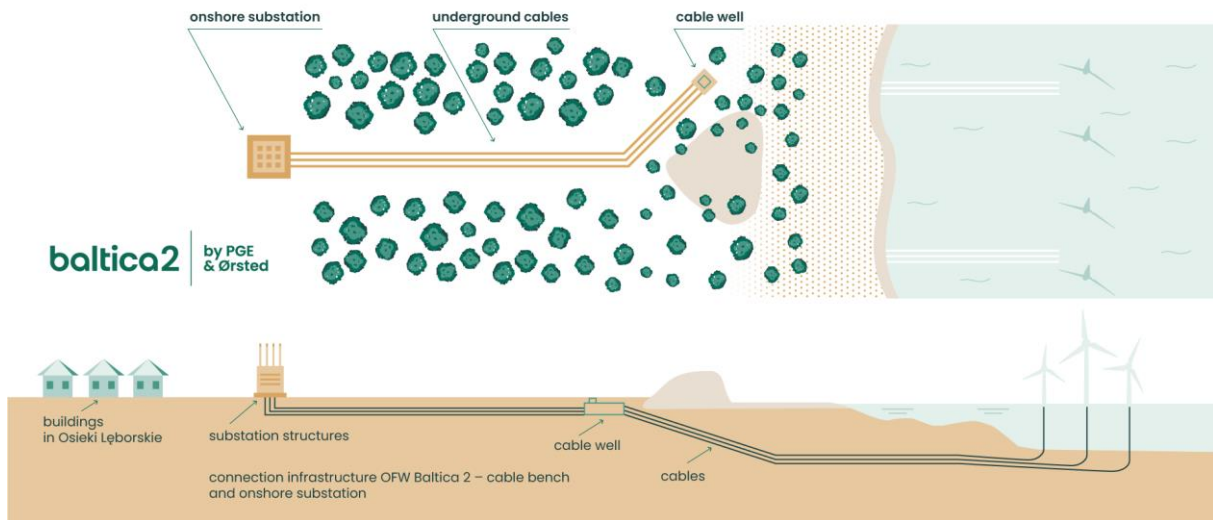


Figure 9. Baltica 2 connection infrastructure

2.1.2 Location of the project and area of the occupied water region

The Baltica 2 Project is located in the Baltic Sea off the coast of Poland at a distance of approximately 40 km from the shore.

The project is located in the centre of a cluster of potential projects within Poland's Exclusive Economic Zone and is fully consistent with the objectives presented in the Polish Maritime Spatial Plan. The neighbouring projects are specifically designated for offshore wind energy production and are aligned roughly from east to west to the north of the Polish coast.

The total area of the Baltica 2 is approximately 190 km² as shown in the figure below, whereas the 'developable' area utilised for turbine placement within the layout has area of approx. 75.5 km². The developable area takes into account constraints set by the offshore wind farm environmental decision and excludes high density boulder areas, corridors for export cables and interlinks, defined areas around objects like wrecks and others.

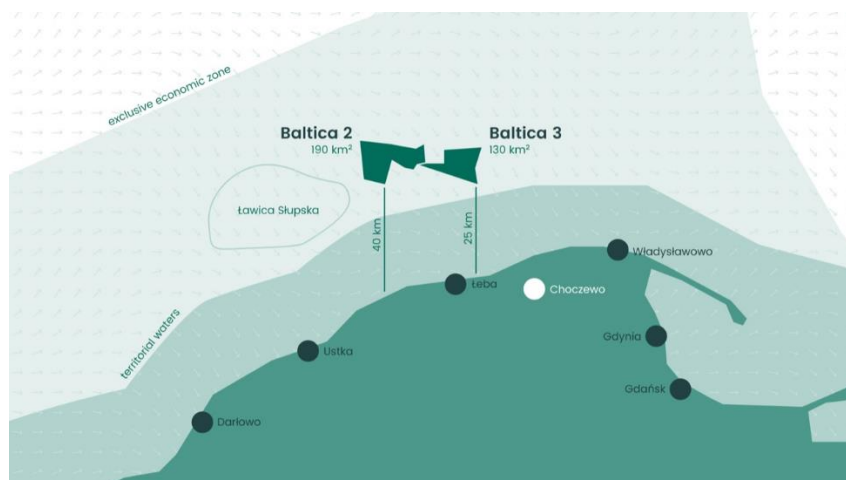


Figure 10. Location of the planned Baltica 2 OWF project. Source: www.baltica.energy/en

The onshore area of the connection infrastructure is located in the Choczewo commune (Wejherowo district, Pomorskie Voivodeship).

The onshore substation and the busbar systems connecting the onshore substation with the Choczewo Substation will be located on a part of a plot which is now covered by privately owned, acquired from the private owner in the willing buyer-seller transaction arable land. The expected surface area of the substation will be approx. 9.23 ha. The access road to the above-mentioned substation will be located on a plot that is currently a road plot (Kierzkowo precinct) and partially on a plot with arable land (Kierzkowo precinct). The road will be municipal internal road on which titles are established in favor of EWB2. The road will be used for construction stage and permanent access and it will be allowed to be used by the community. Almost the entire cable bed area (with the exception of the technical belt managed by the Maritime Office in Gdynia) is routed across the state owned land areas managed by the Choczewo Forest District Inspectorate, Szklana Huta Forestry.

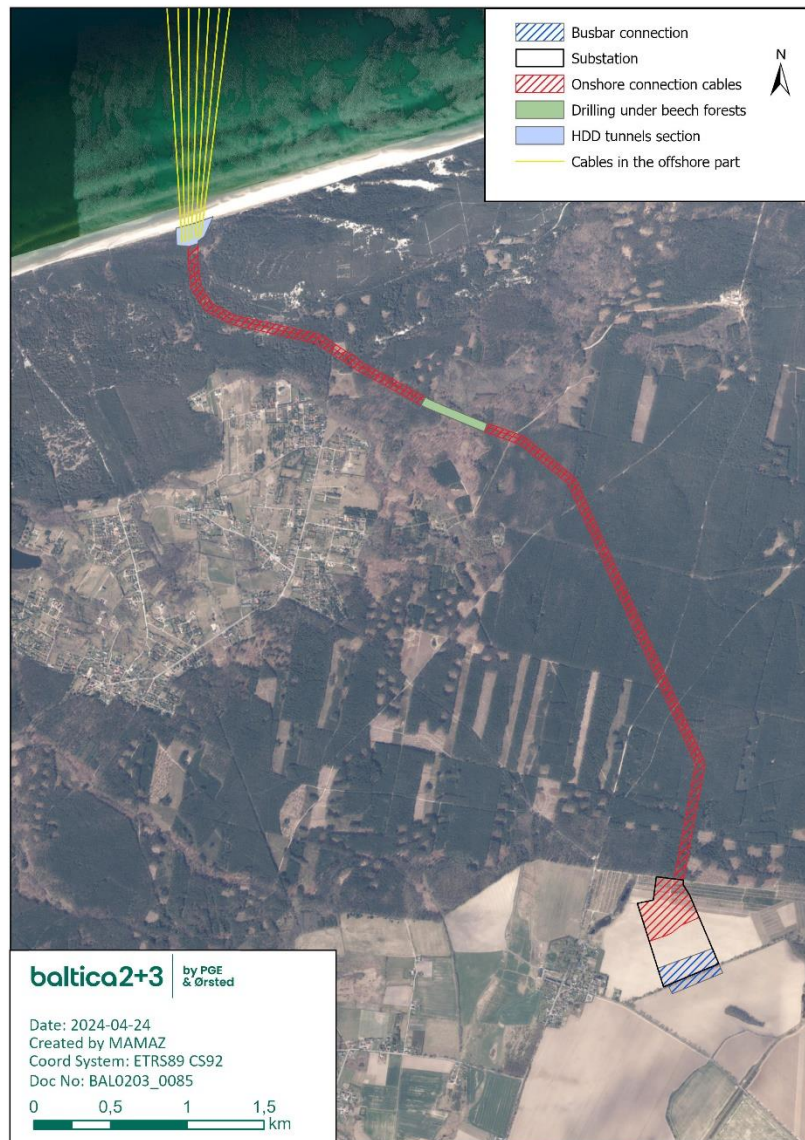


Figure 11. Location of the planned Baltica 2 OWF project - cable corridors and substation location.. Source: internal materials

Since, in the same part of the Baltic Sea, projects of other operators are being implemented and will be connected to the planned Substation in Choczewo, in agreement with the Choczewo Forest Inspectorate, a common draft route of the connection infrastructure across the land areas managed by the Inspectorate was prepared to ensure the minimization of the negative environmental impacts of cable lines belonging to different operators, through bypassing the environmentally valuable areas and minimising the tree felling surface area by routing connection infrastructure within single, common cable bed area

2.2 Description of the technology

2.2.1 Description of the generation process

Offshore wind turbines are plants for the conversion of kinetic wind energy into electricity by driving the power generator with the rotor driven by wind force. Mechanical energy of the rotating rotor is converted in the generator to alternating current with low voltage, which is most often transformed to medium voltage, and then to high voltage for its further transmission. Due to the location conditions, wind farms located in offshore areas are constructed as groups of single wind turbines together with accompanying infrastructure, the purpose of which is to supply the generated electricity to an onshore substation or to supervise the availability of the OWF.

2.2.2 Description of the technology of individual elements of the project

The Baltica 2 OWF will comprise of the following key components connected together functionally and structurally:

- wind turbines;
- foundations - monopiles;
- array cables and export cables;
- offshore and onshore substations.

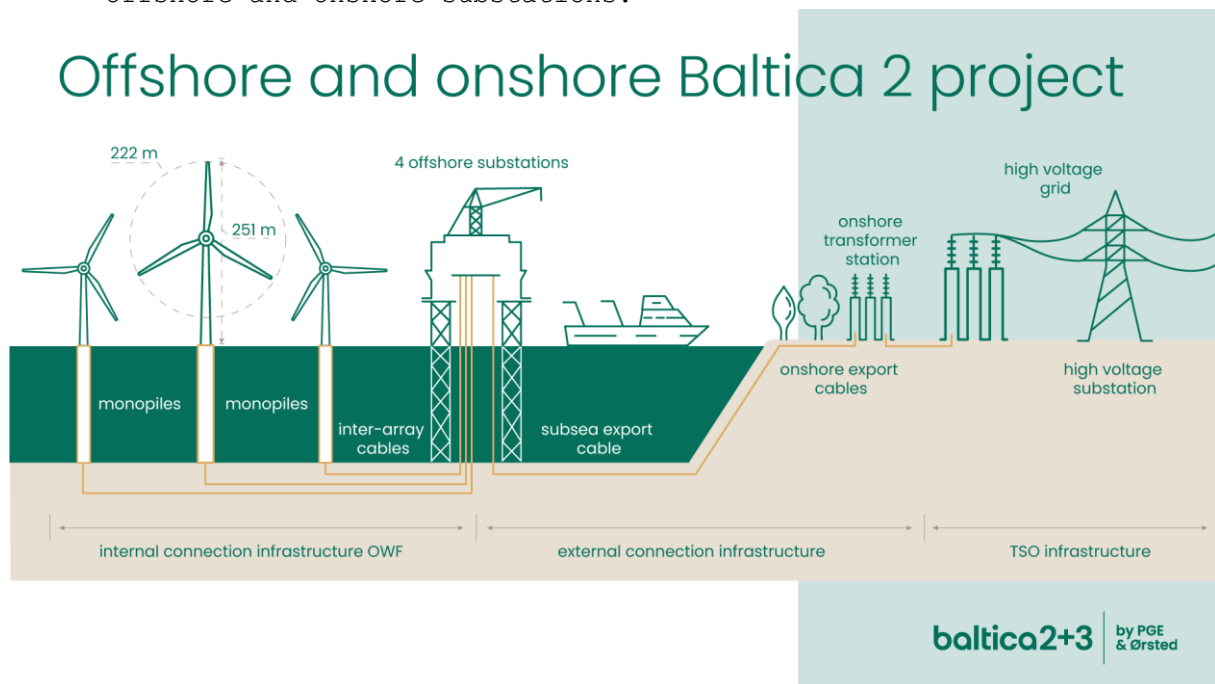


Figure 12. Baltica 2 OWF project components. Source: PGE Baltica.

2.2.2.1 Wind turbine

A Siemens Gamesa wind turbine model SG 14-222 DD has been selected for the Baltica 2 OWF. SG 14-222 DD is a turbine with a nominal output of 14 MW and a rotor diameter of 222 m and a hub height of 139.69 m MSL.

2.2.2.2 Foundation

Monopile foundations with a diameter up to 10.5 m are planned to be used for wind turbines and their associated offshore substations. The foundations, which are up to 107 metres in length, will weigh up to approximately 2,000 tonnes.

2.2.2.3 Connection infrastructure

The OWF is to be connected via transmission assets to the shore which consist of inter-array cables to an offshore substation.

Inter-array cables connect rows of wind turbines to the offshore transformer substations located within the wind farm while the export cables enable the connection between the offshore and onshore substations. Approximately 180 km of inter-array and interconnector cabling will be required for the Baltica 2 OWF. The offshore substation acts as a transformer to convert the voltage level of electricity to allow it to be brought to shore via an export cable.

Transmission of electric power will be carried out using HVAC cable lines with an operating voltage of 275 kV, routed along a common cable bed area. The onshore substation performs voltage transformation from 275kV to 400kV via four step-up power transformers, and four export cables connected the onshore substation to four offshore substations where the power is collected from turbines via inter array cables.

Export cables will connect the OWF with onshore substation which in turn will be connected with the PSE substation (Choczewo Substation) by two busbar systems with the conductor voltage of 400 kV.

2.3 Considered variants of the project

2.3.1 Approach to determination of project variants

The planned project has been described in two project variants analysed: Applicant Proposed Variant (APV) and Rational Alternative Variant (RAV).

The project has been characterized by determination of the following parameters for each of the variants:

- maximum total installed capacity of the OWF;
- maximum total number of wind turbines;
- maximum rotor diameter of the wind turbine;
- minimum clearance between the rotor operating area and water surface;
- maximum height of the wind turbine;
- maximum diameter of the gravity based structure and the maximum seabed surface covered by the gravity based structure (finally not used in the project);
- maximum seabed area occupied by foundations;
- maximum length of cable routes inside the OWF.

2.3.2 Considered variants of the project together with justification of their selection

Offshore

The investor's variant for the Baltica 2 OWF proposed by the Applicant uses the latest technological solutions available on the market to the greatest extent possible. It also assumes that the Baltica 2 OWF will reach the total maximum nominal power. This option assumes the possibility of 14 MW wind

turbines. The use of monopiles is planned. The implementation of the Baltica 2 offshore wind farm assumes the installation of 107 wind turbines.

The rational alternative variant is based on the existing technologies. . For this reason, it was accepted that the wind power stations' capacity will be 8 MW. The rational alternative variant applies to the same farm built-up area, like in the case of the Applicant's variant, but with the higher number of planned wind power stations it will require a different layout in the area, including their higher density.

The variant proposed by the Applicant will allow reducing the environmental impact of the investment and, according to analyses included in the EIA Report, it is the variant most favourable for the environment.

Onshore

The Applicant Proposed Variant (APV) assumes the project implementation in accordance with the state-of-the-art and commonly applied technologies for the construction of EHV power lines. As regards the offshore area outside the Baltica OWF area, the route of the project does not reach beyond the area indicated in the location decisions issued by the Minister of Economy and Inland Navigation Maritime and the Director of the Maritime Office in Gdynia. The variant accounts for all environmental protection requirements as well as optimisation between planning, environmental and technical conditions for energy transmission.

2.4 Description of individual phases of the project

2.4.1 Construction phase

Offshore

The process for installation is to install the wind farm in the following sequence, with overlaps where possible:

- onshore substation and onshore export cables;
- foundations;
- offshore substations;
- array cables;
- offshore export cables, and
- turbines.

According to schedule, construction phase will take place in 2025 to 2027. Although construction activities will typically occur sequentially there are expected to be periods where certain construction activities occur concurrently.

Normally the offshore construction phase starts with preparation of the seabed: removing boulders, and preparing the scour protection for foundations. Seabed preparation of cable lines include using pre lay plough, and grapnels to remove large objects from the cable route. After the boulders are removed, foundation installation for turbines and offshore substations (WTG and OSS) can be started. Next step, after foundation works are completed, is installation of WTG and OSS on top of foundations. In parallel cable installation works are started.

During the construction phase, various installation vessels will be used. This includes main installation vessels e.g. two jack-ups, cargo barges, support vessels, cable laying vessels, guard vessels, Crew Transfer Vessels (CTVs), scour/cable protection installation vessels, resupply vessels among others. In addition, it is possible that helicopters will be used for crew transfers.

Offshore Wind Farm – construction stage

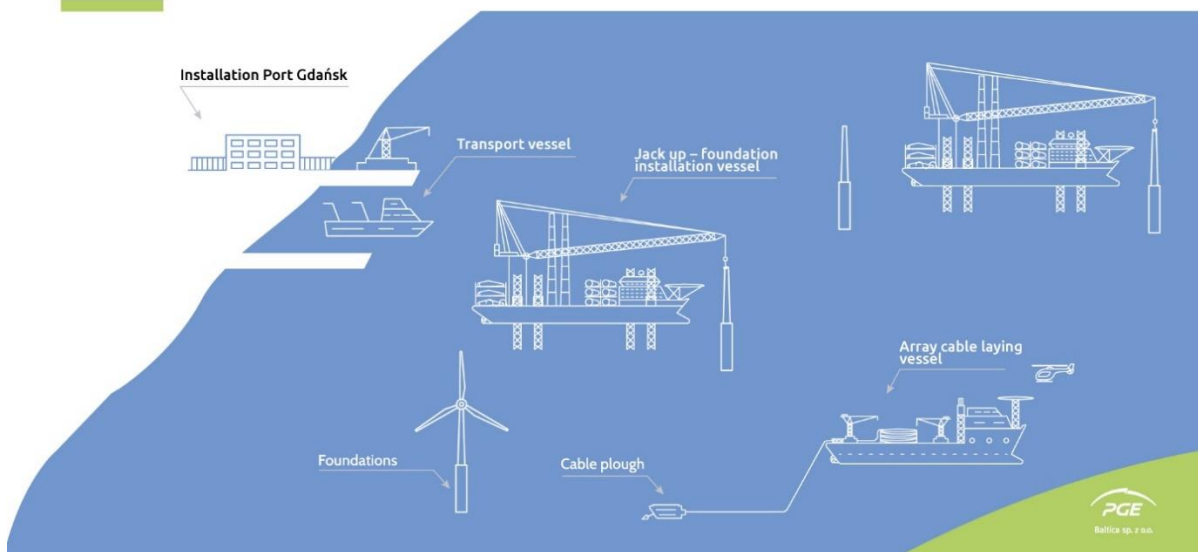


Figure 13. Baltica 2 OWF – construction phase main vessels. Source: PGE Baltica.

Foundation installation

Foundation installation will consist of the transport and fixing of foundation in position.

The transport of the monopiles will be conducted from the supply ports to the pre-assembly port located on the Baltic coast. Relevant location has been secured in Port of Roenne. At pre-assembly port the monopiles will be moved directly on a barge, transport vessel or floated to the main installation vessel for installation.

The monopile installation will be conducted by the installation vessels. No drilling is expected. Method for installation turbine foundations will be the same as for OSS foundations. According to schedule, installation will take place from spring to autumn of 2026, due to expected favourable weather conditions.

The piling noise mitigation system will be used to lower the noise that affects marine mammals especially porpoises. Usually it consist of a bubble curtains. When sound waves generated by installation hammer hit the bubble curtain, they slow down, break up, and bounce against the bubbles. The sound that appearing on the other side of the curtains is therefore quieter.

Turbine installation

Turbine installation involves transportation of the turbine components from the construction port and installation of the turbine components onto the foundation.

The turbine installation set-up assumes using jack-up (self-lifting) installation vessel or vessels. The installation vessels are assumed to carry 2-6 WTGs per installation cycle. Other scenarios will be considered if feasible and taking tentative vessel availability in 2027 into consideration as well.

The pre-assembly harbour for the turbines is assumed to be Gdansk port. New terminal will need to be constructed for this purpose. The investment process is currently ongoing with involvement of multiple stakeholders. There is a chain of agreements in place (Memorandum of Understanding, Cost Reimbursement Agreement, Heads of Terms), with negotiations of next level agreements

currently ongoing. There is also a fall-back scenario with the installation in the Port of Roenne in place, should the port in Gdańsk not be available.

The size, availability and exclusivity for the project is not yet disclosed. The activities after installation of the turbine - energisation, mechanical/electrical completion, and commissioning are expected to use Ustka as base harbour (completion harbour) as it is closer to the site and also to be used by O&M.

OSS Installation

The installation of the offshore substation consists of the transfer of the substation from its quayside fabrication site and the installation on the foundation. Fixed offshore substation installation is a heavy lift operation requiring vessels with sufficient crane capacity.

Cable installation

The cable will be loaded onto the cable laying vessel and stored in a carousel. Cable laying vessel buries cables in one or several runs depending on soil conditions.

Crew transfer

Personnel will be accommodated on an accommodation walk-to-work vessel (W2W) and a jack-up barges dedicated the OSS commissioning and perform the daily transfer to the different position by the W2W vessel through a motion-compensated gangway. Crew transfer for crew changes and technicians on a rota system, will be performed by the use of helicopter service from Gdansk Airport.

Installation Port

The installation port is the base for pre-assembly and construction of the wind farm.

The installation Terminal (T5) for Baltica 2 will be situated within the area of Port of Gdansk. The T5 development project involves land reclamation and construction of deep-water berths. The reclamation, filling and earthworks and ground improvements will be carried out on the new quay in an area of approximately 21 ha in order to achieve the permissible maximum parameters for the settlement and loading. The T5 site will be used as a storage, loading preparation and offloading port facility for offshore wind power generation components which will consist of wind turbine blades, nacelles, and wind turbine towers.

It is noted that Baltica 2 is neither the initiator nor investor of this work.

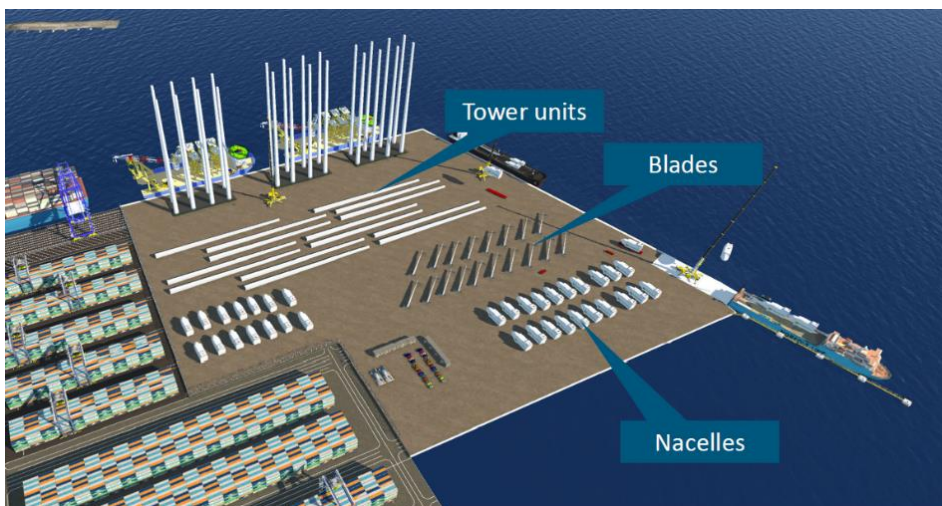


Figure 14. Installation Terminal in Gdańsk. Source: Baltic Hub

Additionally, for the needs of foundations and secondary steel for the project, the Port of Roenne has been secured by the Baltica 2.

Workforce

Estimation of project workforce is around 2000 needed for the offshore scope during construction phase (in total, project will not reach this number at a time, it is a sum of all estimated workforce involved in the installation and commissioning, including changes of personnel).

The nationalities of the workforce are unknown at this moment. Few contractors for the offshore installation scope were hired and these are EU contractors (Dutch mostly), which hire both EU and non-EU citizens, which is a standard practice in the maritime industry. Their employees will be housed on vessels hired for the project, where the accommodation is in line with Maritime Labour Convention, 2006.

Standard of the accommodation will be checked during the vessels inspection done by Ørsted internal resources, which will follow Ørsted vessels requirements.

Vessels will not be approved to work if any high or critical findings will be identified (including the housing / accommodation).

Onshore

The construction of the onshore substation consists of the construction of the infrastructure and the installation of electrical equipment.

The onshore part of the connection will consist of cables designed and intended for laying in the ground. Cable trenches will be constructed using mechanical equipment (diggers); in special cases, for example, in the location of collisions with existing infrastructure, difficult terrain, also by horizontal directional drilling. The assumed depth of the trenches will be approx. 2 m, apart from the intersections with other structures or terrain obstacles, where the depth may be greater locally.

Horizontal Directional Drilling for cable lines of Baltica 2

The HDD technology (Horizontal Directional Drilling) allows for routing the subsea cable lines towards the shore and connecting them with the land, underground cable lines. The drilling works will be carried out under the beach.

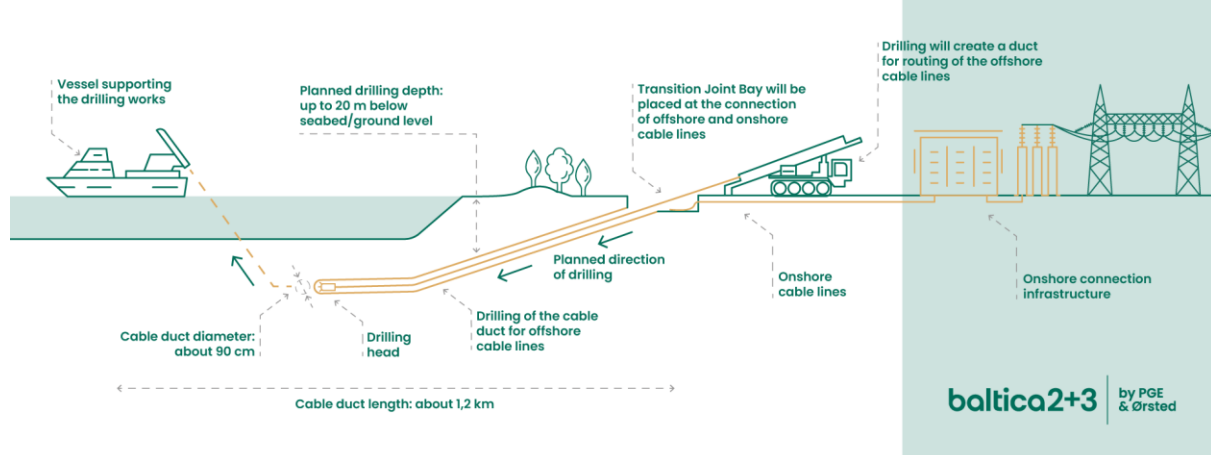


Figure 15. Horizontal Directional Drilling scheme. Source: Internal Materials

A typical, repetitive, closed cycle of works will be carried out along each construction section implemented with a trench-based method:

- phase 1 - preparatory works, access to the site, geodetic survey, felling;
- phase 2 - ground levelling;
- phase 3 - installation works;
- phase 4 - tests, preliminary acceptance of the cables laid;
- phase 5 - backfilling of trenches;
- phase 6 - restoration works.

The maximum length of a single cable line will be 6.5 km. The distance between cable lines in the onshore area will be approx. 5 m.

The construction of 400/275 kV onshore substation is planned as part of the Baltica 2 OWF implementation. Substations will affect the landscape at the operation stage due to the size of the industrial buildings and connections between the station devices, the maximum height of which may reach up to approx. 38 m.

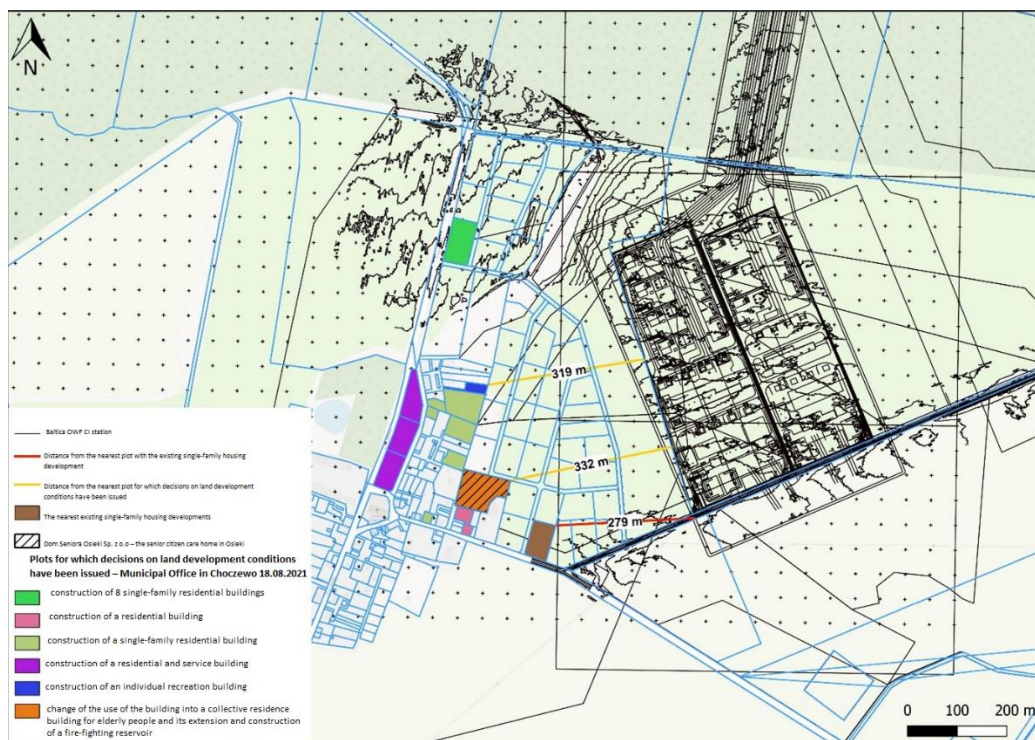


Figure 16 Location of the existing and potential developments in the vicinity of the Baltica 2 OWF. Source: internal materials

The onshore substation will be connected to the National Power System via two busbar systems with an estimated length of 150 m each. Their rated voltage will be 400 kV.

Access to the substation will be provided via an access road, connected with a road exit to the existing poviát road no. 1432G Osieki Lęborskie - Lublewko with a bituminous pavement.

Workforce

Estimation of project workforce is around 2500 needed for the offshore and onshore scope during construction phase (in total, project will not reach this number at a time, it is a sum of all estimated workforce involved in the installation and commissioning, including changes of personnel). The peak number of workers on site in the offshore and onshore part should not exceed 600 people.

The entity responsible for conducting the onshore scope construction works is a well-known Polish company, and state-owned companies control a majority of its shares. The Contract itself and its appendixes do not forbid using migrant workers. Nevertheless, All the workers will be Polish citizens or people holding work permits in Poland. There are a significant number of provisions in the Contract that put an obligation to the Contractor that prior to the commencement of the works, its workers and other subcontractors need to conduct safety training, be instructed on the rules of movement, and work within the power facilities and equipped with protective clothing and other protective equipment to ensure that all the works will be performed with the highest safety standard. The Contractor is also obliged to provide the workers' accommodation as stated in the appendix to the Contract named Minimal QHSE requirements and Code of Conduct for business partners.

2.4.3 Operation phase

Offshore

During OWF operation phase which will start in the first half of 2027, mainly two types of the O&M (Operation & Maintenance) activities are expected.

- Scheduled (preventive, predictive) maintenance which is typically completed during summer campaigns and can also occur during strategic timeframes. It covers the turbines, foundations, offshore substations and cables.
- Unscheduled (corrective) maintenance is referred to as the daily on-demand service of the OWF assets.

The focus of O&M activities is to ensure safe operations, to maintain the physical integrity of the wind farm assets and to optimise electricity generation.

Offshore Wind Farm – operational stage

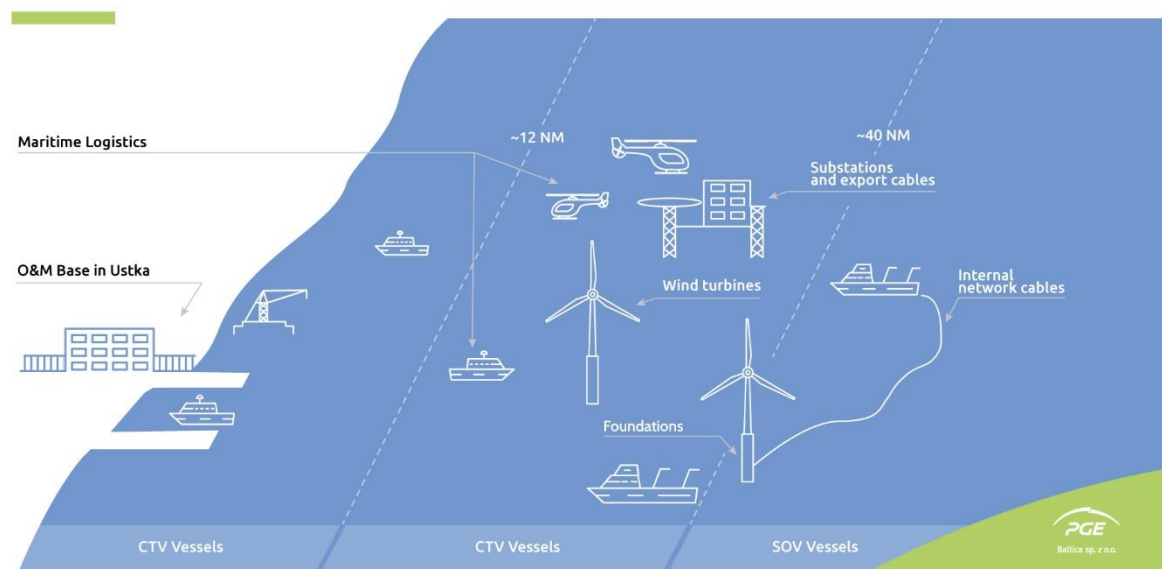


Figure 17. Baltica 2 OWF – operational phase. Source: PGE Baltica.

Onshore

The operation phase of the underground cable line is a maintenance-free process. However, as in the offshore area, also in the onshore area, it is planned to conduct inspections of the transmission system and the customer

substation in accordance with the schedule of inspections, which will be developed at a later stage of the project implementation.

2.4.4 Decommissioning phase

At the end of the operational lifetime of the Baltica 2 OWF, it is anticipated that wind turbine and OSS foundations will be cut at below the seabed at an agreed depth, removed and transported to utilization sites. Scour protection and offshore cables will be removed where possible and appropriate to do so. This approach will be reviewed at the time of decommissioning following the most up to date and best available guidance.

The decommissioning sequence will generally be the reverse of the construction sequence and involve similar types and numbers of vessels and equipment. The generation of waste will be mainly related to the physical removal of the worn-out elements of OWF, and to operations of vessels used during the decommissioning.

2.4.5 Information on the energy demand and consumption

The main factors to be taken into account when determining the energy demand and consumption of the Baltica 2 offshore wind farm are the type of structures installed on the site and the way in which the work is carried out.

In the construction phase, energy consumption is almost fully fuel used for transportation, reloading and installation of turbines and other OWF components and facilities. Fuel consumption and emission values at the construction stage will be lower in the APV than in the RAV.

2.5 Risk of serious failures or natural and construction disasters

2.5.1 Types of failures resulting in contamination of the environment

The materials that will be used in the construction and operation phase of the project mean that the project is not classified as an establishment with a high or increased risk of a major industrial accident.

The main threats that may occur during the construction and decommissioning of offshore wind power stations are the spillages of oil derivative substances, mainly diesel, hydraulic, transformer and lubricating oils. To a lesser extent, the marine environment may incidentally be endangered with materials containing hazardous substances, if they were used. During the exploitation phase, the main cause of marine pollution can be oil spills. Both within the open sea waters (e.g. the OWF) and near the coast, they can be a problem with long-lasting effects on fauna, flora, fishery and beaches affected by the contamination

2.5.3 Prevention of failures

The prevention of breakdowns constitutes the whole range of activities related to the protection of human life and health, the natural environment and property, as well as the reputation of all participants in the processes related to the construction, exploitation and decommissioning of the OWF. These activities include, among others:

- developing plans for safe construction, exploitation and decommissioning of the OWF;
- developing rescue plans and training of crews and personnel, including the principles of updating and verification by conducting regular exercises, in particular determining procedures for the use of own vessels and external vessels, including helicopters;
- developing a plan for counteracting threats and pollution arising during the construction, exploitation and decommissioning of the OWF;
- selecting suppliers as well as certified parts and components of the OWF;
- designating protection zones;

- accurate marking of the OWF area, its facilities and vessels moving within the area;
- planning offshore operations;
- applying the standards and guidelines of IMO, recognized classification societies and the maritime administration recommendations;
- developing plans of safe navigation within the OWF area and safe passages to ports;
- providing adequate navigational support in the form of maps and navigational warnings;
- providing direct or indirect navigational supervision using a surveillance vessel or remote radar and AIS surveillance;
- continuous monitoring of vessel traffic within the OWF, direct or remote throughout the entire period of the construction, exploitation and decommissioning of the OWF;
- the establishment of a coordination centre supervising the construction, exploitation and decommissioning of the OWF;

maintaining regular communication lines between the OWF coordination centre and the coordinator of works at sea and other coordination centres such as Maritime Rescue Coordination Centre in Gdynia and maritime administration in Słupsk/Ustka.

2.5.4 Design, process and organizational protections planned to be used

Design, technological and organizational security mainly relies on carrying out navigational risk assessments and developing prevention plans against:

- threats to human life -evacuation plans, search and rescue plans;
- fire hazards;
- threats of environmental pollution -a plan to counteract the threats and contamination by oil. The principle of the obligation to have a plan will apply not only to the facility, but also to all large and medium-sized vessels involved in the construction, exploitation and decommissioning of the OWF;

threats of construction disasters -all structures are designed taking into account extreme conditions for at least double exploitation period.

2.5.5 Potential causes of the failure taking into account extreme situations and the risk of occurrence of natural and construction disasters

The OWF constructions because of their purpose are designed and built with the idea of withstanding extremely difficult atmospheric conditions. All components, despite subjecting them to extremely high loads, are adapted to many years of use. All devices are subjected to continuous monitoring and each signal about the occurrence of deviations from the situation classified as a safe operation causes an automatic activation of remote service interventions or a change of operating parameters including stopping the devices. The rotor is stopped automatically at a wind speed exceeding safe speed for an operation of a wind power station. The service plan is to ensure flawless operation.

Potentially the greatest risks occur at the construction stage, however the risk of disaster is minimal due to the fact that the planning of offshore operations always takes into account weather conditions and the possibility of their change. Every offshore operation has its limitations in terms of visibility, wind speed, sea status (height of waves) or ambient temperatures.

The occurrence of negative effects of climate change in the form of too strong wind or too high waves can only result in the extension of the construction cycle and an increased demand for energy – fuel consumption.

2.5.6 The risk of occurrence of major accidents or natural disasters and structural collapses, taking into account the substances and technologies used, including the risk of climate change

The risk of a major accident resulting in the emission of hazardous substances is minimal (Reszko, 2017). The probability of events such as ship collisions belong to the category of very rare events (return period over 100 years), and such as ship’s contact with the OWF construction to the category of very rare events with a return period of over 200 years. Taking into account the impacts associated with, for example, a spill/emission of 200 m3 of diesel fuel into marine waters, the probability of such an event is highly very low, the emission of diesel fuel will cause negligible environmental damage.

2.6 Relations between the project parameters and impacts

The matrix of connections between the project’s parameters OWF and impacts has been presented in the table below.

Table.A matrix of connections between project OWF parameters and impacts

Parameter	Type of emission or disturbance															
	Above-water structures	Underwater structures	Heat	EMF	Above-water noise	Underwater noise	Waste	Light effects	Seabed disturbances	Suspended solids	Resuspension of contaminants	Resedimentation	The creation of artificial reef	Water contamination	Air pollutions	Increased traffic and collision
Number of wind power stations	X	X			X		X	X								X
Number of foundations		X				X	X		X	X	X	X	X	X		
The type of foundations and the width of the protection against washout						X			X	X	X	X	X	X		
Foundation diameter		X				X			X	X	X	X	X			
Piling parameters						X										
Full height of structure	X				X			X								X
Rotor diameter [m]	X															
Length and type of cables		X	X	X						X	X	X				X
Depth and method of cables’ laying/burying			X	X		X					X					
Number and size of power substations	X	X		X	X			X								
Organization of technological processes (number of ships, time)					X	X	X	X						X	X	X

3. Environmental conditions of the project.

Scope of the survey carried out research in the Offshore area.

The project has carried out the following surveys in the offshore section before starting the procedure for obtaining the environmental decision and subsequent necessary permits for the project: geophysical, hydrometeorological, hydrological, geochemical, biological (phytobenthos), biological (zoobenthos), biological (ichthyofauna), biological (marine mammals), biological (migratory birds), biological (seabirds), biological (bats).

Scope of the survey carried out research in the onshore area.

The project has carried out the following surveys in the onshore section before starting the procedure for obtaining the environmental decision and subsequent necessary permits for the project: geophysical, geochemical, hydrochemical, biological (phytobenthos), biological (macrozoobenthos), biological (ichthyofauna), abiotic elements (geology, soils, surface and ground water, climate, acoustic climate, air quality and waste), biotic elements (fungi, lichens, mosses and liverworts, vascular plants and natural habitats, terrestrial invertebrates, aquatic invertebrates, fish and lamprey, herpetofauna, avifauna, mammals and bats).

3.1 Location of the project in relation to Natura 2000 sites

Offshore

The Baltica OWF Area is located outside the boundaries of the protected areas in accordance with the Nature Conservation Act of 16 April 2004 (Journal of Laws of 2004, No. 92, item 880), including outside the European ecological network Natura 2000. The four conservation sites of the Natura 2000 located closest to the OWF Area are: the Słupsk Bank (PLC990001), *Przybrzeżne wody Bałtyku* (PLB990002), *Ostoja Słowińska* (PLH220023) and *Pobrzeże Słowińskie* (PLB220003). The Baltica 2 OWF site is located approximately 2 km to the north of the Słupsk Bank (PLC990001).

In the offshore part of the Baltica OWF CI, there is one site protected under the Nature Conservation Act of 16 April 2004 (consolidated text: Journal of Laws of 2021, item 1098, as amended), namely the Natura 2000 site *Przybrzeżne wody Bałtyku* (PLB990002). The southern part of the construction area, with a length of approx. 24 km, crosses the eastern part of the site.

Location of the Baltica construction area in relation to selected areas protected under the Nature Conservation Act of 16 April 2004, projected on the navigational chart.

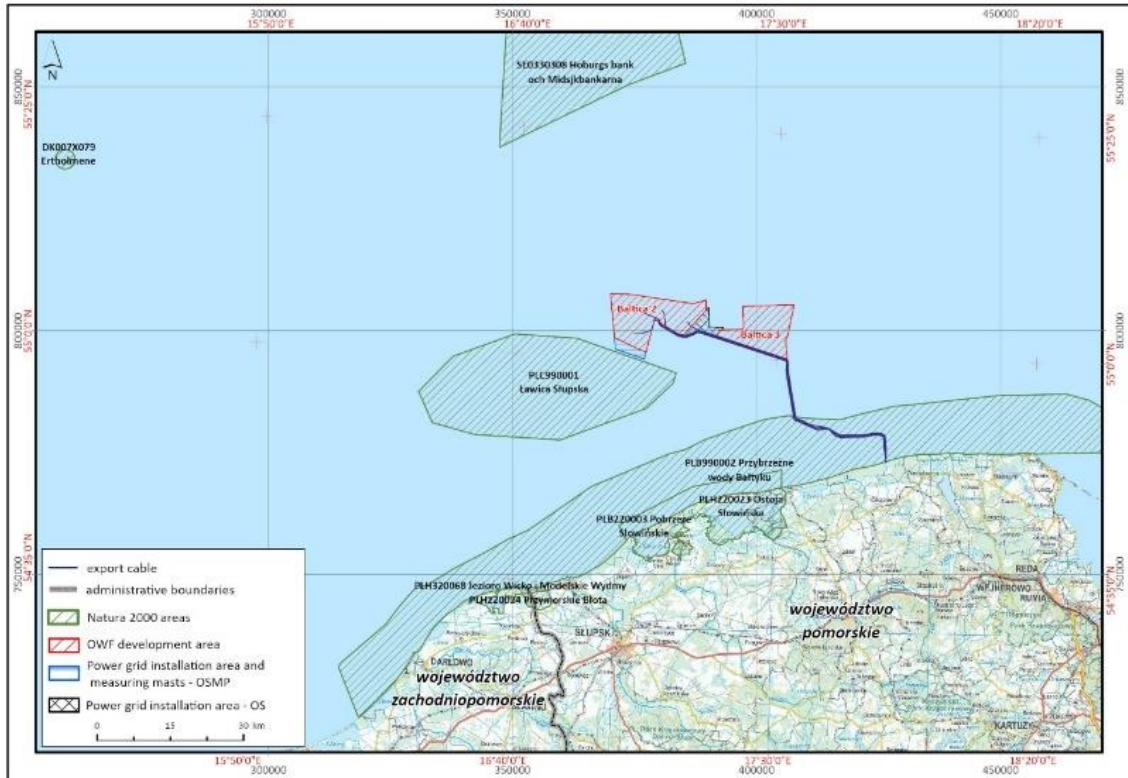


Figure 18. Baltica 2, The location of the Natura 2000 European ecological network sites in relation to the location of the OWF Area.

Onshore

The onshore area of the planned project runs across areas of varying nature values. The most valuable areas are under legal protection: Coastal Protected Landscape Area, The Polish Coastal Landscape Park, Nature reserves (Babnica, Białogóra), Ecological areas (Źródliśka).

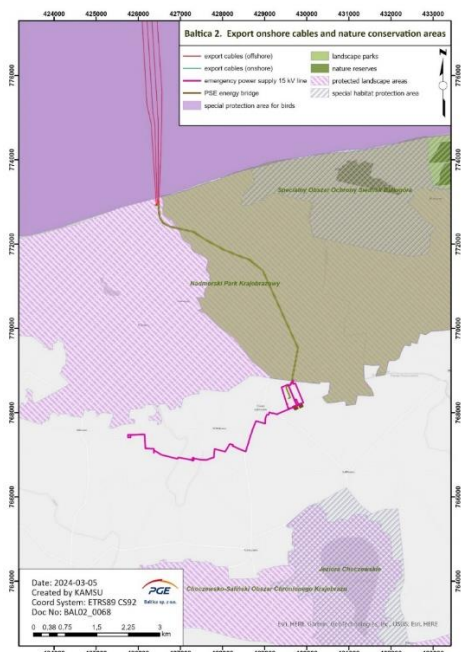
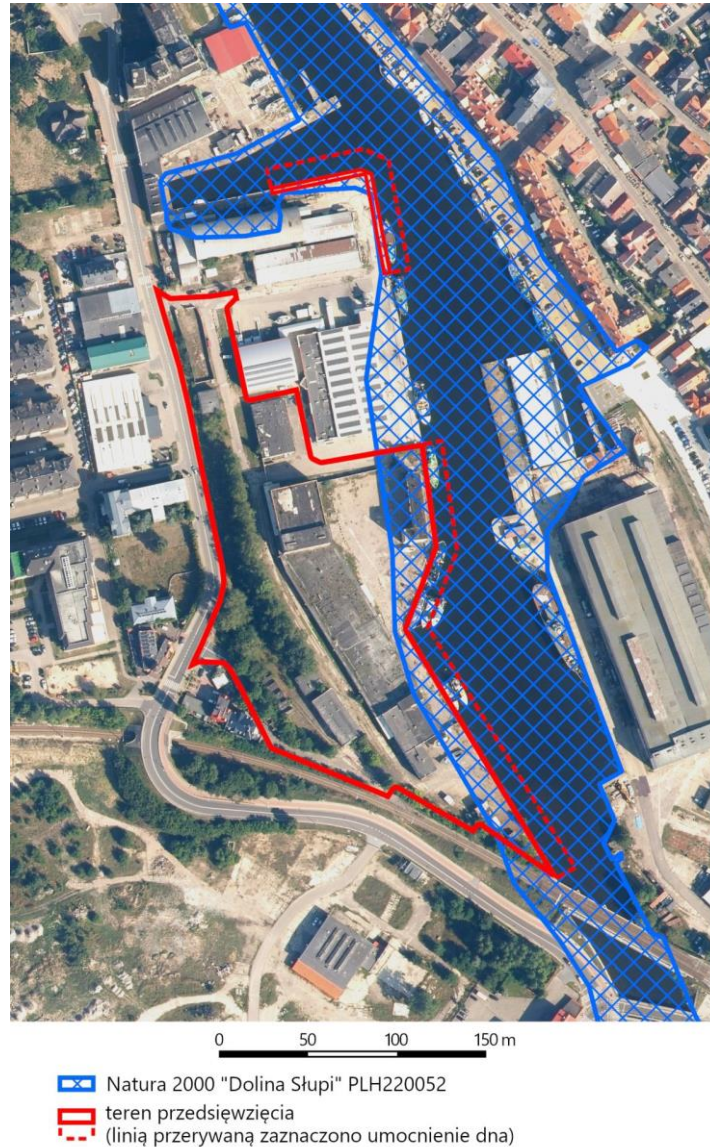


Figure 19. Baltica 2, Forms of environmental protection within the onshore area of the Baltica OWF CI

Base O&M Ustka

The planned Base O&M site which will serve the offshore wind farms (also EWB 1) is located in a small part of the Natura 2000 habitat special protection "Słupia Valley" PLH220052. In addition, about 500 meters to the north, there is the Natura 2000 bird special protection area "Coastal Waters of the Baltic" PLB990002.



Natura 2000 "Dolina Słupi" PLH220052	Natura 2000 "Słupia Valley" PLH220052
teren przedsięwzięcia (linią przerywaną zaznaczono umocnienie dna)	project site (dotted line shows the bottom reinforcement)

Figure 20. Base O&M Ustka, Forms of environmental protection.

3.2 Location of the project in relation Wildlife corridors

Offshore

Ecological corridors do not pass through the Baltica 2 OWF Area. They are not identified within the entire Baltic Sea area. In the spring and autumn

periods, regular bird migrations take place in the Baltic area. Bearing in mind the lack of information about the presence, function and significance of ecological corridors in sea areas, it was conservatively assumed that the value of this resource is average. Taking into account the spatial scale of the Baltica OWF Area with regard to the size of the Baltic Sea sea area, including the increasing effect of space development and taking into account the space free from buildings between Baltica 2 OWF Area and the Baltica 3 OWF Area, it was assessed that the impact of the Baltica OWF Area at the phase of construction and operation will not affect the migration routes of migrating species due to the lack of designation of areas of ecological corridors in marine areas. **Onshore**

The project is located in the Kashubian Coast wildlife corridor (code KPn-20C).

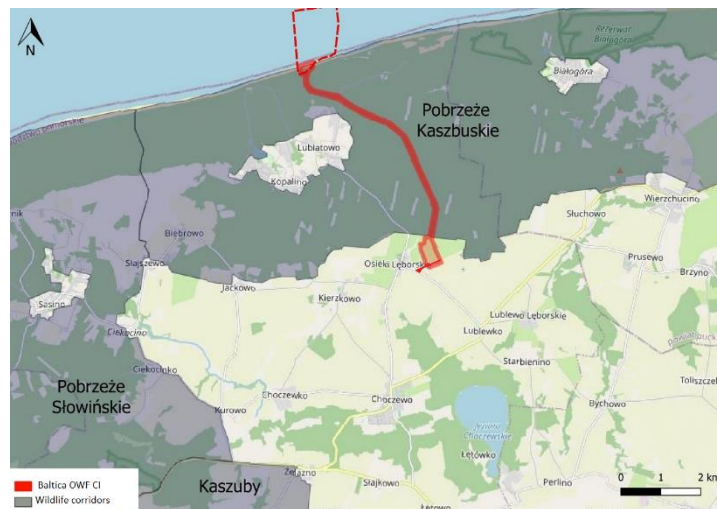


Figure 21. Location of the Baltica OWF CI within the Northern Corridor fragment (KPn)
 [Source: internal materials based on <https://korytarze.pl/mapa/mapa-korytarzy-ekologicznych-w-polsce>]

3.3. Cultural values, monuments and archaeological sites and objects

Offshore

There are no elements of the underwater cultural heritage in the Baltica 2 OWF Area. At a distance of about 10 km east of the Baltica OWF, there is a wreck of the Wilhelm Gustloff which has a status of a war grave. During the geophysical surveys conducted in 2016, 3 unknown wrecks were found in the Baltica OWF Area, two of which were reported as potential elements of the underwater cultural heritage to the Provincial Monument Conservator in Gdańsk.

There are three wrecks in the construction area of the Baltica OWF CI. In the area of the Baltica OWF CI, no conventional warfare agents from the period of either world war have been found so far.

Onshore

The planned project collides with the archaeological site no. AZP 2-37/9, within which the presence of 10 barrows was confirmed, however, the course of the Baltica OWF CI was delineated in a way to avoid the barrows inventoried.

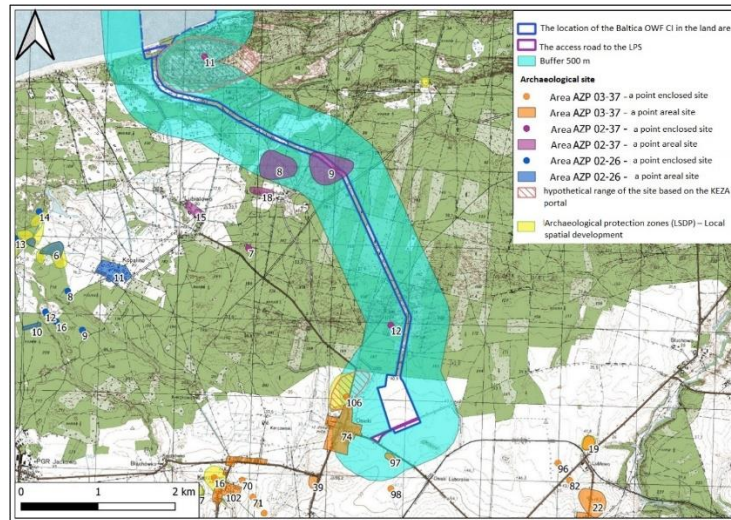


Figure 22. Location of archaeological sites in the area and in the vicinity of the Baltica OWF CI [Source: internal materials based on the data provided by the Pomorskie Voivodeship Heritage Conservation Officer and the LSDP of the Choczewo commune (Resolution No. XIV/145/2008)].

The project has carried out non-invasive surveys and point source investigations along the route of the cable bench in the location of archaeological site 9 which have ruled out the possibility of collision with the barrow burial site.

According to the information obtained, none of the immovable monuments is located within the boundaries of the planned project.

3.4 Resource management

Offshore

The Baltica2 OWF Connection Infrastructure area is used mainly for navigation and fishery. The Baltica 2 OWF Area is characterized by a low degree of use in terms of navigation and is used to a small extent by pleasure craft. The analysis of the catch volume and effort in the area planned for the Baltica 2 OWF show that it is characterized by low fishing productivity and they did not constitute important fishing grounds for commercial species in the Polish Maritime Areas.

Onshore

The project are located in areas mainly composed of forests, arable lands (near customer substation and 400 kV busbar systems, local road (Spacerowa street)), fire break lanes.

In summer, the area is popular with tourists, including a blue tourist trail along Spacerowa street to Wydmy Lubiatowskie Dunes.

3.5 Biodiversity

Offshore

The taxonomic structure of individual groups of organisms surveyed is typical for the offshore area, as indicated by the comparison with other surveyed areas with similar environmental conditions.

Onshore

In the case of the planned project, we have a touristically attractive area, and additionally, an area of increased nature values due to its location within the boundaries of a forest, which is usually characterised by higher biodiversity, as well as the Coastal Protected Landscape Area. The Baltica OWF CI runs across areas of high diversity of habitats and the associated plant, fungi and animal species. The area is also valuable in terms of biodiversity because the planned project is located in the coastal zone; thus, there are many species of Atlantic character, which are encountered in the Gdańsk Pomerania quite commonly, however, in the scale of the entire country they are rare or very rare.

4. Description of the expected environmental effects in the case of a decision not to implement the project, taking into account the available environmental information and scientific knowledge

The abandonment of energy generation from alternative sources with significant capacity (covering more than 7% of the national electricity demand) for several decades would have to be compensated by the use of conventional energy sources of similar capacity, but with emissions of gaseous and particulate pollutants from the combustion of fuels (coal or lignite), the production of about 20% of combustion waste relative to the fuel consumed and, indirectly, environmental changes in fossil fuel recovery regions.

An important premise for the investment is the possibility to avoid emission of hazardous substances into the atmosphere. With a conservative assumption of 40% capacity utilization and 25 years of exploitation an OWF with a capacity of 2550 MW can produce 223.38 TWh/804.168 PJ of electricity, which would avoid the emission of over 80 million Mg of CO₂, over 1 million Mg of SO₂, about 150,000 Mg of nitrogen oxides and over 2 million Mg of dust in lignite-fired power stations.

A delay in implementation in the Polish Exclusive Economic Zone of the concepts proposed by the Polskie Sieci Morskie, which are being merged with the National Power System. In accordance with the adopted provisions, with time the Polskie Sieci Morskie would become able to integrate with the subsea networks of other Baltic countries thus allowing trans-border transfers of electric power. It is of great importance for improvement of the energy security and reliability of the power supply in the northern regions of the country as well as coastal areas of the other Baltic countries. Integration of power transmission systems of the Baltic countries is one of the strategic economic objectives primarily because of the power supply security.

In practice, lack of investments in the offshore wind energy – wind farms, energy cables connecting single power stations with substations will mean that no complex impacts associated with construction, exploitation, decommissioning of the above mentioned OWF elements will occur in the following several decades. This implies also lack of restrictions in use of these sea areas for navigation, fisheries, tourism and possible hydrocarbons exploitation (crude oil and natural gas from under the seabed).

5. Identification and assessment of project impacts

5.1. Construction phase

5.1.1. Impact on geological structure, seabed sediments, access to raw materials and deposits

Offshore

Some works carried out during construction of the OWF will cause local disruption of the seabed structure. These include particularly installation of foundations and laying power cables. Disruptions will be also caused due to anchoring of sailing vessels. Using large-diameter piles, disruption of the seabed structure will be caused by drilling or driving in the foundation pile with a length up to 80 m (depending on field conditions). The driving in or drilling in of the pile causes vibrations, which can cause liquefaction of the surface layer of sandy or mud-loam sediments in a radius of a couple meters from the pile.

The disruption of the seabed structure will also occur during the laying of power cables. The depth of the groove for the cable may reach up to 3 m, and its width up to approx. 3 m.

Activities related to the construction of the project can cause impacts on the geological structure of the seabed and bottom sediments, including: changes in the structure, shape and level of the seabed, disturbances in the geological structure and changes resulting from the disturbance and sedimentation of suspended matter.

The general impact of the project during the construction phase on the geological structure of the seabed was assessed as negligible for the general nature of the seabed and its structure. The changes will be on a relatively small surface area of the seabed.

There were no accumulations of mineral resources found in the Baltica 2 OWF Area, therefore there will be no such impact.

Onshore

In the light of the conducted analysis of the geological conditions, the construction of the OnSS and the transmission line further inland (trench depth - 2 MBGL on average, and in the case of watercourse, road or archaeological site crossings with a trenchless method up to a maximum depth of 5 MBGL) does not pose a risk to the geological structure.

The borehole from the land side will be located behind the landward slope of the dune at a distance of up to several hundred metres inland from the coastline, and will therefore be located outside the coastal zone. As part of the planned project, no construction works nor the location of the construction site or access roads are envisaged on the coastal zone surface. Taking the above into consideration, the project is not anticipated to affect the shaping of the coastal zone dynamics at the construction stage.

As a result of the assessment, only moderate impacts related to wind erosion as well as the contamination with greases and oils along the sections of poorly-developed soils. In the event of oil leaks and spills, potentially the most at risk are the sections of poorly-developed soils on which the new access roads are planned.

5.1.2 Impact on the quality of sea waters and bottom sediments

The Baltica 2 OWF and CI during the construction phase may have an impact on the water and bottom sediments through: release of pollutants and biogenic compounds from sediment into water, pollution of water and sediments with oil derivative substances, pollution of water and sediments with antifouling agents, pollution of water and sediments with accidentally released municipal waste or domestic sewage, pollution of water and sediments with accidentally released chemicals and waste generated during construction.

The significance of the impact of the pollution of water or bottom sediments connected with the OWF construction process in the OWF and CI was assessed as negligible for sea waters and as of low significance for bottom sediments.

Onshore

During the project construction phase, the main causes of surface water contamination may be : runoff of precipitation and snow melt from the construction site, improperly stored construction materials, unsuitable location of the construction site facilities, including improperly prepared plumbing system, chemical substances leaking as a result of machinery or equipment failures.

The scale of the impact is moderate and negligible for the HDD or HDD Intersect section.

The impact on surface and groundwater is assessed as being of low significance.

5.1.3 Impact on the climate, including emission of greenhouse gases and impact significant in terms of adaptation to climate changes, impact on the air quality

Offshore

During the wind farm construction, the increased emission of pollutions entering the atmosphere is expected (including greenhouse gases), which will be related with increased traffic of ships involved in the implementation of the investment.

At the construction phase, the significance of the climatic and greenhouse gases-related impacts of the planned investment will be negligible, as there will be no factors which could have any noticeable impact on their change.

The impact of the planned investment construction on air quality will have a transitory character and will disappear after the works are ceased.

Onshore

During the construction phase of the Baltica 2 CI, an increased emissions and decrease in air quality is expected to be isolated to this phase of the project. There will be periodic local increase in greenhouse gas emissions (movement of vehicles and machinery on site, deforestation, waste generation); periodic increase in energy demand for construction purposes, leading to an indirect increase in greenhouse gas emissions; emission of greenhouse gases indirectly related to the energy consumption of the project, e.g. in connection with the use of energy for the production of materials, transport, etc. The impacts affecting climate will be low.

5.1.4 Impact on the ambient noise

The ambient noise in the area will temporarily increase during the construction phase due to the high volume of vehicles and will be low frequency range. The construction of the underground cable lines, customer substation and 400 kV busbar systems will generate a temporary increase in noise including general construction noise from machinery including bulldozing and digging. The noise will be limited in time, with a local impact range and with the application of minimising measures the impact on the Lubiatowo, will not have a significant negative influence on people's living conditions. The impacts of the planned project will be low.

5.1.5 Impact on nature and protected areas

5.1.5.1 Impact on biotic components

Phytobenthos

The results to the increase in concentration of suspended solids in the water depth are, local nature and they are dependent on the depth and sediment type. They usually do not impact significantly occurrence of phytobenthos but in the case of the OWF Area an impact of suspended solids sedimentation on phytobenthos, which occurs in the region only outside the construction site and in trace amounts, is not probable due to distance between the phytobenthos and the sites where works will be conducted in the seabed, as well as the type of sediments in the constriction area, namely fine- and medium-grained sand.

To sum up, in the OWF Area at the phase of investment construction there may be insignificant impacts on phytobenthos with a negligible scale.

Macrozoobenthos

Analysis of pressure factors on zoobenthos at the construction phase shown that their greatest impact is identified as small in the scale of impact as well as with low value of the resource, which gives us negligible impact significance in total. Concurrent presence of all the above-mentioned impacts will not cause noticeable results which could cause the need to increase the impact significance.

Ichthyofauna

The main impacts on ichthyofauna will be: emission of noise and vibrations, increase in the concentration of suspended matter, release of contaminants and nutrients from the sediment into the water deep, change of habitat, creation of a mechanical barrier.

Ichthyofauna is subject to moderate impact of the investments in the construction phase in the OWF Area due to great significance of a receptor as well as small scale of impact, the assessment of which results from the

impact of noise and vibrations as well as increased suspended matter concentration. It is possible that fish will be spooked by the subsea noise from the direct range of other impacts, which will diminish their significance. Since it is the underwater noise which has the greatest significance, it is assumed that during the construction phase the investment will be characterised by a moderate impact level.

Marine mammals

Marine mammals during the construction stage of the Baltica 2 OWF have been assessed as moderate and may be subject to impacts resulting from: underwater noise, increased suspended matter, pollutants, disturbance, habitat changes and potential vessel breakdown. The underwater noise generated from foundation works was assessed as moderate and is significantly reduced with the use of noise reduction system (e.g. bubble curtain or similar noise reducing measures).

Seabirds

Seabirds are primarily vulnerable to three types of impacts related with construction of the offshore wind farm: loss/change of habitat, collision risk and presence of a barrier effect. Impacts related with the construction and decommissioning phase are similar.

At the construction phase, it may be expected that the birds will be scared away from the works site. The radius of this impact depends both from the bird species and the noise level and the frequency of traffic of water crafts and helicopters. The impact of the wind power station at the construction phase will change with the construction of subsequent structures. Initially, it will be small, with a local character, and then the area from which birds are scared off will gradually increase.

During the construction phase of the Baltica OWF, there can also be impacts on bats resulting from the presence of vessels and gradual spatial development. Therefore there can be a risk of collision with vessels and structural members in the construction area. Moreover, the presence of vessels will result in an increase in noise levels and disturbances resulting from their use of lighting.

The impact on bats during the construction phase will be negative, direct, local, short-term, whereas the significance of this impact was assessed as negligible.

5.1.5.2 Impact on protected areas

Offshore

Due to significant distance of the Baltica OWF from the protected area of the Słowiński National Park, there are no significant impacts on this area, including any element for which it was established to protect, that is biodiversity, resources, creations and components of inanimate nature as well as landscape values of the Park.

The impacts generated during the construction phase of the Baltica OWF CI on the Natura 2000 site *Przybrzeżne wody Bałtyku* (PLB990002) will affect the subjects of protection within this area, i.e. six bird species.

The assessment of the significance of impacts on seabirds - objects of conservation in the Natura 2000 area *Przybrzeżne wody Bałtyckie* has been assessed as: negligible or none.

Onshore

The only protected area across which the cable bed route runs is the Coastal Protected Landscape Area. The OnSSs are located outside the boundaries of that area.

5.1.5.3 Impact on wildlife corridors

In the spring and autumn periods, regular bird migrations take place in the Baltic area. Bearing in mind the lack of information about the presence, function and significance of ecological corridors in sea areas, it was conservatively assumed that the value of this resource is average. Taking into account the spatial scale of the Baltica OWF Area with regard to the

size of the Baltic Sea sea area, including the increasing effect of space development and taking into account the space free from buildings between Baltica 2 OWF Area and the Baltica 3 OWF Area, it was assessed that the impact of the Baltica OWF Area at the phase of construction on the migration routes of migratory species will be negligible.

The construction phase will cause the interruption of the spatial continuity of the Coastal Wildlife Corridor. The implementation of the planned project related to the use of heavy machinery will result in the migration of species to the neighbouring areas. Since the construction works will generally be carried out during daytime, the scaring will result in a slight and short-term limitation of the functionality of wildlife corridors. Breaking the spatial continuity will occur within a negligible area in relation to the entire wildlife corridor, and the felling of trees carried out in appropriate periods will minimise the potential impacts. The impacts of the planned project will be low.

5.1.5.4 Impact on biodiversity

Offshore

Taking into account the nature of impacts during the construction phase of the Baltica 2 OWF and CI and animal species present in the area, including the role played by this area for them, it can be assumed that at this stage of the project there may be a short-term change in the number of species present in the development area.

Individual species may be temporarily scared off to the adjacent areas where they will not be exposed to disturbances. However, such a movement of individuals does not mean a change of biodiversity at the species level. The works carried out will also not lead to changes in the level of ecosystem and genetic diversity. Therefore, the impact of the project on biodiversity was considered insignificant.

Onshore

The crucial impacts of the planned project at the implementation stage in terms of biodiversity will concern: occupation of biologically active areas, occupation of habitats of protected species and natural habitats, noise emissions, which may result in scaring of vulnerable species, transformation of water relations, the permeation of pollutants into water and soil and directly into habitats.

A joint assessment of the planned project implementation stage on biological diversity was carried out and the impact was assessed to be moderate.

Phytobenthos

An analysis of the literature on the subject has shown that there are 2 factors potentially affecting phytobenthos during the project construction phase: change in the substrate structure, redistribution of nutrients and contaminants from sediments to the water depth.

The assessment of the significance of impacts on phytobenthos has been determined as: moderate, negligible.

Macrozoobenthos

Two factors were identified which could potentially affect the zoobenthos during the construction phase of the Baltica OWF CI: disturbance of the seabed sediment structure, redistribution of pollutants from sediments into the water column.

The assessment of the significance of impacts on macrozoobenthos has been determined as: insignificant, negligible.

Ichthyofauna

During the construction phase, negative impact on the ichthyofauna biodiversity can be expected (reduction of the number of species present in the area). It can be assumed that it will mainly result from the avoidance of the area during cable laying works. The noise associated with the process (increased ship traffic, operation of cable laying equipment) may deter particularly the fish with a low reaction threshold such as the clupeids and cod. Area avoidance may also be associated with an increase in suspended

solids concentration. However, for both of these factors, the negative impact will be local and short-term, directly related to the area where the work front is focused at a given time.

Seabirds

The analysis of activities planned during the construction phase showed that the main potential sources of impact on seabirds present in the Baltica OWF CI will be: bird disturbance due to vessel traffic, disturbance of fish that constitute food for piscivorous birds due to noise and vibration from vessels and equipment, reduction of feeding areas of benthivorous birds (due to destruction of benthic communities, disturbance of feeding activity of piscivorous birds and benthivorous birds due to water turbidity and sediment re-suspension.

The sensitivity of benthivorous birds to this impact, in the context of poor food supply (macrozoobenthos) in the Baltica OWF CI construction area, was assessed as irrelevant.

This project's impact on biodiversity can be assessed as low.

Marine mammals

A potential negative impact of the project on marine mammals is the temporary exclusion of the area from use as a result of deterrence by the noise generated. This impact was assessed to be low.

5.1.5.5 Impact on cultural values, monuments and archaeological sites and facilities

Offshore

It was concluded that all the potential impacts of the Baltica OWF on the possible Stone Age relics will be insignificant with an exception of the impact associated with installation of pile foundations, the impact of which has been assessed as of little importance.

No shipwrecks of historical significance have been identified in the offshore part of the Baltica OWF CI area. Consequently, the Baltica OWF CI will have no impact on cultural values, monuments and archaeological sites and objects during the construction phase.

Onshore

Most planned works will take place at a certain distance from historic objects – the nearest historic objects are located at a distance of 255–265 m west of the boundary of the planned access road to the OnSS. Due to a large distance, the planned project will not pose a direct risk to any of the historic properties.

5.1.5.6 Impact on the use and development of the water region and on tangible property

During the Baltica 2 OWF and CI construction phase, the impact on the use and development of the sea area will result almost exclusively from the establishment by the Director of the Maritime Office in Gdynia, of the protection zone for the cable lines within which restrictions will apply to protect the subsea cables from damage or destruction. Out of the existing uses of the sea area, the safety zone will limit fishing activities in terms of the use of demersal fishing gear.

Limitations resulting from the gradual exclusion from the Baltica 2 OWF and CI area previous use will have the greatest impact on fishing, including as the area of fishing, as well as the necessity to extend the routes to other fishing grounds.

Taking into account the fact that the previous use of the Baltica 2 OWF and CI area for fishing activities was small and that this activity can be carried out in neighboring water regions.

5.1.5.7 Impact on landscape, including the cultural landscape

Offshore

In the Baltica OWF CI construction phase, the potential impact of the project on the landscape, including cultural landscape, may result exclusively from the presence of vessels involved in the installation of cable lines.

However, their presence is not expected to change the landscape, as the Baltica OWF CI construction area is intensively used by the transport fleet sailing to and from the ports of Gdynia and Gdańsk, as well as fishing and recreational vessels.

Onshore

During the Baltic OWF CI construction phase, negative visual impacts will occur which will be associated with earthworks (excavations, levelling), the storage of mechanised equipment and construction materials, the traffic of vehicles and machinery, including the transport of oversized elements and the erection of station equipment in an agricultural landscape characterised by low levels of investment. Such impacts will occur mainly in the location of works connected to the implementation of a borehole and in the OnSS construction area.

5.1.5.8 Impact on population, health and living conditions of people

During the project construction, impact on human health may potentially occur. In this context, the aerosanitary conditions and the acoustic climate in the project surroundings are of key significance. These impacts will be related mainly to vehicle traffic, exhaust emissions, dust from roads as well as noise. However, they will be limited to the project area and will occur with varied intensity during the period of works, and will cease thereafter. A joint assessment of the planned project implementation stage on population, health and living conditions of people was carried out and the impact was assessed to be moderate.

5.1.5.9. Impacts on livelihood and land take requirements.

Offshore

The construction of the Baltica 2 OWF has multidimensional impacts on fishermen fishing in the area and the local community. Although the Baltic OWF area is not a key fishing location in the Baltic Sea (most ships only pass through the area and do not fish in it), it accounts for a certain percentage of catches for vessels registered in ports such as Ustka and Leba. Although the Baltica OWF area has not been a key fishing area, its potential closure will affect the extension of the route to other fishing areas for fishing vessels, especially from the port of Leba (and to some extent Ustka). The construction of the Baltic offshore wind farm may affect fishermen by extending routes to major fishing areas and potentially increasing operating costs. However, the main factor affecting them is the current state of fish stocks and the imposed ban on cod fishing.

Onshore

CI Line

All land for the underground connection from the beach to the Baltica sub-station and the sub-station itself is secured and available for construction purposes.

Land between the beach and the sub-station, where the underground connection lines will be built, is public forest land. No landowner or land user was affected.

Land for the Baltica 2 sub-station was acquired from a private landowner residing in the neighboring community. Land was used for agricultural purposes directly by the landowner (growing Christmas trees). The expropriation process was not triggered as it was possible to negotiate terms agreeable to both parties. Compensation has been entirely paid by the Project.

Backup power line

In 2022, the Land Acquisition Strategy was developed for the 15 kV medium voltage (MV) backup power lines of the Land Transformer Stations (LST) for OWF Baltica-2 and OWF Baltica -3. The Strategy assumed that properties needed for the realization of this line would be acquired voluntarily. Unfortunately, an agreement with property owners regarding the terms for establishing

transmission easements and compensation for the establishment of these easements could not be reached.

Consequently, it was decided to obtain the legal title to the properties on the basis of Article 5(1) and (2), Article 8 and Article 25, in conjunction with Article 3a, of the Act of 24 July 2015 on the preparation and implementation of strategic investments in transmission networks (Dz.U. of 2023, item 1680 as amended), (the right to enter the property for the purpose of carrying out the construction of a strategic investment in the transmission network, as well as works related to the construction, alteration, maintenance, operation, maintenance, repair and troubleshooting of lines, conductors and equipment). The developer has taken establishing transmission easements rights over the land on which the backup power line will be laid. After the construction phase, the land will continue to be used by the current owners.

Impacts on local communities.

The investment involving the construction of medium voltage cable lines (15 kV) for the backup power supply of Land Transformer Stations in the Choczewo Municipality will not have significant impacts on the affected property owners (PAP) and no impacts on their income or livelihood. The occupation of plots for the duration of the construction will be minimal and located at the edges of the plots, which allows for the practically entire plot to be used in the usual way. There are no assets or structures on the occupied parts of the plots. The developer received the decision in issue with regard to the medium-voltage power back-up cable line on 20.09.2023. The estimated width of occupation of the lane for excavation works (trenches/cable trenches) will be approximately 1m. After the completion of the works, the plots will be able to be used as before the start of the investment. Thanks to the preventive and minimizing actions taken, the investment will have no impact on the livelihood of PAP (People Affected by the Project). Regardless of the minimizing and preventive actions taken, due to the occupation of properties, the owners will be entitled to adequate compensation determined by an independent authority (the governor) based on the opinion of an expert appraiser. The procedures for determining the amount of compensation, provided in the regulations and described in the property acquisition strategy, ensure that the compensation process is fair and transparent.

5.2 Operation phase - Offshore

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

Offshore

Changes within the seabed associated with the impact of the project during the operation phase will be of a local nature and, within the entire area occupied by the project site, insignificant for the overall seabed character and its structure.

5.2.2 Impact on the dynamics of sea waters

As a result of the presence of structural elements of the Baltica 2 OWF, water flow rates and directions as well as water pressure in the immediate vicinity of each structure can change, which will manifest itself in a local increase in water flow velocity due to narrowing of the flow stream and formation of whirlpools around the structure. This means that overlapping of these impacts should not be expected and disturbances will be only local. The resulting modifications of the wave motion can be noticed only in the close vicinity of individual offshore wind turbines.

5.2.3 Impact on the quality of sea waters and bottom sediments

It was found that during its operation phase, the Baltica OWF CI may cause two types of impacts on the receptors discussed (water and seabed sediments). The heat emission around the Baltica 2 OWF cables in the sediment will be local and the effect will be imperceptible, which is compliant with the

technical assumptions of the project for inner array power cables to be buried at a depth of up to 3 m.

The impact significance in the exploitation phase for sea waters and bottom sediments was determined as negligible.

5.2.4 Impact on the climate, including emission of greenhouse gases and impact significant in terms of adaptation to climate changes, impact on the air (atmospheric purity)

The environmental impact assessment of the cable lines during the operation phase was conducted while taking into account the following receptors (environmental components):

- in terms of the impact on climatic conditions:
 - greenhouse gas emissions,
 - change in physical parameters of the near-water atmosphere layer (i.a. increase in air temperature, change in wind conditions),
 - change in dynamic conditions of the sea (i.a. wave motion, water flow),
 - change in hydro-physical conditions of the sea (i.a. increase in water temperature, change in salinity);
 - air quality deterioration (increase in particulate and gaseous pollutant concentrations).
 -

The assessment of the significance of impacts on climatic conditions and air quality of the marine environment has been determined to be negligible.

5.2.5 Impact on ambient noise

Offshore

Cables used for energy transmission, buried in the seabed, will not generate noise. Periodic maintenance and repair of the cable, requiring activities similar to those described in detail for the construction phase, will be limited to a smaller area and will be temporary in nature. The impact of ambient noise in the operation phase will be negligible.

5.2.6 Impact on systems using EM field

It is evident from the operation of other OWFs to date that the operation of wind turbines and certain types of tower structures can adversely affect the operation of marine and land-based aids to navigation or other applications. The developer has developed the necessary expertise and adjusted the solutions used in the project that will not cause interference with the EM field.

5.2.7 Impact on nature and protected areas

5.2.7.1 Impact on biotic components in offshore area

Phytobenthos

During the operation phase, support structures of wind turbines and accompanying infrastructure located under the water surface in the euphotic zone can be overgrown by macroalgae. Despite the fact that phytobenthos does not occur in the area of the planned OWF, macroalgae spores may appear in this area due to various natural and anthropogenic factors.

Locally and in the long term, the functioning of the marine ecosystem will be changed, for which the anthropogenic factor will be responsible. The significance of the impact was considered positive and moderate.

Macrozoobenthos

The operation of the Baltica 2 OWF and CI will cause the following impacts on macrozoobenthos: loss of a fragment of the habitat, artificial reef effect. The main impact in this phase of project implementation will be the loss of a fragment of macrozoobenthos habitat. The seabed development will eliminate biological life from the seabed surface, in the worst case scenario it will be occupied by the monopal (12,5m), including a scour-protection layer. The loss of a part of the habitat is a negative impact occurring during the operation phase.

Once the support structures are introduced into the environment, taking into account the high reproductive potential of zoobenthos, the colonization of artificial hard substrates by animal periphyton communities, as well as mobile epifauna – the so-called artificial reef effect, should be expected here. This artificial reef will partially compensate for the destroyed macrozoobenthos complex occurring there before human interference with the environment.

Ichthyofauna

Cable vibration resulting from AC current flow is associated with sound emissions. Emission of noise and vibrations generated during the operation of the transmission infrastructure may directly and negatively affect the ichthyofauna. These impacts will be of negative, direct, local and permanent nature.

An electric current flowing through a conductor induces a magnetic field, the intensity of which depends on the current intensity.

The technical solutions used in the planned project practically enable elimination of the effects of magnetic field on fish. The impact related to the emission of EMF will be negative, direct, local and long-term.

The species sensitivity to the impact was assessed to be irrelevant for all the fish species examined. The significance of the impact is assessed as negligible for all the fish species examined.

Marine mammals

A potential negative impact of the project in the operation phase, which may affect marine mammals, is the disturbance from the noise generated by ships and underwater equipment used during system maintenance. However, due to the local and short-term nature of this impact, the lack of evidence as to the importance of this area for particular marine mammal species and the sporadic occurrence of such species in the project area, this impact will be no greater than during the construction phase.

During construction phase passive acoustic monitoring of porpoises will be conducted as a mitigation measure to check and confirm presence or absence of porpoises in vicinity of piling area. This Marine Mammal Mitigation Plan (MMMP) should be prepared for 3 months before construction phase. MMMP will include design array for acoustics detectors, and their technical specification.

The plan will contain:

- The management zones for acoustic detections, and defined mitigation zones for marine mammals
- The pre-piling search/detection procedure, including definitions of timing for searches, and actions for delay-start, if required.
- The soft-start/ramp up procedure, including actions to cease piling if practicable should a marine mammal be detected in the pre-defined mitigation zone, or at minimum, to not increase power until the marine mammal exits the mitigation zone
- The full power procedure, including marine mammal detection recording forms throughout the duration of piling activities. If there is a break in piling operations for a pre-defined period of time, the pre-piling search/detection procedure is repeated before recommencement of the soft-start and full power procedure.
- Timing, including seasonal restrictions for piling activities, where applicable.
- Software calibration, communications procedures between the rPAM (remote Passive Acoustic Monitoring) observer and the installation vessel
- Monitoring and reporting protocols, including definitions of corrective actions if required.

Seabirds -OWF Area

A potential impact of wind power stations located in high sea areas on seabirds regards an increased mortality as a result of collisions with offshore wind power stations as well as distribution and behavioural changes.

During the operation phase of the Baltica OWF, the impacts on migratory birds will result from two elements, i.e. the barrier effect and risk of collision with the OWF structures. Due to the largest assumed occupation of space above the Baltica 2 OWF Area, the size of these impacts will be higher than in the construction phase.

The significance of the impact scale of the barrier effect was assessed for all migratory bird species as negligible or low.

The most important impacts on seabirds during the operation phase include:

- vessel traffic,
- scaring away and displacement from the habitat,
- creation of a barrier,
- collisions with wind turbines,
- creation of an artificial reef
- creation of a closed water region.

The Project will use a bird monitoring system which includes radar with range coverage of the entire Baltica 2 OWF and day/night cameras, which will cover all perimeters of the OWF. The system will use software to identify approaching birds. Specific conditions/thresholds for activating shutdown (e.g. bird species, flock size, flight trajectory etc.) will be prepared and agreed by the Project, LIESC and Lenders. The trigger for creation of the shutdown system criteria will be a material increase in collisions, compared with results of modelled collisions, for species indicated as Critical Habitat/Priority Biodiversity Features in CHA. Details of the system including the criteria/thresholds for system shutdown/slowdown will be detailed and implemented via Biodiversity Management Plan which shall not be in contradiction with the requirements imposed by the Environmental Authority. This detailed description will *inter alia* include parameters of bird (species, size of flock, conservation status status) and parameters of shut down/slow down (to which speed).

Each shutdown/slowdown event triggered by the BMP requirements (shutdown/slowdown parameters met) must be subject to prompt reporting to Lenders. In the event shutdown/slowdown criteria in the BMP are triggered, and shutdown/slowdown is **not** activated potentially resulting in bird collisions, such a failure will be considered an incident and shall be reported to Lenders, in accordance with the requirements outlined in the CTA, and to the Environmental Authority, along with a brief explanation for the failure to activate a shutdown/slowdown. Lenders at their sole discretion will have the right to request a more detailed investigation and/or preparation of a Corrective Action Plan (CAP) in the event of each material incident.

5.2.7.2 Impact on protected areas

Due to significant distance of the Baltica OWF from the protected area of the Słowiński National Park, similarly to the construction phase, in the exploitation phase there are no significant impacts on this area, including any element for which it was established to protect, that is biodiversity, resources, creations and components of inanimate nature as well as landscape values of the Park.

5.2.8 Impact on wildlife corridors

Given the same presumptions in the scope of knowledge on ecological corridors in marine areas as well as taking into account the spatial scale of the Baltica OWF Area with regard to the size of the Baltic Sea sea area, including the constant effect of area development and taking into account the space free from buildings between the Baltica 2 Area and the Baltica 3 Area, it was assessed that, similarly to the impact of the Baltica OWF at the phase of construction, at the exploitation phase on the migration routes of migratory species will be negligible.

5.2.9 Impact on biodiversity

The significance of the investment impact in the exploitation phase on biodiversity is of little importance, because the biodiversity is a resource with a large significance, and the scale of impacts is negligible –local impacts in the Baltic Sea scale.

Phytobenthos

From the two analysed pressure factors on phytobenthos, in the exploitation phase, only the structure overgrowth was taken into account during impact assessment on this element of the environment. There will be no loss of phytobenthos habitat, because no habitat exists in the area of construction. Possible overgrowth of support structures by allochthonic species –not present earlier in the OWF Area due to the seabed depths greater than 20 m and sporadic presence of stony seabeds –as well as autochthonic species –present on cobbles and boulders distributed on seabed outside the line of construction in the OWF Area will be insignificant and its scale will be negligible.

Macrozoobenthos

Analysis of pressure factors on zoobenthos at the exploitation phase shown that the “Construction over the seabed” impact will be negligible due to negligible scale of impact as well as the small significance of the resource. In turn, the impact resulting from the presence of artificial hard substrates in the environment will have a twofold character: positive –because it will increase zoobenthos resources locally, and negative –because it will cause the appearance of an alien hard substrate in the regions with naturally present fragments of sandy seabed habitats..

Ichthyofauna

Noise and vibrations emissions generated during OWF exploitation may directly and negatively affect ichthyofauna.

For all analysed species their resistance to noise and vibration at the All analysed species are characterised by high resistance to PEM impacts in the exploitation phase.

Marine mammals

The exploitation phase may cause certain disturbances that impact porpoises in the Baltica OWF Area, the disturbance will be very limited both temporally and spatially. Sensitivity of porpoise to factors present during wind farm exploitation is generally very low, and effects caused by these factors are largely negligible.

Sensitivity of grey and harbour seals to multiple impacts is very similar to the sensitivity of porpoises. There is an additional possibility of masking, because seals generate vibrations with a small frequency in the scope where offshore wind farms generate noise. This impact will be low on the one hand from a relatively small noise level and on the other hand due to a very low number of seals in the survey area Visual effects may be more important of seals compared to porpoises.

Seabirds

A majority of impacts of offshore wind farm in the exploitation phase on seabirds are of a negative character due to disturbing birds and limiting their access to food supply. A strong scaring effect significantly reduces the risk of collision with power stations. The avoidance of the area taken up by a working farm by seabirds accounts for the fact that positive impacts in the exploitation phase will be of little significance.

5.2.10 Impact on cultural values, monuments and archaeological sites and facilities

Given the fact that in the Baltica OWF Area there are no significant impacts on objects of great significance for the protection of cultural heritage from the Stone Age, there is no justification for indicating monitoring activities in this scope.

5.2.11 Impact on the use and development of the water region and on tangible property

During the exploitation of the Baltica OWF, this sea area will, for safety reasons, be excluded from regular sailing.

Traffic of the remaining water crafts (fishing, research of tourism) may be approved depending on the distribution of offshore wind power stations, under the conditions agreed upon with the investors. Decisions in the scope of admission of water crafts other than the ones that service the OWF for sailing in the Baltica OWF Area are made by relevant maritime administration entities. The presence of ships that support the farms will be allowed. An increased traffic of these ships will mean hindrances in ship traffic on a route located southwards from the OWF.

After implementation of the linear investments (electricity and teletechnical grids) in the area, the use of certain fishing equipment or emergency anchoring of ships on the route southwards from the Baltica OWF Area may cause the infrastructure elements to be disrupted.

Fishery is subject to a negligible impact of the investment in the OWF Area due to small significance of the receptor and small scale of impact.

5.2.13 Impact on population, health and living conditions of people

In the phase of exploitation, the OWF which is in 23 kilometres from the coast will not exert any onshore impacts, such as the effect of rotor blades spinning, light shimmering or noise since they take place only near the working constructions and their scope does not reach the land. Offshore structures will be painted and marked, as well as properly lit at night in order to provide marine and aerial safety.

The impact was assessed as negligible, though it varies with respect to the observer's distance from OWF. The scale of spatial impact will be huge, it will decrease along with the distance from the OWF, it will be a long-time but reversible change. Onshore, the top parts of OWF may be occasionally visible

5.3 Operation phase - onshore

5.3.1 Impact on geological structure, coastal zone, soils, and access to raw materials and deposits

During the operation phase, there will be no impact of the planned project in the Connection Infrastruction on the topography and dynamics of the coastal zone.

5.3.2 Impact on geological structure

In the operation phase of the planned project, no impacts which may adversely affect the geological structure are anticipated.

5.3.3 Impact on the topography and dynamics of the coastal zone

On the basis of the analyses conducted it was found that in the next 30 years, the seashore in the area of the project will be in a dynamic equilibrium, i.e. erosion and accumulation processes will alternate seasonally. As part of the implementation of the project, which will involve, among others, tree felling within the dune strip with a width of 68 m as well as making an excavation for cables, the initiation of aeolian processes that could affect the dynamic nature of the dune areas and the adjacent *Wydmu Lubiatowskie* dunes is not expected.

5.3.4 Impact on soils

The main source of the project impact on soils at the operation stage will be the emission of heat from the cable lines to the ground.

The operation of the project will result in an increase of soil temperature in the immediate vicinity of the cable lines, which in turn will affect soil overdrying. The spatial range of this impact is usually up to several metres from the source, so the impact of such emissions on the surrounding environment will be local. It is worth emphasising, however, that power cable burial is also the most effective way of minimising the environmental impact of the temperatures and electromagnetic fields they generate.

5.3.5 Impact on the access to raw materials and deposits

In the operation phase, the Baltica OWF CI will not hinder access to the currently documented deposits of raw materials, but it should be noted that the currently conducted exploration works for hydrocarbon deposits, which also include the area of the planned project, may reveal the existence of a deposit. Unfortunately, such impact cannot be assessed at this stage, as the exploration works will continue until 2024 or longer.

5.3.6 Impact on the quality of surface waters

During normal operation of the system, no impact of the planned project on the quality of surface waters is anticipated, as there are no watercourses within the boundaries of the planned project, except for an agricultural drainage ditch that crosses the cable bed area but dries up in the summer. At the stage of operation, no impact of the project on that ditch is anticipated.

5.3.7 Impact on hydrogeological conditions and groundwater

No negative impact is expected on the groundwater bodies occurring in the survey area, i.e. GWB 13 (PLGW240013) in the northern and central part of the project and GWB 11 (PLGW240011) in the southern part of the project. The status assessment for 2012 for both GWBs indicated good chemical, quantitative and general statuses.

5.3.8 Impact on climate, including greenhouse gas emissions and impacts relevant for adaptation to climate change, impact on atmospheric air (air quality)

During the project operation, service roads intended for the movement of cable inspection vehicles and for possible repairs as well as the access road to the OnSS are to be used. The impact from fuel emissions from transport vehicles was assessed to be negligible.

5.3.9 Impact on ambient noise

A potential source of noise to the surrounding area could be the OnSS for which modelling of noise emissions during the operational phase has been carried out. The calculations conducted for the noise levels show that the night-time (40 dB) and daytime (50 dB) noise limits set out for single-family development will not be exceeded at any monitoring point at the boundary of the existing and potential residential developments.

5.3.10 Electromagnetic field impact

Calculations of the distribution of the magnetic field generated by the cable bed area supplying power to the OnSS have shown that in each of the solutions adopted - assuming the maximum load current of each cable line for the purpose of calculations - the value of the field intensity will not exceed the permissible value set out in the regulations for places accessible to people.

5.3.11 Impact on nature and protected areas

At the stage of cable bed operation, a fairly wide (Baltica CI 38 m) deforested area with up to three service roads will be visible in the landscape subject to protection within the Coastal Protected Landscape Area. The remaining operation phase impacts will concern vegetation, fungi and animals. Individual impacts and their effects at the operation stage were assessed as low.

5.3.11.1 Impact on biotic elements in the onshore area

Fungi, Lichens, Mosses and liverworts

In the project operation phase, potential impacts on the fungal biota may be related to: the change of habitat conditions due to the location of the cable connection and the surface area of land occupied; service works as well as local damage to the top layer of the soil and habitats. The significance of these impacts will be low or moderate importance.

Vascular plant and natural habitats

In the project operation phase, potential impacts on vascular plants and natural habitats may be associated with the change of habitat conditions as well as damage to the top layer of the soil and habitats during service works. The significance of these impacts will be low or moderate.

Forrest complexes

The underground cable line route will involve permanent tree-felling within the permanent technical belt - covering a approximately of 25 ha. Permanent deforestation will have a local scope. The impacts of the planned project connected to tree-felling will have important significance.

Invertebrates

During the project operation phase the potential impacts on the fauna of invertebrates may involve the destruction of habitats and microhabitats as a result of maintenance works. The significance of these impacts will be low.

Ichthyofauna

The planned project will have no impact on ichthyofauna.

Herpetofauna

In the project operation phase, the potential impacts on the herpetofauna may involve the amphibian habitat fragmentation in the wintering area, collision of service vehicles with amphibians during their migration from and to wintering grounds, reptile habitat fragmentation in ecotone habitats (at the forest edge by the OnSS and near the drilling site in the nearshore zone) as a result of service works. The significance of these impacts will be low or negligible.

Birds

In the long-term, the project involving the construction of underground cable line will not have a negative impact on birds including breeding species, wintering species as well as migrating species. These will be moderate impacts of a local scale.

During the operation phase of the 400 kV busbar systems connecting the customer substation with the PSE substation, significant negative impacts may occur.

Mammals

During the project operation phase the potential impacts on mammals may involve:

- Habitat fragmentation - assessment of the impact significance :important
- Lighting of buildings and infrastructure elements- assessment of the impact significance :important
- Noise from substation equipment operation- assessment of the impact significance :low
- Collisions with vehicles, unintentional killing and disturbance of animals- assessment of the impact significance : Negligible

5.3.11.2 Impact on protected areas

At the stage of cable bed operation, a fairly wide (CI 38 m) deforested area with up to three service roads will be visible in the landscape subject to protection within the Coastal Protected Landscape Area.

A joint assessment of the planned project operation stage on the Coastal Protected Landscape Area was carried out and the impact was assessed as low. The OnSS and 400 kV busbar systems are located outside the boundary of the Coastal Protected Landscape Area.

5.3.11.2.1 Impact on protected areas other than Natura 2000 sites

During the project operation, there will be no impacts that could directly affect the Natura 2000 sites. Although the functionality of the Coastal Wildlife Corridor connecting the Natura 2000 sites Białogóra PLH220003 and Mierzeja Sarbska PLH220018 will be disrupted as a result of forest clearing for the purpose the cable bed implementation, this corridor is not considered significant for the subjects of protection of these Natura 2000 sites.

5.3.11.2.2 Impact on Natura 2000 sites

During the project operation, there will be no impacts that could directly affect the Natura 2000 sites. Although the functionality of the Coastal Wildlife Corridor connecting the Natura 2000 sites *Białogóra* PLH220003 and *Mierzeja Sarbska* PLH220018 will be disrupted as a result of forest clearing for the purpose the cable bed implementation, this corridor is not considered significant for the subjects of protection of these Natura 2000 sites. As a result of an appropriate management of the cable bed area, the coherence and integrity of the Natura 2000 network will not be compromised.

5.3.11.3 Impact on wildlife corridors

The scale of the impact on the ecological corridors has been assessed as moderate.

5.3.11.4 Impact on biodiversity

A joint assessment of the planned project implementation stage on biological diversity was carried out and the impact was assessed to be moderate.

5.3.11.5 Impact on cultural values, monuments and archaeological sites and features

No negative impact of the planned project on historical features (immovable monuments and archaeological sites) is predicted at the stage of project operation.

5.3.11.7 Impact on the landscape, including the cultural landscape

In the operation phase, the planned project will not affect the cultural values, monuments, archaeological sites or objects.

5.3.11.8 impact on population, health and living conditions of people

The most important nuisances related to the functioning of the project discussed involve emission of heat, noise and electromagnetic radiation from the underground cable lines and the 400 kV busbar systems. In the OPA, the planned project will not result in the deterioration of the environmental living conditions for humans, and its operation will improve the living conditions of the inhabitants in terms of power supply for domestic and commercial needs. These will be moderate impacts.

5.4. Decommissioning phase

The environmental impact of decommissioning the project has been discussed in detail by the developer in the environmental impact assessment report.

It should also be taken into account that the period associated with the preparation of the investment and its subsequent operation will be approximately 35-40 years. During such a long period of time there will be a very significant technological development, which will enable the investor to apply modern technologies in the decommissioning phase. The use of modern technology will also certainly make it possible to reduce the environmental impact. The environmental impact of the decommissioning phase of the project

is expected to be less than or similar to that assessed in the Environmental Impact Assessment Report.

5.5. Reasonable alternative variant

5.5.1. Reasonable alternative variant Baltica 2 OWF

The rational alternative variant has been chosen as a variant based on the existing technologies, currently used and available on the market on an industrial scale. Therefore, the capacity of wind power stations has been assumed at about 8 MW, which means a maximum of 319 wind turbines with a maximum foundation diameter of 35 m. This applies to the same OWF's built-up area as in the case of the Applicant's variant, but due to a larger number of the planned wind power stations it will require a different layout within the area. This variant allows the implementation of the project in the assumed maximum installed capacity of the OWF, although in accordance with the further analyses, this variant has a greater negative impact on the environment than the Applicant's variant. Similarly as in the case of the variant proposed by the Applicant, the employment of wind power stations of various types, capacities and foundations has been allowed. The development of EGIA and EGMMIA will be the same for both the rational alternative and the Applicant's variants.

5.5.2. Reasonable alternative variant Baltica 2 connection infrastructure

Reasonable alternative variant Baltica 2 OWF.

The rational alternative variant has been chosen as a variant based on the existing technologies, currently used and available on the market on an industrial scale. Therefore, the capacity of wind power stations has been assumed at about 8 MW, which means a maximum of 319 wind turbines with a maximum foundation diameter of 35 m. This applies to the same OWF's built-up area as in the case of the Applicant's variant, but due to a larger number of the planned wind power stations it will require a different layout within the area. This variant allows the implementation of the project in the assumed maximum installed capacity of the OWF, although in accordance with the further analyses, this variant has a greater negative impact on the environment than the Applicant's variant. Similarly as in the case of the variant proposed by the Applicant, the employment of wind power stations of various types, capacities and foundations has been allowed. The development of EGIA and EGMMIA will be the same for both the rational alternative and the Applicant's variants.

Reasonable alternative variant Baltica 2 connection infrastructure.

Compared with the APV, the Rational Alternative Variant differs in the maximum number of cable lines planned to be constructed in the offshore and onshore areas. In the offshore area, this will be directly related to the potentially larger area of the seabed covered by underwater works and the volumes of seabed sediments disturbed during the construction of the cable lines. These potential differences are not expected to affect the assessment of the impact scale. Taking into account the same sensitivity of the receptors (environmental components affected by the impacts), it can be assumed that the impacts of the Baltica OWF CI in the RAV will be the same as in the APV. In the case of the onshore section, the width of the cable bed crossing the forest area will be the same as for the APV, about 38m. Similarly, there will be no changes to the location and size of the OnSS nor to the location and parameters of the access road to the OnSS. Therefore, most of the impacts of the Baltica OWF CI in both variants will be the same.

- FEW Baltic II OWF (350MW, 44 WTGs),
- OWF BC-WIND (500MW, 41 WTGs),

The establishment of wind farms results in the development of line infrastructure. In the immediate vicinity of the area designated for the investment, the construction of the offshore connection infrastructure is planned, thanks to which it will be possible to transmit the electricity generated by offshore wind farms to the National Power System (mainly power cables, as well as telecommunication and teletechnical cables). For the Baltica offshore wind farm south of the farm area the construction of offshore and onshore connection infrastructure is planned, for which the investor obtained an environmental decision.

6.1.2. Offshore Baltica CI Area

In addition, environmental decisions for four offshore wind farm connections were included:

- Decision on environmental conditions for the project entitled: 'Offshore Baltica B-2 and B-3 Connection Infrastructure'
- Decision on environmental conditions for the project entitled: "Connection infrastructure of offshore wind farm Baltic Power"
- Decision on environmental conditions for the project entitled: "Construction of the Connection Infrastructure of FEW BALTIC II"
- Decision on environmental conditions for the project entitled: Connection infrastructure of offshore wind farms FEW Bałtyk II and FEW Bałtyk III" .

An administrative procedure is underway for the following projects (as of December 2023):

- Construction of offshore wind farm OWF Bałtyk I
- Offshore Wind Farm Baltica 1
- Connection infrastructure for offshore wind farm Baltica 1
- Offshore wind farm Baltica 1+
- BC-Wind offshore wind farm electricity connection infrastructure to the National Electricity System .

6.1.3. Onshore Baltica CI Area

In addition, environmental decisions for four offshore wind farm connections were included:

- Decision on environmental conditions for the project entitled: 'Offshore Baltica B-2 and B-3 Connection Infrastructure'.
- Decision on environmental conditions for the project entitled: "Connection infrastructure of offshore wind farm Baltic Power"

An administrative procedure is underway for the following projects (as of December 2023):

- Offshore Wind Farm Baltica 1
- Connection infrastructure for offshore wind farm Baltica 1
- Offshore wind farm Baltica 1+
- BC-Wind offshore wind farm electricity connection infrastructure to the National Electricity System [application for environmental decision.

6.2 Types of impacts that may cause cumulative impacts

6.2.1. Offshore Baltica OWF area

The cumulative impact of the Baltica OWF and other offshore wind farms may occur if actions generating similar impact are carried out simultaneously. In the case of impacts that are classified as temporary, the cases of simultaneous execution of the same actions by different Investors should be considered as rare. Also, the impacts that have been identified as local will not result in cumulative impact, as in most cases their range will be limited to the built-up area of the Baltica OWF.

Therefore, the Baltica OWF's impacts, which may generate a cumulative impact with other projects, include impacts that are at least medium-term and their range extends beyond the built-up area of the Baltica OWF, i.e.:

- space disturbances, including: barriers restricting the free movement of birds and the displacement of birds from their habitats, disturbances in the landscape and disturbances in radar work as well as restrictions on fishing;
- underwater noise;
- the increase in suspended solids and their sedimentation.

6.2.2. Onshore Baltica CI area

In the vicinity of the offshore part of the Baltica OWF CI area, there are areas in which similar activities related to the laying of subsea power cables of other developers are planned. Therefore, the accumulation of underwater noise resulting from the construction works being conducted simultaneously within the areas of more than one of these projects may result in cumulative impacts, particularly in the zone up to approx. 7 km from the shoreline, where these areas are the closest to each other.

As regards the onshore part of the Baltica OWF CI, possible impact accumulations are related to noise generation as a result of machine and equipment operation during the construction phase and the noise generated as a result of electrical power equipment operation within the customer substations of other developers and the Choczewo Substation during their operation phase.

6.3 Assessment of cumulative impacts

6.3.1 Underwater noise

From the description of impacts and their ranges it follows that in no case will they be significant impacts, provided that the condition of carrying out a maximum of 2 simultaneous piling in the Baltica, BŚII and BŚIII OWFs' areas will be maintained. With simultaneous piling in more than two locations, there may be a significant impact (TTS impact range) on porpoises, the subject of protection in the area of the Natura 2000 site *Ostoja Słowińska* (PLH220023).

An additional potential source of cumulative underwater noise may be seismic surveying by high-energy sound sources (such as an airgun). Such surveys are used in prospecting for hydrocarbon deposits under the seabed. Sources such as airgun are characterised by very high sound intensity, comparable to the source sound pressure level used in piling, although they are characterised by other properties (Genesis, 2011). It is anticipated that seismic surveys may lead to the porpoise being displaced on a scale comparable to that of piling, with sound levels above $re\ 1\mu Pa^2 \cdot s$ (Day et al., 2016). Therefore, in the case of simultaneous seismic surveys and foundations laying in the Baltica OWF Area, cumulative impact may be significant. The simplest way of avoiding the cumulative impact is in this case the appropriate organization of actions over time - avoiding simultaneous foundation laying and seismic surveys. The significance of the impact of such underwater noise accumulation seems irrelevant because the hydrocarbon exploration licenses issued are located at a considerable distance from the Baltica OWF.

Among others, a following noise mitigation measures are included in the Environmental Decision that are applicable for the foundation installation:

- "Soft start procedures shall be used during piling, i.e. starting from a few impacts with a lower force and gradually increasing the impact force, and, consequently, gradually raising the noise intensity. 15 minute soft start shall be incorporated;
- Piling is not allowed during winter months (November 1 to April 30);
- No more than 2 simultaneous piling works at projects located near the N2000 area Slupsk Bank can be allowed - in event of this impacting installation activities, Employer shall instruct Contractor;

- Use of noise mitigation measures is required, the technology choice is flexible as long as noise emission limit values are met at the boundary of the Ostoja Slowinska N2000 site (PLH220032):
 - the level of permitted underwater noise must not exceed the level of exposure to noise accumulated over a period of one hour (hereinafter SELcum):
 - for fish 186 dB re 1 μPa^2 s SELcum,
 - for porpoises 140 dB re 1 μPa^2 s SELcum and HF-weighted [HF-weighting function for marine mammals with high sensitivity to high frequency noise (NMFS, 2016)],
 - for seals 170 dB re 1 μPa^2 s SELcum and PW-weighted [PW-weighting function for pinniped marine mammals (NMFS, 2016)]”.

6.3.2 Increase in the concentration and sedimentation of the suspended matter

Interactions that may extend beyond the Baltic offshore wind farm in cumulative impacts in at least one of the three phases of the project include: - an increase in suspended solids concentration in water resulting from works disturbing seabed sediments and sedimentation of suspended solids resulting from an increase in suspended solids concentration when works are carried out simultaneously on OWFs next to each other.

Considering different development stages of the projects of individual investors, possible deliveries of offshore power cables and order of engagement of specialist vessels and equipment used during cable burial, it is unlikely that these projects are implemented simultaneously. Despite the theoretical possibility of accumulation of the impacts related to an increase in the concentration of suspended solids in the water depth and their subsequent sedimentation, the actual accumulation will be a short-term, reversible and local phenomenon, and the significance of this impact will be moderate at most.

6.3.3 Noise

In terms of the impact of the noise generated by machines and equipment when drilling, laying cables and building the substation during the construction phase, cumulative impacts may arise due to the work carried out by various developers. However, considering different development stages of the projects implemented by individual developers, possible deliveries of power cables and substation equipment, especially transformers, and the rapid pace of construction works, the situation when these projects are implemented simultaneously is unlikely to occur. Therefore, the actual noise accumulation at the construction stage will be a short-term, reversible and local phenomenon, and the significance of this impact will be moderate at most.

6.3.4 Space disturbances

6.3.4.1 Physical barrier creation

The erected during the construction phase subsequent wind turbines and power substations will gradually occupy an increasing part of the farm’s area, creating a physical barrier for migratory birds and seabirds crossing locally between feeding grounds and/or resting areas that are reluctant to fly over obstacles. The barrier effect scale will depend on the number of offshore wind turbines erected, their density, size, the clearance between the surface of the sea and the lower position of the rotor blade, rotor’s diameter and the emitted light and noise.

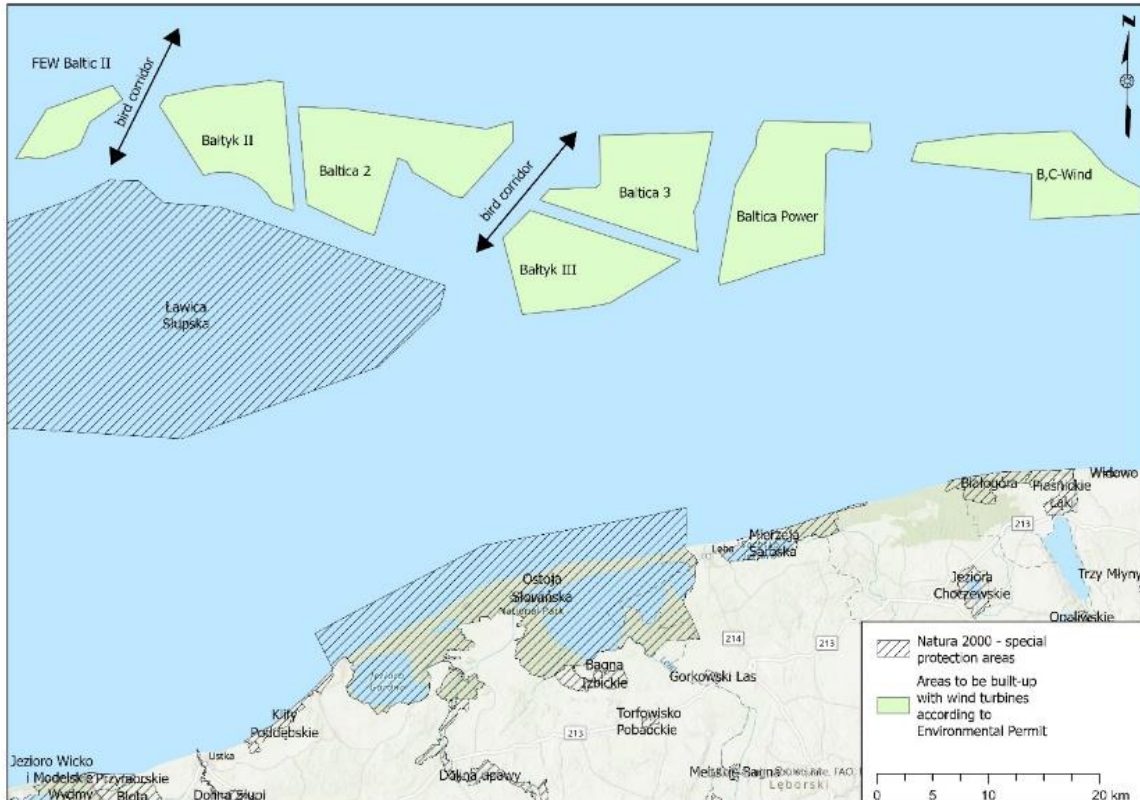


Figure 25. Bird corridors between Baltica 2 and Baltica 3 and Bałtyk III.

The distribution of offshore wind turbines in these areas is not yet known. Therefore, in order to negate the impact of the compact barrier created by the wind turbines, the Project Proponent has decided to create a development-free area between Area Baltica 2 and Area Baltica 3..

Due to the fact that construction works will be limited in time and space to the currently constructed wind power stations for logistic reasons (limited number of construction teams), the scale of impact of ship barriers and collisions with ships during the construction and decommissioning phase of the OWF was considered negligible, which causes the resultant significance of these impacts to be at most insignificant (only for species of great importance). The impact's significance concerning the collisions of migratory birds with offshore wind power stations it was estimated at values from irrelevant to insignificant.

6.3.4.2 Landscape disturbances

Landscape disturbances in the case of cumulative impacts related to the simultaneous exploitation of the Baltica OWF, BŚII and BŚIII, depend mostly on weather conditions – visibility and the curvature of the Earth.

Clearly show that in the case of Dębki and Ustka there will be virtually no situation where the wind power stations of the Baltica OWF, BŚII and BŚIII would be visible from these towns. In the case of Łeba, single windmills can be seen for more than 5000 hours per year, but 50% of wind power stations installed in the above mentioned OWFs will never be visible. In the case of Lubiatowo, individual wind turbines can be seen for about 4000 hours a year, while no more than 25% of wind power stations installed in the above mentioned OWFs will ever be visible. Additionally, the constraint associated with the visibility of wind turbines from land is the Earth's curvature and the associated height restriction of the objects that can be seen from a great distance. Effects the impact was assessed as irrelevant.

6.3.4.3 Disturbances in the operation of systems that use EMF

Disturbances in the operation of systems using EMF, such as navigation radars of water crafts, coastal surveillance systems, radio communication equipment and terrestrial radio and television broadcasting, will certainly take place, both in the case of the exclusive existence of the Baltica OWF and in the case of the coexistence of the Baltica, BŚII and BŚIII OWFs. Therefore, despite the importance of these systems for the society and the state interest, it should be assumed that the significance of the impact of OWF Baltica and BŚII and BŚIII on these systems will be negligible.

6.3.4.4 Fishing

In the immediate vicinity of the planned Baltica OWF, two other OWFs have been issued with decisions on environmental conditions (BŚII and BŚIII). In the case of the non-availability of the area free from installations between the planned farms, the route of fishing vessels stationed in Ustka, and especially in Łeba, will be extended. The use of an undeveloped area between Baltica 2 Area and Baltica 3 Area as a route leading to fisheries located north of the OWF could significantly reduce this additional distance. Fisheries are subject to irrelevant cumulative impact due to the low value of the resource and the small scale of the impact.

7. Cross-border impact

The underwater noise analysis carried out for both fish and marine mammals has shown that the range of significant impact determined by TTS values do not exceed the border of the Polish Exclusive Economic Zone.

In the case of seabirds and migratory birds, despite the regional impact on certain species, the significance of this impact has been assessed at most as moderate.

Taking the above into consideration, it should be stated that there is no possibility of significant transboundary environmental impact in relation to the implementation of the Baltica OWF.

8. Analysis and comparison of the considered options and the most environmentally beneficial option

The fundamental difference between the variant proposed by the Applicant and the rational alternative variant is based on technical solutions resulting from the intensive development of offshore wind energy technology. The maximum installed capacity specified in the PSZW decision is the upper limit that can be implemented in both analysed variants. This limit can be realized on the basis of currently available technologies or on the assumption of their continuous development. The main factor which differentiates the two variants is the possibility of producing more powerful wind stations in the future. Comparing both variants, including, in particular, the resulting from them possible environmental impacts, it should be indicated that the most favourable option for the environment is the variant proposed by the Applicant.

9. Comparison of the proposed technology with the technology meeting the requirements referred to in Article 143 of the Environmental Protection Law

Structural elements of the OWF are to be constructed of neutral materials in relation to seawater and substrate (seabed). The resistance to erosion, corrosion or chemical compounds activity that may occur in water is a basic condition for failure-free exploitation of the OWF.

The efficiency of energy production will be one of the basic criteria for the selection of offshore wind power stations and their distribution as well as the method of transfer of the generated energy from the OWF to the National Power System with a reduction in transmission losses. The overriding criterion of energy efficiency is its production, with obvious limitations related to

the windiness of the area, without the consumption of energy resources - in a fully renewable manner.

In the case of this type of renewable energy, the actual efficiency of energy use involves non-returnable energy consumption for the production of the OWF components (wind power stations and other facilities) and their installation at sea.

The consumption of water, resources, raw materials and fuels will take place during the construction process (installation of further wind turbines and laying of undersea cables) and during the dismantling of the OWF's elements after they have been worn out. For 20-30 years of exploitation, wind power stations will require the use of consumable resources and fuels during servicing.

The emissions and their range will primarily concern the acoustic impact associated with the operation of wind turbines. They will not affect marine organisms significantly nor cause noticeable electromagnetic interactions. Experiences related to the exploitation of wind turbines in the Baltic Sea allow the installation of the most efficient and proven solutions that meet the requirements of the most advanced technologies, resistant to the operating conditions of the marine environment at very variable winds.

10. Description of the planned actions aimed at avoiding, preventing and limiting negative environmental impacts

Taking into account that in the course of the OWF's implementation in all its phases i.e. construction, exploitation and decommissioning, impacts on environmental elements classified in most cases as irrelevant or at most moderate will occur, the following actions to avoid, prevent or limit these impacts have been proposed:

- the selection of solid construction towers for the wind power stations and the abandonment of lattice structures due to the smaller probability of birds colliding with solid construction towers;
- to prepare sewage and solid waste management procedures for each phase of the project;
- the incorporation in the executive plan and the selection of building contractors with ships whose hulls have not been covered with anti-fouling paint containing tin compounds (TBT);
- the limitation of the use of strong lighting that could attract birds during all phases of the project within the scope of the applicable regulations (for example, the aid to navigation);
- The project will not lead to excess mortality of the species, as the levels of mortality generated by wind turbines will be negligible at the population level due to high avoidance of wind turbines by the species. Nevertheless, if number of birds collision during operational phase will be relatively high and in consequence Regional Authority of Environmental Protection will indicate that mitigation measures should be implemented to reduce collision, the impact will be reduced due to the planned automated system of turbine curtailment, containing radar, cameras and automated bird identification system, shutting/slowing down chosen wind turbines located at bird trajectory..
- beginning piling from the so-called *soft start* procedure, i.e. performing a few blows of lesser force, and consequently a lower noise level, to allow marine mammals, fish and birds to leave the work site;
- piling on the Baltica OWF should be carried out in such a way that, before starting work in its area consisting of driving foundation piles into the seabed, piling on other planned wind farms in the vicinity of

the Słupsk Bank should also be taken into account, so that the number of simultaneous pilings is not more than two

- work related to foundations requiring piling should be carried out outside the period from November 1 to April 30
- when driving the piles securing the power plants to the bottom, use measures to reduce noise emission, e.g. in the form of an air/bubble curtain, noise-reducing screens or other technology to ensure that the noise level that causes a temporary shift in the hearing threshold of the TTS [CPPS] in porpoises is not exceeded; not greater than 140 dB re 1 $\mu\text{Pa}^2 \cdot \text{s}$ SEL under water weighted by the HF function (NMFS, 2016)] and 170 dB re 1 $\mu\text{Pa}^2 \cdot \text{s}$ SELcum under water weighted by the PW function (NMFS, 2016) on the border of the Natura 2000 site Ostoja Słowińska PLH220023. The method used to reduce the noise level at the piling stage must make it possible to maintain the noise level indicated above at the border of the protected area.
- introduce a ban on entering the area of the Ławica Słupska (PLC 990001) and at a distance of up to 2 km from it, for vessels participating in the implementation of the investment in all phases of the project (construction, operation and liquidation) in the period from November 1 to April 30, with the exception of situations resulting from the need to remove cable or measuring mast failures
- dismantling the structure without the use of explosive methods to reduce the impact of the underwater noise.

Taking into account that during the implementation of the offshore wind farm connection infrastructure in all its phases, i.e. construction, operation and decommissioning, there will be impacts on environmental elements classified in most cases as insignificant or moderate at most, the following measures were proposed to avoid, prevent or reduce these impacts:

- cutting down trees and shrubs should be carried out in the period from October 16 to the end of February (out the bird breeding season and out the period of existence of breeding colonies and mating groups of bats). cutting down trees is permitted, out this period, provided that ornithological and chiropterological supervision is provided;
- work related to fencing trees that are not subject of cutting down and are located near the construction site should be carried out under environmental supervision;
- before starting construction, under herpetological supervision, secure amphibian migration sites and adjacent areas to key places of their occurrence with protective fences preventing animals from entering the construction site and access roads.
- ensure daily inspections of the construction site for the presence of amphibians, reptiles and small mammals; small animals that enter the construction site should be caught on an ongoing basis and moved outside the work area to their appropriate habitat; the transfer should be carried out under the supervision of a naturalist and, in the case of amphibians, using protective gloves; disinfect the equipment used for this purpose; the implementation and realization of the solutions used should be monitored at the construction stage by a naturalist.
- taking into account the ornithologist's guidelines, limit sources of strong light directed upwards at night, during bird migration periods, i.e. from March 1 to May 31 and from July 31 to November 15
- intensify the pace of construction works in the sea area in April-September, when the number of birds in the Baltic Sea is the lowest
- at the construction stage, equip the construction site (including vessels) and technical facilities with technical means to limit the spread, remove or neutralize petroleum-derived pollutants; in the event

of a leak of petroleum-derived substances, they should be immediately removed or neutralized.

- avoid leaving unfilled excavations, which may become temporary retention reservoirs for rainwater flowing down.
- at the operational stage, power stations should be equipped with measures to limit the spread, remove or neutralize petroleum pollutants; in the event of a leak of petroleum substances, they should be removed or neutralized immediately
- construction works on land that are a source of noise should be carried out only during the day (from 6:00 a.m. to 10:00 p.m.), excluding construction periods when, from a technological point of view, continuity of work is required (e.g. pouring foundations, concrete works, works related to sea-land drilling) and excluding the transport of oversized elements necessary for the implementation of the project
- provide a coordination center to supervise the construction, operation and decommissioning of the Baltica OWF IP
- use solutions to maintain the continuity of use of tourist and recreational areas.
- during the implementation of the project, wildlife surveillance specialists will be involved in the work and will be tasked with identifying the presence of IAS. An IAS reconnaissance will be carried out before or at the beginning of the works. Documentation of IAS presence will be carried out.
- the Contractor shall contain the spread of IAS. When eradication is required, the preferred method is to pull out the invasive plants (most effective and precise). Any reaping (cutting, moving, etc.) must be carried out possibly low in order to prevent the plants from regenerating, and only in locations where the reaping will not cause a threat to rare native species of plants.
- if IAS have been identified during IAS survey and its removal required (see item in table: "Make yourself aware of the presence of IAS"), vehicles used to transport infested material must be thoroughly inspected and appropriately cleaned in a designated area before being used for other work.
- treat IAS infested material in 'special waste' streams and dispose of appropriately using reputable licensed transfer agents at licensed sites in compliance with WMP.
- do not store bare soil near known sources of relevant IAS.
- use of plants and seeds that do not contain invasive species.
- the operator within the green areas maintenance regime, includes IAS surveys in consultation with appropriate specialists (e.g. botanists) to identify any presence of IAS(operation phase).
- if using seed mixes, ensure that these are from a certified and reputable source(operation phase).

All the activities indicated above are a result of the experience gained from the offshore wind farms implemented or in exploitation and are considered effective solutions to mitigate the impact of wind farms and connection infrastructure on the environment.

11. Proposal for monitoring of the impact of the planned project and information on the available results of another monitoring, which may be important for determining the obligations in this regard

11.1 Proposal for monitoring the impact of the planned project

A) The underwater noise monitoring will be carried out between the beginning and the completion of the construction.

The underwater noise caused primarily by the piling of wind power station's foundations, was defined in the EIA Report as a factor that could have a negative impact on the marine organisms under evaluation i.e. birds, fish and mammals.

The results of the underwater noise monitoring will be forwarded to the Regional Director of Environmental Protection in the form of periodic reports. In the case of the indication of the above mentioned noise levels exceedance, the actions preventing or minimizing these impacts will be proposed together with an indication of the methods of their implementation and control of the results.

B) Migratory birds monitoring will be carried out in two cycles during the year, due to the two periods of birds' migration, i.e. from March to May and from July to November, in four segments:

- 2 cycles of surveys during migration periods, 4 years after the beginning of exploitation (due to the possibility of the continuation of construction for more than 4 years from the beginning of exploitation and the need to verify the assessments' assumptions);
- 2 cycles of surveys during migration periods in the 1st year from the completion of construction.

Each time these tests will be carried out using ornithological radar for at least 10 days in a cycle. In addition, daily visual observations and acoustic recordings will be carried out at the same time. The survey will cover the area between the Baltica 2 Area and the Baltica 3 Area, north-east of the Słupsk Bank.

C) The marine bird monitoring will be conducted from August till May and the research effort will be at least 10 inspections (distributed possibly evenly into individual months, with a break of at least a week between the inspections) in the following periods:

- the year before the beginning of construction;
- in the 4th year from the beginning of exploitation;
- in the 5th year from the beginning of exploitation;
- in the 1st year from the completion of construction;
- in the 2nd year from the completion of construction.

Each of the surveys will include bird counts along the transects conducted in daytime in a manner allowing comparison of the monitoring results with the results of the environmental inventory performed for the purposes of the EIA Report. The research will cover the Baltica OWF Area and the area of the Słupsk Bank Natura 2000 site (PLC990001).

D) Marine mammals monitoring will be carried out on a continuous basis. The monitoring will begin 6 months before construction starts and it will be completed 24 months after the completion of construction.

The monitoring will be carried out using C-POD devices, including at least six C-PODs located within the Baltica OWF Area and at least six spaced perpendicularly to the OWF Area in three directions (south, north-east, north-

west). The nearest C-POD in each direction will be located at least 20 km from the OWF's area boundary.

- E) The monitoring of zoobenthos organisms on the seabed will be carried out in the first year from the settlement in the seabed of each of the five foundations of wind power station selected for monitoring. Zoobenthos sampling stations will be placed on two perpendicular to each other transects at a distance of 20, 50 and 100 m from the edge of the anti-erosive layer protecting the foundation of the offshore wind power station against leaching.

The monitoring of zoobenthic organisms, after the first year of survey, will be continued in the third and fifth consecutive year along the same transects. The monitoring of the periphytic fauna and flora will be carried out in the second year from the settlement of the foundations. Sampling will be carried out between June and September. Periphytic fauna and flora's samples will be collected on five supporting structures.

The monitoring of fauna and periphytic flora will be continued in the same places in the 4th and 6th year after installation of the foundations.

11.1.1 Information on the available results of another monitoring which may be important for determining the obligations in this regard

As part of the State Environmental Monitoring, a number of environmental monitoring activities are carried out in the Polish maritime areas. These monitoring activities include surveys of physical-chemical parameters in water and sediments as well as biological parameters. The results of these monitoring activities are collected and made available to the Chief Inspectorate of Environmental Protection.

The Ministry of Maritime Economy and Inland Navigation collects data on the volume of fishing carried out in the Polish maritime areas. An analysis of these data will enable the assessment of the impact of the planned project on fishing in the future.

In the perspective of several dozen years for which the Baltica OWF is planned to be implemented, the obtained results of surveys as part of monitoring and information on other activities performed in maritime areas may be used to monitor the environmental impact of the project. This is due to the fact that the scope of these monitoring activities and information covers those elements of the marine environment which may be directly and indirectly affected by the planned project. Long time series of data will allow short-term changes in the environment, i.e. those resulting from the specificity of the complex marine ecosystem and not being a consequence of the impact of the planned project, to be eliminated from the assessment.

12. Area with restricted use

The analysis of the electromagnetic field and noise impacts included in the EIA Reports showed that the environmental quality standards will not be exceeded and there will be no obligation to establish a restricted use area.

13. The analysis of the possible social conflicts related to the planned project, including the analysis of impacts on the local community

Offshore area

The projects of strategic documents along with environmental impact forecasts were subject to the public participation procedure along with social consultations conducted by the competent administrative authorities prior to their adoption under the provisions of the Act on spatial planning and development.

The starting point for conducting public consultations regarding the planned OWF was the requirements of the Polish national law and the European Union law, which indicate that the planned projects which may significantly affect the environment, such as the implementation of offshore wind farms, should be consulted with the public at the earliest possible stage by recognizing the opinions of people interested and local communities, in order to identify potential problems and determine ways to solve them, as well as provide information to interested groups or individuals.

The following aspects related to the planned OWF have been identified as the ones that may cause social conflicts:

- construction and transport of large size offshore structures;
- concerns about the state of the environment in the Baltic Sea, issues related to the broadly understood nature and birds protection. This applies especially to the nearest Natura 2000 site, the Słupsk Bank;
- concerns of the existing and potential users of the OWF Area about the possibility of access to this area, concerns about job prospects, e.g. related to fishing, concerns related to the ensuring of proper functioning of communication systems;
- concern related to the establishment of the transportation corridor through the OWF and its parameters;
- landscape aspects, the OWF's visibility;
- concerns about the impact on tourism in coastal districts;
- concerns about the impact on the economy in coastal districts.

Onshore area.

The analysis of the location of the planned project in relation to the existing and planned use of sea areas indicated that particularly fishermen may submit their concerns regarding the continuation of their activities in an unchanged manner. This situation may occur particularly in the case of establishing a safety zone for cable lines pursuant to an order issued by the Director of the Maritime Office in Gdynia, on the basis of the Act of 21 March 1991 *on maritime areas of the Republic of Poland and maritime administration* (consolidated text: Journal of Laws of 2020, item 2135, as amended). This conflict seems unlikely due to the low significance of the statistical rectangles in which the Baltica OWF CI project will be located in the overall fishing activities.

No social conflicts resulting from obstructions to shipping are anticipated, given the insignificant scale of these obstructions. The analysis of the potential impact of the project on natural elements of the offshore area does not indicate that more than moderate negative impacts might occur, which allows to believe that there will be no conflict in the context of nature conservation.

In the onshore area, the majority of the Baltica OWF CI area is located in forest areas within the Choczewo Forest District, at a distance from residential, commercial and tourism buildings. The OnSS and busbar systems will be constructed on a part of a plot that is currently an arable land. The implementation of the Baltica OWF CI may result in conflicts with local communities due to:

- lack of precise and comprehensible information about the planned project;
- concerns regarding a decrease in the tourism value of the area in the vicinity of the planned project;
- concerns regarding a decrease in the value of the land neighbouring with the planned project;
- concerns regarding the impact of the planned project on human health and natural environment.

Possible social conflicts, which the Applicant is trying to prevent by collaborating with the local community, may concern:

- opposition to the location of the substation in the vicinity of Osieki Lęborskie, including:
 1. opposition due to changes in the surrounding landscape;
 2. concerns regarding negative impact of the substation on life and health of local residents;
 3. concerns regarding the modified character of the village, which may also affect the quality of life of its residents and possibly discourage tourists;
- opposition to clearing a large area of forest for the cable bed, including leaving the cable bed area without proper development;
- opposition from fishing organisations due to the restriction of fishing areas and destruction of fish breeding areas.

The analysis of the above-mentioned conflicts showed that the location of the project is the major factor that will be responsible for their occurrence and intensity. In the mitigation process initiated at the early design stage, it was assumed that the Baltica OWF CI should be located as far as possible from residential areas, areas extensively used for tourism and recreation, and outside areas characterised by exceptional natural values. Discussions and agreements with the authorities of Choczewo commune and Choczewo Forest Inspectorate helped determine the optimum location and conditions for the implementation of the Baltica OWF CI. These discussions were also attended by other entities (such as: Baltic Power company owned by Polski Koncern Naftowy - PKN Orlen, Polskie Sieci Elektroenergetyczne) involved in the development of projects aimed at power evacuation from OWFs and their connection to the NPS in the Choczewo commune.

In order to ensure comprehensive information about the planned project, the local community and authorities of the Choczewo commune were involved in the information process already at the initial design stage. Communication activities have been conducted jointly by both the Applicant (PGE Baltica) and the representatives of the transmission system operator (PSE S.A.), as well as other entities involved in the development of projects for the construction and operation of power transmission infrastructure, i.e. PKN Orlen (Baltic Power) and Ocean Winds (BC Wind). This has helped avoid a situation in which a number of entities carry out communication activities on individual projects which, from the perspective of the local community, constitute a broadly understood power infrastructure.

In its communication activities aimed at engaging local communities, the company has attached great importance to the transparency, reliability and completeness of the information provided.

During the investment preparation stage, one of the main challenges for the local communities in the area where the investment is going to be implemented is the acceptance of the investment, its location and building trust in the entities implementing the investment, as well as the development of a communication model optimizing the flow of information. At this stage, the local communities in Choczewo and Ustka have been included - dedicated communication activities have been prepared for them and it has been given them the opportunity to participate in the administrative process of conducting an environmental impact assessment. The necessity to carry out activities with the participation of the local community is conditioned by the provisions of Article 33 (1) of the Act of October 3, 2008 on the provision of information about the environment and its protection - the Investor is

obliged to inform about the accession to the assessment of the impact of the project on the environment and carry out consultations, which gave the local community the opportunity to join the process. As the details of the location and design assumptions of the project have been made public at this stage, there was a danger of lack of acceptance for the implementation of the project, potentially leading to public expressions of opposition or protest. In the case of the Baltica 2 project, no comments were made by the local community during the environmental impact assessment and the environmental decision has been obtained. On every stage of the project additional non-obligatory information meetings are being held for the local communities with the purpose of resolving doubts concerning offshore wind energy.

14. Stakeholder engagement

PGE S.A., as one of the largest energy companies in Poland, has been involved in activities related to communication with the environment in which it has operated for many years. The transformation carried out by the company, that aims at the achievement of low and zero-emission is carried out with respect for local communities, business partners, employees, customers and the natural environment. In accordance with the principles of sustainable development, the company conducts activities in support of culture, education, and the environment. PGE Baltica, as part of the PGE Group, being aware of the importance of the projects it carries out, is very attentive and committed to the topics of social communication regarding the construction of offshore wind farms, implementing a number of communication activities on platforms regarding educational activities, co-operation with local authorities and residents, and cultural activities.

The main stakeholders, towards whom all activities from the Stakeholders Engagement Plan of the investment are directed to, are:

- Local communities (main Focus on Choczewo Municipality and Ustka)
- Local government and administration units (Choczewo, Wejherowo district, Ustka, Słupsk district, Gdynia, Gdańsk, Warsaw)
- Educational Institutions (Gdańsk, Gdynia, Ustka, Warsaw)
- Fisheries
- Business sector
- Media
- PSE

The investor has conducted several activities since 2021 regarding the engagement of stakeholders of the project, who have been targeted as national regulatory bodies, local government units, local communities, NGO and business environment. PGE Baltica has also participated in events organized by other entities and in internal meetings with stakeholders, especially with municipal authorities. In 2021 the Investor signed the „Polish Offshore Wind Sector Deal”, an agreement signed by more than 250 entities representing the government side, offshore investors, companies forming the supply chain for offshore wind energy, industry organizations and academia. Based on the agreement, six working groups have been established to develop solutions and proposals for offshore wind energy. One of the groups is dedicated to cooperation with the fisheries sector. The agreement obliges the investors to develop a "Code of good practice for coexistence of OWF with fisheries", which is planned to be approved in 2024.

In 2021 was launched the website about Baltica 2 project (<https://baltica.energy/en>). Its aim is to share information about the project and its current development with the public and various stakeholders.

The information are available for website visitors in the following bookmarks: „About us” - investors project partnership, „Baltica 2+3” - general information the investment, „Benefits” - focus on minimizing the impact on natural and historical heritage of the local landscape and keeping open dialogue with the local community, „For industry” - information about the supply chain, „Contact us” - section for media and to ask any question about the project and „News” - all press releases about the project.

The main area of conducted activities for stakeholders is the Municipality of Choczewo and Ustka, where the investments are being developed. A joint program of offshore wind farm investors in the Choczewo municipality was started - „Choczewo: Wind-driven Municipality” program. The aim of the initiative is a direct cooperation with the local community. With the help of specialists, who diagnose local community’s needs, are searched the most effective solutions and recommendation for projects, that should receive funding. Focus areas in which offshore wind farm investors are supporting the projects: social initiatives and community development, security, support for villages, cultural heritage, environmental protection and environmental education, child and youth development. In 2022 the first edition of the Program was conducted and it supported 45 projects, submitted by the local community. In 2023 the second included 69 projects. Each edition was finance by the investors for a total of PLN 1,000,000. The program is planned to be continued in the upcoming years. By engaging the residents in grassroots initiatives, the investor contributes to the development of civil society at a local level. Additional information about the program can be found on <https://gmina-napedzana-wiatrem.pl/>.

In terms of the activities implemented in the city of Ustka, they include, among others, co-financing by the investor the creation of a publicly accessible green space in the town, constitution of a longterm agreement with Ustka’s General and Technical Education School Complex to provide school equipment for technical classes and co-financing of a monograph and a documentary film on the history of Ustka Shipyard. Taking into account the specific stakeholders at Ustka, i.e. tourists coming to the sea town in the summer season, there have been carried out information activities using a specific communication formula addressed to them. During subsequent holiday seasons, there was an educational zone dedicated to offshore wind energy on the beach in Ustka for two weeks, in which information on the planned project in Ustka was also available in forms involving recipients of various ages and a financial support for the organization of prestigious regatta Ustka Charlotta Sailing Days was given.

More details can be found in the Stakeholder Engagement Plan document.

15. Further Stakeholder Engagement

In the context of further implementation of the Offshore Wind Farms investment, the communication for Choczewo municipality and the city of Ustka stakeholders should be continued based on messages of the role of offshore energy in increasing the country's energy independence, improving energy security and the strategic nature of the entire project. It is also worth emphasizing the environmental aspect of the investment - increasing the share of renewable energy sources in the country's energy market, improving the environment and combating climate change.

In order to maintain good relations with the local communities, previous activities will be continued. The III edition of the program "Choczewo: Wind-driven Municipality" is planned to be launched in spring 2024. As to the city of Ustka the company will continue the multi-year agreement with the General and Technical Education School Complex in Ustka, the annual initiative of PGE Beach educational zone during two holiday weeks in Ustka and the partnership in the "Green Ustka" program. The cyclical co-operation with

local media based on publication of materials about the project also will be extended for the upcoming years. For both locations of the project there will be further informational meetings for the local community in order to address any concerns regarding the investment, as it has been done in 2022 and 2023.

The Company will hold meetings with the local government units in Choczewo and Ustka at least once a year and at crucial moments for the project or at the invitation of local authorities to present the current stage of the investment implementation and the next planned steps. The Company will remain in regular contact.

In order to maintain good relations with fishermen and their friendly coexistence with offshore wind farms, the company plans to continue the cooperation with the Polish Offshore Wind Industry Chamber (PIMEW) and within the sector deal. It will also continue the participation in the finalization and adoption of the „Code of Good Practice for coexistence of OWF with fisheries“. It is important for the company to minimize the negative impact on the natural and historical heritage of the local landscape and to maintain an open public dialog with the local community and that is what the future activities will be based on.

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More details can be found in the Stakeholder Engagement Plan document.

16. Grievance Redress Mechanism

The complaint lodging mechanism allows every interested party to report comments and lodge complaints as regards project planning or implementation methods. Complaints may take a form of specific complaints concerning losses, concerns pertaining to routine actions as part of the project or perceived incidents or impacts.

An efficient complaint lodging mechanism, from the point of view of communities affected by the project operation effects, constitutes an available, but at the same time formalized (identification, tracking and settlement of complaints) alternative for the external dispute resolution process. However, the stakeholders will always have the right to lodge a complaint to competent authorities or in accordance with the assumptions of the legal system and the law applicable in Poland.

The complaint examination mechanism is adapted to the local context and aims at finding mutually beneficial solutions to resolve disputes and develop

trust-based relationships between the company and the local community. The company undertakes to handle any complaints received in a timely manner.

Based on the recognition of different activities of the company and the presence of different contractors, each activity is subject to a grievance mechanism based on the basis of the existing detailed complaint management procedures. The grievance redress mechanism will be in force during the Project life cycle. The procedures are transparent and do not entail any costs or consequences for the complainant. The company monitors the application of complaint management procedures and handles them on an ongoing basis. The complaints are classified in one of the following 3 categories:

- **Level 1 complaint:** a complaint the potential impact and/or consequences of which are low and can be resolved quickly,
- **Level 2 complaint:** a level 1 complaint, which is often repeated or made by several complainants,
- **Level 3 complaint:** a complaint the resolution of which may affect the success, schedule, results or image of the project or which infringes upon national laws or standards.

There will be two project grievance teams depending on the investment part - the grid connection infrastructure in Choczewo or the service center in Ustka.

All complaints will be handled in accordance with the grievance procedure, the steps of which have been discussed in detail below:

- **Step 1:** Acceptance of the complaint
- **Step 2:** Checking and evaluation
- **Step 3:** Problem investigation and solution proposal
- **Step 3A:** If the complainant does not accept the proposed solution, step 3A (verification of the solution) is implemented, as part of which measures are taken to analyze and verify the proposal and possible involvement of a third party (e.g. local authorities or NGOs), or mediation.
- **Step 4:** Implementation of the solution
- **Step 5:** Problem resolution

All the received complaints will be recorded in a register of complains, including remedial actions undertaken, information on whether a complaint has been settled in a manner that is satisfactory to the complainant or if a third part has taken part in the settlement. All the documentation related to the complains will be documented in a Database for monitoring, reporting, and learning. A separate complaint mechanism has been developed to handle internal complaints related to the employment process and is described in the QHSE and Social Manual.

17. Indication of difficulties resulting from shortages in engineering or gaps in contemporary knowledge which have been encountered during preparation of the report

When preparing the Environmental Impact Assessment Report for the Baltica OWF and CI, no difficulties resulting from technical shortcomings were encountered.

The main difficulties encountered during the preparation of this EIA Report resulted from the lack of detailed data and information on other investment projects that will be carried out in the future in the vicinity of the Baltica OWF and CI. In the case of gaps in the state of the art, it should be noted that there is no data available on the impact of EMF emitted by extra high

voltage lines on marine and terrestrial organisms within the range of the field. The environmental impacts associated with the construction, operation and decommissioning phases of the planned project are well recognised for this type of project, and therefore the formulation of potential environmental impacts and the formulation of mitigating measures was rather straightforward.