on the Application for Planning Approval in Accordance with §§ 45 ff. WindSeeG for the Construction and Operation of the

Baltic Eagle Offshore Wind Farm

Explanatory Report

Promoters and applicants:	Baltic Eagle GmbH
Place, date:	Berlin, 04. November 2020

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LIST OF ABBREVIATIONS

AIS	Automatic Identification System
AVV	General Administrative Regulation
EEZ	Exclusive Economic Zone
AWZ Ostsee-ROV	the Regulation on spatial planning in the German Exclusive Economic Zone in the Baltic Sea from 10.12.2009 and
BAW	German Federal Agency for Hydraulic Engineering
BBergG	Federal Mining Act
BSH	German Federal Maritime and Hydrographic Agency
BLE	German Federal Agency for Agriculture and Food
BMI	German Federal Ministry of the Interior, for Building and Homeland
BMVi	German Federal Ministry of Transport and Digital Infrastructure
CONTIS	Continental Shelf Information System
DFS	German Air Traffic Control
EnWG	German Energy Management Act
EÖT	Discussion meeting
R&D	Research and development
FFH	Flora Fauna Habitat
FVT	Specialist Department of the WSV [Federal Waterways and Shipping Administration] for traffic engineering
GDWS	Directorate-General for Waterways and Shipping
HVDC	high-voltage direct current transmission
IALA	International Association of Lighthouse Authorities
LALLF	State Office for Agriculture, Food Safety and Fisheries M-V
LEP	State Development Plan
MSL	Mean Sea Level
ODAS	Ocean Data Acquisition System
OSS	offshore substation
OWT	Offshore Wind Turbine
OWF	Offshore Wind Farm
ROG	Spatial Planning Act
ROV	Regional planning procedure
SeeAnlV	Offshore Installations Ordinance
SeeAufgG	Federal Maritime Responsibilities Act
SKN	Chart datum
UNCLS	United Nations Convention on the Law of the Sea
tUK 4	Standard Investigation of the Impacts of Offshore Wind Turbines on the Marine Environment. October 2013
UK	United Kingdom
UVPG	Environmental Impact Assessment Act
TSO	Transmission system operator

VTG	Traffic Separation Area
WindSeeG	Offshore Wind Energy Act
WSD	Water and Shipping Directorate
WSV	Water and Shipping Administration

LIST OF ILLUSTRATIONS

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1 SUBJECT OF THE DOCUMENT

This explanatory report is part of the planning documents for the application for planning approval for the construction and operation of the offshore wind farm (OWF) "Baltic Eagle" in accordance with § 45(1) of the Act on the Development and Promotion of Offshore Wind Energy (Offshore Wind Energy Act - WindSeeG). The project company and applicant for this project is Baltic Eagle GmbH. The competent hearing and planning approval authority is the Federal Maritime and Hydrographic Agency (BSH) according to § 45(2) WindSeeG.

The planning documents are divided into the following parts:

1 List of planning documents
2 Drawings and Explanations
  2.1 Explanatory Report
  2.2 List of structures
  2.3 Drawings
  2.4 Risk Analysis
  2.5 Collision Analysis
  2.6 Marking Concept (Construction/Operation; Incl. Sonar Transponder)
  2.7 Sea Area Observation Concept
  2.8 Fisheries report
  2.9 Site Assessment for the Helicopter Landing Deck (HSLD)
3 Proof of an Award in the Auction for the Site Concerned
4 Presentation of the Safety and Precautionary Measures
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6 EIA Report According to § 16 of the Environmental Impact Assessment Act
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  6.6 Prognosis of the Expected Hydro-Sound Immissions
  6.7 Emissions Study
  6.8 Expert Opinion on Cable Heating
  6.9 Report on Marine Strategy Framework Directive

The explanatory report provides an overview of the project and explains the issues affected by this project, the existing legal and planning framework and the anticipated effects.

2 OVERVIEW OF THE PROJECT AND THE APPLICANT

2.1 Brief Description of the Project

The project for the "Baltic Eagle" OWF in its updated planning comprises the construction and operation of 50 offshore wind turbines (WTG) as well as an offshore substation (OSS) and the wind farm's internal cabling.

The project area of the "Baltic Eagle" OWF is located in the German Exclusive Economic Zone (EEZ) of the Baltic Sea about 27,6 km northeast of the coast of the island of Rügen (see figure Figure 1). The project area has a size of 42.9 km². The water depths are between 41 and 45 m relative to SKN.

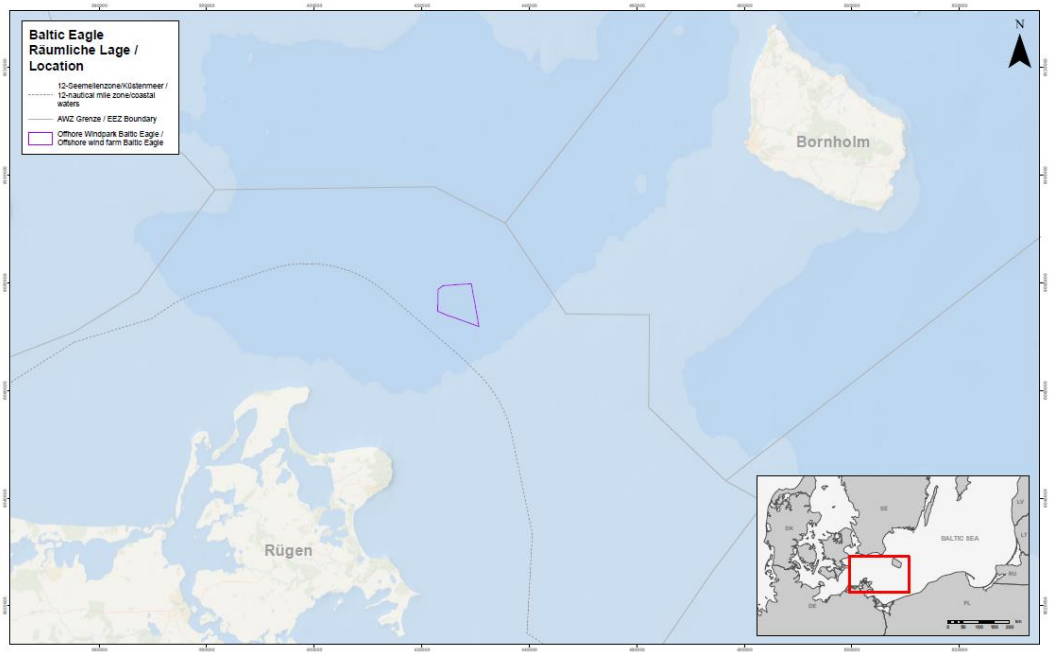

Figure 1: Location of the Baltic Eagle OWF

The planned type of offshore wind turbines is MHI Vestas V174-9.5 MW. This turbine has a rotor diameter of 174 m and, with the planned hub height of 109 m above SKN, achieves a total height of 196 m above SKN. The rated output of this type of wind turbine is 9.525 MW. Offshore wind turbines are constructed on monopile foundation structures.

The wind farm area is defined by the positions of the peripheral WESs. The location of the project and the coordinates of the corner points are shown in Figure 2 and Table 1 .

The wind farm area lies entirely within the area awarded by the Federal Network Agency in its decision of 27/04/2018 within the framework of the transitional tender (see Table 5 and Figure 3). The area covered by the award is based on § 35 WindSeeG in conjunction with § 31(1)(2) WindSeeG. The project developer therefore has an award for the area covered by this plan in accordance with § 34 WindSeeG, cf. § 48(4)(2) WindSeeG.

Table 1: Corner coordinates of the project area

Corner point	World Geodetic System (WGS84)			
	(Decimal degrees)		(Degrees Minutes Seconds)	
	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)
A	54.8506040	13.8014030	54° 51' 02.1744"	13° 48' 5.0508"
B	54.8565116	13.8151765	54° 51' 23.4417"	13° 48' 54.6353"
C	54.8606354	13.8972621	54° 51' 38.2875"	13° 53' 50.1437"
D	54.7892214	13.9214862	54° 47' 21.1971"	13° 55' 17.3502"
E	54.8079435	13.8267403	54° 48' 28.5966"	13° 49' 36.2650"
F	54.8139310	13.8014010	54° 48' 50.1516"	13° 48' 05.0436"

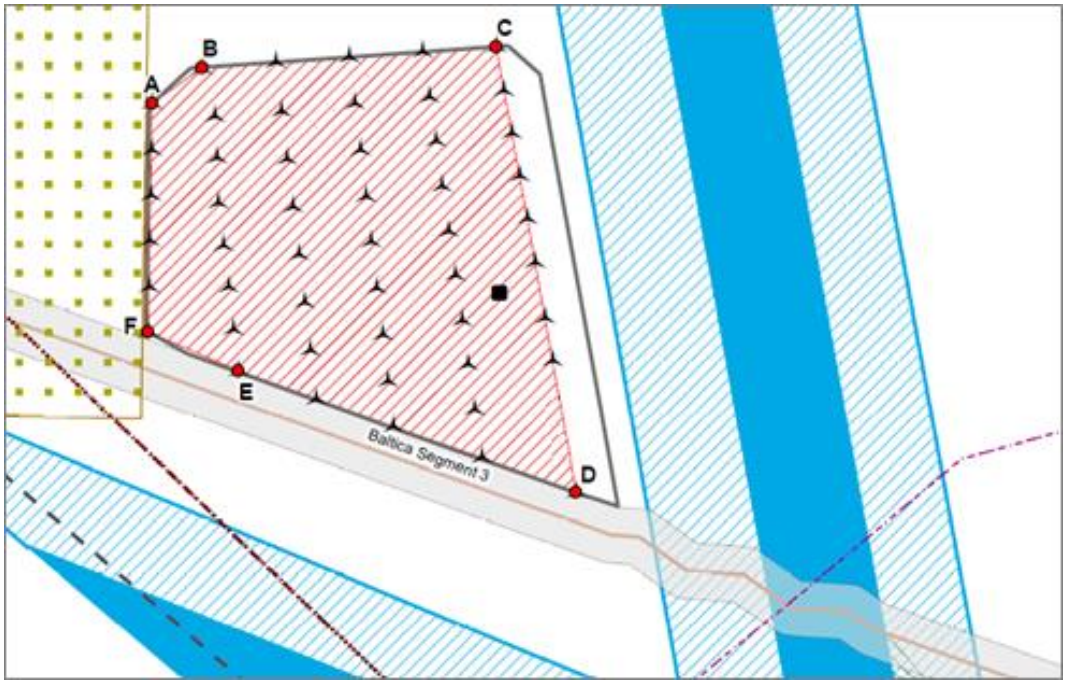

Figure 2: Corner coordinates of the project area (grey: original project area for EÖT 2013)

The offshore wind turbines are connected to the offshore transformer platform via the wind farm cabling with an operating voltage of 66 kV. On the transformer platform, the strings of the wind farm cabling are brought together and the electricity from the wind turbines is transformed to the transmission voltage of 220 kV for the purpose of transmission to land.

The transformer platform has an estimated basic dimension of 51 m x 31 m and will reach an estimated height of 35 m above SKN. The transformer platform will also be equipped with a helicopter landing deck, which will be positioned at the edge of the transformer platform with a cant of around 6 m.

The offshore transformer platform is connected to the mainland via two 220 kV three-phase submarine cable systems. The names of the two connection systems in accordance with the offshore network development plan, to which the "Baltic Eagle" OWF was awarded a contract in 2018 in the Federal Network Agency's transitional tender, are OST-2-2 and OST-2-3. The grid connection of the wind farm, for the discharge of the electrical energy generated at sea, from the transformer platform to the land-based feed-in point (Lubmin) is the responsibility of the responsible transmission system operator 50Hertz Transmission GmbH. The grid connection is not part of the application presented here.

The planned completion dates according to the current offshore grid development plan 2017-2030 are 2021 for the OST-2-2 connection system and 2022 for the OST-2-3 connection system. Since grid connection is a prerequisite for the operation of an OWF, the schedule for the construction and commissioning of the OWF must be coordinated with this schedule. The schedule and action plan for the "Baltic Eagle" OWF project is contained in Part 5 of the planning documents and is subject to the binding completion dates of the grid connection systems to be announced by the grid operator.

2.2 Applicant

The owner and applicant of the "Baltic Eagle" OWF is Baltic Eagle GmbH, a subsidiary of Iberdrola Renovables Deutschland GmbH, which in turn belongs to the IBERDROLA S.A. Group of Companies.

IBERDROLA S.A. is one of Spain's leading groups in the energy sector, with a presence in some 40 countries and one of the five largest electricity distribution companies in the world. With over 16 GW of wind turbines in operation, IBERDROLA S.A. has established itself as a world leader in the wind energy sector. The company focuses on the expansion of offshore wind energy with projects in Great Britain, Germany, France and the USA.

In Germany, IBERDROLA has built the OWF "Wikinger" in the German EEZ of the Baltic Sea and operates it from the operations centre built in Neu-Mukran (Sassnitz) on the island of Rügen.

2.3 Procedural History

The construction and operation of the "Baltic Eagle" OWF was first applied for on 14/08/2008. The planning included the construction and operation of 83 offshore wind turbines, a transformer station and the associated internal wind farm cabling.

The application conference for the project was held on 07/03/2012. In December 2012, the documents for the implementation of the 3rd participation round were submitted and these were sent by the BSH on 21/02/2013 to all public bodies involved in the procedure and also to the neighbouring countries Denmark, Sweden and Poland within the framework of the transnational participation of authorities with the request for comments. After proper public announcement, the documents were made available to the public for inspection for a period of one month on 18/03/2013 within the framework of public participation and the discussion was held on 15/05/2013.

After the Spatial Offshore Grid Plan for the German Exclusive Economic Zone of the Baltic Sea 2013 (BFO-O 2013) came into force, new key coordinates were requested in an amendment dated 17/12/2014.

The changes were made in consideration of the planning principles and specifications of the Spatial Offshore Grid Plan for the Baltic Sea as well as in consideration of the specifications of the Spatial Plan.

With the amendment application of 25/11/2016, the key coordinates were again adjusted, based on the amendments to the Spatial Offshore Grid Plan for the Baltic Sea, which was being updated at that time.

In a letter dated 7/12/2016, BSH announced on request that the "Baltic Eagle" OWF project was likely to be approved on the basis of the information available to date. In accordance with the WindSeeG, which came into force on 01/01/2017, this letter was a prerequisite for the participation of the "Baltic Eagle" OWF project in the tendering procedure under the WindSeeG.

On 10/01/2017, the BSH suspended the planning approval procedure in accordance with § 46(2) no. 2 WindSeeG until the award of a contract in accordance with § 34 WindSeeG on the bidding date 01/04/2018.

The OWP "Baltic Eagle" was selected in the invitation to tender in accordance with the WindSeeG with the decision of the Federal Network Agency of 27/04/2018 with a capacity of 476.25 MW on the connecting lines OST-2-2 and OST-2-3 for the area with the corner coordinates according to Table 5.

The planning documents required in accordance with § 59(2) no. 1 WindSeeG for the hearing procedure were sent to the BSH in a letter dated 29/03/2019 and an application was made to continue the planning approval procedure on the basis of the more specific planning documents. In a letter dated 26/04/2019, the BSH confirmed that the requirements according to § 59(2) no. 1 WindSeeG had been met.

In a letter dated 23/09/2019, the BSH communicated the further procedural steps for the "Baltic Eagle" OWF project and requested selective revision and supplementation of the documents for the continuation of the planning approval procedure.

2.4 Overview of the Changes Resulting from the Updated Planning

An overview of the changes resulting from the updated planning requested here as compared to the original planning discussed in 2013 is Table 2 presented in the form of a synopsis.

Table 2: Comparison of the changes due to the current planning as compared to the planning status 2013

Key figures	**Original planning (As of public hearing 13/05/2013)**	**Current planning (As at June 2020)**
WTG model	AREVA M5000-135 (today Adwen) (nominal power: approx. 5 MW) Siemens SWT-6.0-154 (nominal power: approx. 6 MW)	MHI Vestas V174-9.5 (rated power approx. 9,525 MW)
Hub height	105 m	109 m (increase of 4 m / +4%)
Rotor diameter	154 m	174 m (increase of 20 m / +13%)

Overall height	182 m	196 m (increase of 14 m / +8%)
Number of installations	83 OWTG	50 WTGs (decrease of 33 WTGs / -40 %)
Rotor area per WTG	18,627 m²	23,779 m² (increase of 5,152 m² / +28%)
Total rotor area of all WTGs	1,546,041 m²	1,188,935 m² (decrease of 357,065 m² / -23%)
Distance between the wind turbines	Main wind direction (approx. west-east): approx. between 800 m and 1000 m Secondary wind direction (approx. south-north): approx. between 600 m and 700 m	Main wind direction (approx. west-east): approx. between 1146 m and 1804 m Secondary wind direction (approx. south-north): approx. between 742 m and 1000 m (except for the distance between BE42-BE45 of 2392 m due to the loss of two WTG sites)
Type of foundation / description of foundation	WTG: Jacket (3/4 legs), OSS: Jacket, deep foundation with steel piles	WTG: Monopile with Transition Piece OSS: Jacket with steel foundation piles
Scour Protection	No further details (in principle provided as required (cf. EIA))	Stone fill up to 17 m from the pile wall of the monopile (worst case assumption)
Anti-Corrosion Protection	Coating (according to DIN EN ISO 12944; splash zone and above water) and sacrificial anodes or current-induced system in the underwater area	Coating (according to DIN EN ISO 12944; under and above water as well as in the splash zone) and additionally anodes in the underwater area
Transformer station	a transformer station with 500 MW capacity for the connection of 220 kV AC submarine cable systems as well as the 33 kV wind farm internal submarine cable	a substation for connecting the 220 kV AC submarine cable systems OST-2-2 and OST-2-3 (250 MW per submarine cable system), and the wind farm's internal 66 kV submarine cable
Wind farm cabling	Voltage level 33 kV Total cable length in about 87 km	Voltage level 66 kV Total cable length currently around 57 km (decrease by 30 km / -34%)
Project area	The project area is limited: to the east by the Shipping Reservation Area; to the west by the Research Reservation Area; to the south by the TDC data cable; to the north was the Ostseeschatz Project	The area of the project area is located within the area discussed on 13/05/2013 and to which the BNetzA's award in the transitional tender refers.

The expected changes in the impact of the issues affected by the updated plan compared to the original plan are presented in

Table 3 as a synopsis.

Table 3: Comparison of the expected effects of current planning with the planning status in 2013

Key figures	**Original planning (As of public hearing 13/05/2013)**	**Current planning (As at June 2020)**
Threats to the marine environment - human beings	The overall significance of the environmental impacts on humans and human health is therefore very low.	The reduction in the number of WTGs from 83 to 50 compared to the EIA leads to less human interference due to a shorter construction period and fewer visible installations. Overall, a slight structural and functional change results.
Threats to the marine environment - macrophytes	Due to the water depth of more than 40 m and the macrophyte-free habitat structure, no separate studies on the aquatic biotope configuration were carried out for the project.	There is no occurrence of macrophytes in this sea area. Overall, no structural and functional changes are expected for the macrophytes. No significant adverse environmental effects can be inferred.
Threat to the marine environment - marine biotope types	There are no protected biotopes or protected habitat types in the project area.	According to the classification of the Red List of Biotope Types in Germany (FINCK et al. 2017) and due to the dominant *Macoma balthica* population, the project area of the planned "Baltic Eagle" OWF is one of the sublittoral silt beds of the Baltic Sea with Baltic clams (code 05.02.11.02.03.02). For this biotope type, neither a regional nor a national threat is identified according to the Red List (FINCK et al. 2017). No significant adverse environmental effects are to be deduced for this partially protected resource.
Threats to the marine environment - Macrozoobenthos	Construction-related effects are expected to include sediment shifting and turbulence, the release of nutrients and the release of pollutants, each of which is classified as having very low relevance to the individual effects described. The plant-related and operational impacts include soil sealing, the introduction of artificial hard substrate and the change in the large-scale ocean current, each of which is classified as having very low relevance to the individual impacts described. According to the present state of knowledge, the generation of electromagnetic fields has no influence on benthic communities. The lack of fishing pressure in the project area may lead to a positive restructuring of the epifauna and infauna communities towards a more natural and diverse species composition. The significance of the environmental impacts on the benthos is rated as very low overall.	A basic possibility for interacting effects is the expected habitat loss due to soil sealing. Considering the small size of the shares of actually sealed areas in the project area "Baltic Eagle", there will be no significant structural and functional changes for the benthic part of the protected resources. According to the impact prognosis, all other effects are also limited to the area of the project area. For this reason, no interaction of effects on macrozoobenthos is predicted when looking at the construction of the other offshore wind farms considered here.

Threats to the marine environment - fish (and cyclostomes)	The installation and operation of the wind farm is expected to have only minor impacts on the demersal fish fauna in the project area. On the contrary, the introduction of artificial hard substrate as a "fish attracting device" could provide favourable growth conditions for juvenile animals of those fish species that inhabit habitats with a richer structure during their juvenile phase. The significance of the environmental impacts on the demersal fish fauna is rated as low overall.	Overall, a slight structural and functional change is expected. The areas of the offshore wind farms will in all probability no longer be used for fishing and thus represent potential retreat areas. This "protected zone" of the project will join the fishery-free areas of the other OWFs under consideration. During construction, mostly minor structural and functional changes are to be expected. Merely ramming the foundations can lead to moderate structural and functional changes. During the operating phase, a slight structural and functional change is expected with regard to the partial protection of fish. A cooperation between the offshore wind farms considered here is only possible to a limited extent and must be considered positive.
Threats to the marine environment - resting birds	In summary, the project area is considered to be of minor importance as a feeding and resting area for seabirds. Due to the construction and operation of the planned offshore wind farm "Baltic Eagle", there are currently no indications of a site-specific increased risk in the sense of a significant impairment of resting bird populations. The significance of the environmental impacts on resting birds is therefore assessed as low overall.	The construction and deconstruction-related effects of the project (shipping traffic, noise pollution, light emissions, visual disturbance) have a limited temporal and spatial impact with low to medium intensities. Therefore, small structural and functional changes are expected as a result of these factors. On the other hand, there are permanent effects due to the installations and their operation. The risk of collisions is local and has a low to moderate intensity, with disturbance and barrier effects occurring over a medium-sized area with low to medium intensity. This results in moderate structural and functional changes.
Threats to the marine environment - marine mammals	Taking into account the proposed minimisation measures (aversive, soft-start and reduction of sound emissions), no damage to marine mammals is expected from sound effects. During the construction phase, marine mammals will temporarily avoid the project area. In the operating phase, on the other hand, as studies of the existing wind farms "Horns Rev I + II", "alpha ventus" and "Egmond aan Zee" show, it cannot be assumed that the wind farm will be avoided. Positive effects can result from an increased food supply and lack of shipping traffic within the wind farm areas. The significance of the environmental impacts on marine mammals is therefore assessed as low overall.	According to the noise forecast, noise emissions during the pile driving work will exceed the noise protection limits, so that appropriate measures must be taken to reduce noise. If the specified limit values are observed, a slight structural and functional change is assumed. Overall, the effects of operational noise on the structures and functions of the study area for marine mammals can be rated as low. Overall, a slight structural and functional change is expected. Since all EEZ wind farm plans are currently based on the assumption that a noise protection concept will be drawn up in good time before construction begins, which will guarantee compliance with the limit value and, if necessary, a pile driving time regulation can be ordered, no significant adverse environmental effects are assumed here.

Threats to the marine environment - bats	It is not to be expected that construction or installation conditions will result in a significant risk of death or injury. Bats are able to evade these slow moving structures or fly to them to rest. Since bats fly at a lower altitude and generally start from low altitudes below 10 m above sea level, there is only a low risk of collision with WTGs. According to the present state of knowledge, which is sufficient within the framework of the environmental impact assessment, a risk to bats from the construction and operation of the offshore wind farm "Baltic Eagle" can be excluded.	According to current knowledge it is known that bats regularly migrate across the Baltic Sea. It cannot be ruled out that bats may also cross the project area. It is assumed, however, that this does not happen in concentrated migrations as it does with birds. The animals are attracted by the turbines (light and/or food), so there is a risk of collision with the WTGs. The greatest danger is at low wind speeds and calm. Overall, a slight structural and functional change is expected.
Threats to the marine environment - Biodiversity	Due to the water depth of more than 40 m and the macrophyte-free habitat structure, no separate studies on the aquatic biotope configuration were carried out for the project. The project area lies in the area of the marine biotope type "fine substrate biotope with silt substrate" (dominated by silt and clay) or "fine substrate biotope with mixed substrate" (silt to fine sand). There are no protected marine biotope types or protected areas in the project area. Furthermore, as the evaluation of the sediment samples shows, there are neither coarse sands nor areas with high shell content. The sediment consists mainly of fine sand, silt and mud. The significance of the project area for plants and biodiversity is rated as low overall. The significance of the environmental impacts on plants and biodiversity is therefore assessed as very low overall.	No significant adverse environmental impacts on biodiversity can be inferred.
Threats to the marine environment - Surface / Soil	A change in the natural structure of the sediment, which is to be assessed as significant, is not expected as a result. The overall project impact on sediment and soil properties is rated as very low in terms of significance.	A slight structural and functional change is inferred.
Threats to the Marine Environment - Water	Any influence of the wind turbines on the flow conditions, salinity and temperature of the water body will be limited to the immediate vicinity of the wind farm. The construction-related release of sediments will be limited in space and time. The significance of the environmental impacts on the protected resource water is therefore assessed as low overall.	Overall, a small (in the case of trouble-free operation) to very high (in the case of collision) structural and functional change is inferred.

Threat to the Marine Environment - Air / Climate	No significant negative impacts on the climate and air as protected resources are to be expected. At best, emissions from construction and supply ships pollute the air to a negligible extent. On the other hand, however, the wind farm will lead to a considerable reduction in supra-regional and global air and climate pollution due to its very favourable energy balance and the substitution of fossil fuels. The significance of the environmental impacts on the protected resources of climate and air is therefore assessed as very low overall.	Overall, a slight structural and functional change results.
Threats to the Marine Environment - Landscape / Scenery	Due to the outstanding cultural, touristic and scenic importance of the coast of north-eastern Rügen, the landscape in the area of the exemplary selected viewing sites "Kap Arkona" and "Königsstuhl" is classified as very highly significant overall.	A moderate structural and functional change is expected.
Pollution of the Marine Environment	A waste disposal concept will be demonstrated in good time before construction begins. As it is currently not yet clear which types of plant will be used, it is not yet possible, for example, to describe in detail the type and quantities of gear oil disposal. However, the waste will be disposed of professionally, probably via container-based systems, and sent for recycling. A detailed waste management concept, tailored to the type of installation in question, will be a fundamental element of the operational management, in particular to prevent foreign matter from entering the water.	A protection and safety concept, in which the means to be provided and the measures to be taken are described and prescribed which, in accordance with the state of the art, prevent or minimise any effects of imminent or actual impairments (e.g. water pollution), will be submitted prior to the start of construction and operation. The substances and materials used in the project during construction and operation as well as expected emissions including potential emission paths are compiled in an emission study. In addition, planned precautions and facilities which serve to avoid and reduce potential emissions are set out. In the course of the more detailed planning of the project, a corresponding waste and operating materials concept will be drawn up and the emissions study will be updated in accordance with the planning status. These will be submitted for official review. In the result of the environmental impact assessment for the OWF "Baltic Eagle", it was concluded that the project is assessed as environmentally compatible in the overall result.

Endangerment of Bird Migration	In comparison with "hot spots" of migration, such as Falsterbo at the southern tip of Sweden or Fehmarn, the bird migration figures determined are low overall. The study area is not located within one of the main migratory routes for bird migration. In addition, no particular significance be identified for the autumn migration, which deserves special attention because it is considered particularly sensitive due to its high proportion of young birds. Cranes (Grus grus) gathered once during a period of about 2 weeks between 26/09/2008 and 07/10/2008. It is therefore not assumed that the location is of general importance for crane migration. In summary, the migration volume determined in the study area proved to be average for a location far from the coast. The project area is therefore rated as having moderate importance for migratory birds. Construction-related effects on migratory birds due to increased vehicle traffic as well as noise and light emissions during the construction phase of the wind farm are classified as minor, among other things, due to their temporary nature. A relevant increased barrier effect or a relevant increased bird strike is not to be expected. With regard to possible impairments by installation and operation, it can be stated for the "Baltic Eagle" project that, taking into account the wide frontal draught typical of areas far from the coast, there is no significant barrier effect and no significant risk of collision with the wind turbines.With respect to the area of a single wind farm, no significant effects on the energy budget of migratory birds are to be assumed, since diversions can also occur anyway due to weather conditions and therefore a detour of a few kilometres in the area of the wind farm is not a significant obstacle. The risk of rotor-induced collisions can be assessed as low due to the visual observations that a majority of the flight movements are below 50 m, mostly even below 20 m, and thus outside the rotor area. Nearly all relevant species of bird migration recorded in the planned migration observations occur in the area predominantly in the light phase, during which birds can orientate themselves visually, clearly recognise obstacles and initiate evasive manoeuvres early. The significance of the environmental impacts on migratory birds is therefore assessed as low overall.	The effects of the installations are limited to barrier effects and the risk of collision or bird strike. The impacts due to the barrier effect are species-specific, predominantly local (avoidance of only WTGs) and are medium-range (bypassing the OWF at a short distance), permanent and of low intensity only for a few species. All in all, the suitability of the structures and functions of the observation area for migratory birds is expected to have little effect on its design. The effects during operation of the installations are essentially limited to collision risk and barrier effect. The impacts of the barrier effect are estimated to be medium to large-scale, permanent and of low intensity. They manifest themselves in particular in local changes of direction or height with additional low additional energy consumption. It is likely that birds flying at altitudes of up to 500 m are particularly affected by the barrier effects. Apart from a small proportion of individuals crossing the offshore wind farm, mainly small vertical flight altitude adjustments will be necessary, and even the horizontally evasive birds will only fly slight detours. The effects of collision or bird strike on bird migration are local and permanent. Given the low number of predicted collisions, the intensity is low. Together, both effects cause minor structural and functional changes with regard to bird migration in the observation area. If repair work is carried out during the operating phase, the rotors of the systems concerned will come to a standstill or be stopped due to the interruption. As a result of decommissioning, the species-specific risk of collision or bird strike can be reduced locally and in the short term. In the same sense, the species-specific barrier effect decreases. The effects of repair work correspond to the effects of increased shipping traffic, construction equipment and building activity during the construction phase (barrier effect due to noise emissions and visual disturbance). As the impacts only affect individual installations, they are at most medium and short-term, and the intensity of the impacts is assessed as low. Overall, the suitability of the structures and functions of the observation area for migratory birds is expected to have little effect on the suitability of the observation area. As a whole, minor structural and functional changes are expected for the migratory birds during the construction and operational phases. In summary, it can be assumed that the construction and operation of the WTG of the offshore wind farm "Baltic Eagle" will not endanger bird migration.

Safety and Ease of Shipping Traffic	The project area is located away from spatially regulated shipping areas. The risk analysis was prepared by DNV in August 2012. The following projects were included for the cumulative analysis: Viking, Arkona Basin southeast, Adlergrund Gap, Adlergrund 500, Ostseeschatz, Ostseeperle and Arcadis Ost 1. The risk analysis came to the following summarised conclusion: If the risk-reducing measures consist of an emergency tugboat in Sassnitz and manual traffic surveillance based on AIS and radar, the cumulative return period for all approved wind farms within a radius of 20 nautical miles, excluding the Arcadis Ost wind farm, is 1, 106 years. If the Arcadis Ost 1 wind farm is taken into account, but not the two wind farm extensions Ostseeperle and Ostseeschatz, the cumulative return period is 92 years.	The project area is located away from spatially regulated shipping areas. An updated risk analysis was prepared by DNV GL in February 2019 based on the results of the transitional tender. Instead of the projects Adlergrund Gap and Adlergrund 500, only Wikinger Süd with one (1) WTG was included in the analysis. The projects Ostseeschatz and Ostseeperle were completely cancelled. The Arcadis Ost 1 project was awarded a capacity of 247.25 MW instead of the approved 348 MW. However, as specific details of the planning for Arcadis Ost 1 was not yet known at the time of the updated risk analysis, the old planning based on a capacity of 348 MW was conservatively used for Arcadis Ost 1. With this new cumulative situation, the updated risk analysis results in a lower risk of collision and thus lower collision frequencies. This results in a larger average statistical repetition period of 192 years. The risk analysis came to the following summarised conclusion: Taking into account AIS, a traffic monitoring/sea space observation with variant 3 and two emergency tugboats, the cumulative analysis showed an average statistical repetition period between two collisions of 192 years.
Security of National and Alliance Defence	The planned location Baltic Eagle, as well as the neighbouring priority area wind energy "Westlich Adlergrund", lies below the military flight warning area ED D 47C. The Federal Air Force flies over the area at higher altitudes (7,000 - 30,000 ft). An impairment of the Putgarten radar system is not to be expected with the presented max. overall height of 181.5 m SKN. When planning higher WTGs, it must be re-examined whether military interests are affected. The wind farm must be equipped with sonar transponders.	The location of the project area is unchanged from the status discussed. The wind farm area has decreased slightly on the eastern side. The total height of the WTG is now 196 m SKN. Pre-planning discussions with the Bundeswehr showed that even with the new overall height there will be no impairment of military interests. The equipment with sonar transponders according to the specifications of the German Federal Armed Forces is taken into account in the planning.

Priority Mining Activities	The project area lies outside of areas with mining activities or permissions as shown in the spatial development plan. Mining issues are not directly affected. The permit field Oderbank KW extended East of the island of Rügen from the island of Usedom in the south to the area of the Baltic Eagle wind farm that has been applied for in the north. The holder of the mining licence was CEP Central European Petroleum GmbH. An exchange with the CEP has taken place in the context of project planning. The report did not find any conflicts of interest between the use of wind energy in the Baltic Eagle project and the exploration and extraction of raw materials by the CEP, which is approved by the mining permit.	The location of the project area is unchanged compared to the status as discussed, so that there is no change due to the more concrete planning. According to the future of the responsible mining authority in Stralsund of 23 April 2020, no mining issues under the Federal Mining Act (BbergG) will be affected. No mining permits or applications for mining permits have been submitted for the project area.
Existing and planned cable, offshore connection, pipe and other lines	The application area is not crossed by current or planned pipelines or submarine cables. As a result of the geophysical investigations, no cables or pipelines could be detected in the project area. The submarine telecommunications submarine cable Baltica Segment 3 runs to the south, at a distance of 500 m. For this purpose, there was an exchange of views with the cable operator, TDC A/S, in the context of the comments on the application conference. According to them, the cable will not be affected by the Baltic Eagle project.	The location of the project area is unchanged compared to the status as discussed, so that there is no change due to the more concrete planning. The planning basis for further pipeline systems is the Federal offshore specialist plan for the Baltic Sea EEZ 2016/2017. The Federal offshore plans will not be continued and will be replaced by the 2019 area development plan, which was announced by the BSH on 28/06/2019. There is a route area to the east of the project area, which has been enlarged by resetting the wind farm boundary compared to the discussion date in 2013, for possible further submarine cable systems.
Existing and planned locations of converter platforms or substations	There were no existing platforms or plans for platforms in the project area.	There are no existing platforms or plans for a platform in the project area apart from the transformer platform for Baltic Eagle. The planned position of the substation of the project Baltic Eagle differs from the possible location for a transformer platform shown in BFO-O 2016/2017, but is still within the search area for transformer platforms of BFO-O 2016/2017. The southern area of the project area overlaps with the search area for collection platforms and cable systems of BFO-O 2016/2017. This overlap enables the potential collection platform to be inserted into traffic in accordance with the specifications of BFO-O 2016/2017. Furthermore, there is still sufficient space available for cable systems. The option of a collection platform and hence also the search area for collective platforms and cable systems will not be pursued further in the ongoing technical planning by the FEP 2019.

Compliance with Other Requirements According to WindseeG and Other Public Law Regulations	The project does not conflict with the objectives of the spatial development plan for the German Baltic Sea EEZ.	The project is largely in line with the specifications of the BFO 2016/2017 and the FEP 2019. The project does not prevent the implementation of the BFO 2016/2017 or the FEP 2019 with regard to the connection of further areas or the potential establishment of a cross-border connection. The location of the project area is unchanged from the status discussed. However, the wind farm area has been reduced somewhat on the eastern side. The project does not conflict with the objectives of the spatial development plan for the German Baltic Sea EEZ.
Fisheries	The construction of an offshore wind farm may impose restrictions on fishing. In particular, fishing with beam trawls and towed nets will not be possible close to the installations and between installations because of the high risk of damage to fishing gear and cables. However, in view of the comparatively small spatial extent of the wind farm in relation to the total sea area, the impairments from the planned wind farm should be acceptable for fisheries.	The location of the project area is unchanged from the status discussed. The consequences of the loss of area for fisheries due to the "Baltic Eagle" OWF are only minor, as the fishing vessels can move to neighbouring areas. Increasing offshore activities and area closures will cause more disruption to fishing in the coming decades. At least the OWFs could have a positive impact on fisheries, since the fishing ban and the increased attraction of their WTGs for commercial fish species will lead to local increases. The areas outside the wind farms will then benefit from this increase through the migration of fish and ultimately so will the fishing industry. Whether this will compensate for the loss of fishing areas (which will be further exacerbated by likely catch restrictions in FFH and bird sanctuaries), increased competition in the remaining areas and the costs of longer steam routes to the fishing grounds cannot be assessed at present
Tourism	The disruption caused by offshore wind turbines will also be influenced by the subjective perception and attitude of the observer towards this form of renewable electricity generation. The impacts on tourism can therefore be classified as very low overall.	The location of the project area is unchanged from the status discussed. The wind farm area on the eastern side has decreased slightly in the course of the installation of the BFO. The total height of the WTG is increasing by 14 m to 196 m SKN compared to the status at the time of the discussion. This corresponds to an increase of +8% and is not expected to significantly change the subjective perception. The decrease in the number of WTGs, on the other hand by 40%, from 83 WTGs to 50 WTGsshould change the expected perception in a clearly positive way, as there will be less visible objects.

Material and Cultural Assets	No information was available on material assets or cultural heritage in the area under investigation. Should objects of archaeological significance be discovered during further project development, the approval authority will be informed.	The location of the project area is unchanged from the status discussed. The wind farm area has decreased slightly on the eastern side. If material or cultural assets are found, the licensing authority will be informed.
Other wind farms	Neighbouring wind farms at the time of the discussion were as follows - "Ostseesschatz" (immediately north) - "Ostseeperle" (1 km south) - "Arcadis Ost 1" (4 km west) - "Wikinger" (7.7 km east) - "Arkona-Becken Südost" (9.6 km east) - "Wikinger Süd" / "Adlergrund Gap/500" (12.3 km east) - "EnBW Baltic 2" (40.2 km west)	The location of the project area is unchanged from the status discussed. The wind farm area has decreased slightly on the eastern side. The projects "Ostseeschatz", "Ostseeperle" and "Adlergrund Gap/500" were not awarded in the transitional tender. Accordingly, the nearby wind farm "Arcadis Ost 1" is located at a distance of 4,7 km.

3 LEGAL AND PLANNING FRAMEWORK

3.1 Award in the tender according to WindSeeG

With the entry into force of the Wind Energy at Sea Act (WindSeeG), a tendering system was introduced for offshore wind turbines. Projects that were eligible to participate in the tendering procedure for existing projects were those for which a plan was established or a permit was granted or for which a discussion meeting was held. In accordance with the requirements of the WindSeeG, the tender had to be accompanied by an assessment carried out by the competent authority responsible for determining the plan or granting the permit on the expected eligibility of the project for approval. Upon request for information, the BSH confirmed in a letter dated 07/12/2016 that, based on the status of the project with the current key coordinates at that time (see Tabelle 4**Error! Reference source not found.**) the "Baltic Eagle" project is likely to be eligible for approval. This letter was attached to the tender in accordance with the requirements of the WindSeeG.

Tabelle 4: Coordinates of the assessment of the BSH on the probable ability to obtain a licence on 07/12/2016

Ref ID	World Geodetic System (WGS84)			
	(Decimal Degrees)		(Degrees Minutes Seconds)	
	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)
1	54,800938	13,909486	54° 48' 03.38"	13° 54' 34.15"
2	54,797714	13,881238	54° 47' 51.77"	13° 52' 52.46"
3	54,811226	13,810081	54° 48' 40.41"	13° 48' 36.29"
4	54,813931	13,801401	54° 48' 50.15"	13° 48' 05.04"
5	54,850604	13,801403	54° 51' 02.17"	13° 48' 05.05"
6	54,856351	13,812001	54° 51' 22.86"	13° 48' 43.20"
7	54,860513	13,895525	54° 51' 37.85"	13° 53' 43.89"
8	54,851904	13,898404	54° 51' 06.85"	13° 53' 54.25"
9	54,834122	13,904488	54° 50' 02.84"	13° 54' 16.16"
10	54,829107	13,899857	54° 49' 44.79"	13° 53' 59.49"

By resolution of the Federal Network Agency (Ref.: BK6-18-001-07) of 27/04/2018, the project "Baltic Eagle" OWF was awarded in the transitional tendering procedure. The award was made over a total capacity of 476.25 MW in the extent of 250 MW to connecting cable OST-2-2 and and 226,25 MW to the connection cable OST-2-3 on the area with the corner coordinates corresponding to Table 5. In the explanations on the reasons for the decision of the Federal Network Agency, reference is made to the BSH's assessment of the expected likelihood of approval. Proof of the award of the tender is attached in Part 3 of the planning documents. The areas of the assessment of the BSH on the probable likelihood of approval on 07/12/2016, the award by the BNetzA on 27/04/2018 and the current planning of the project are shown in Figure 3.

Table 5: Coordinates of the area covered by the award

Ref ID	World Geodetic System (WGS84)			
	(Decimal degrees)		(Degrees Minutes Seconds)	
	Latitude (DD)	Longitude (DD)	Latitude (DMS)	Longitude (DMS)
Z-00	54.8502	13.8006	54° 51' 00.72"	13° 48' 02.16"
Z-01	54.8564	13.8120	54° 51' 23.04"	13° 48' 43.20"
Z-02	54.8586	13.8563	54° 51' 30.96"	13° 51' 22.68"
Z-03	54.8608	13.9006	54° 51' 38.88"	13° 54' 02.16"
Z-04	54.8563	13.9096	54° 51' 22.68"	13° 54' 34.56"
Z-05	54.8490	13.9121	54° 50' 56.40"	13° 54' 43.56"
Z-06	54.8344	13.9171	54° 50' 03.84"	13° 55' 01.56"
Z-07	54.8028	13.9279	54° 48' 10.08"	13° 55' 40.44"
Z-08	54.7871	13.9332	54° 47' 13.56"	13° 55' 59.52"
Z-09	54.7894	13.9205	54° 47' 21.84"	13° 55' 13.80"
Z-10	54.7932	13.9007	54° 47' 35.52"	13° 54' 02.52"
Z-11	54.7958	13.8873	54° 47' 44.88"	13° 53' 14.28"
Z-12	54.8032	13.8495	54° 48' 11.52"	13° 50' 58.20"
Z-13	54.8105	13.8125	54° 48' 37.80"	13° 48' 45.00"
Z-14	54.8141	13.8007	54° 48' 50.76"	13° 48' 02.52"

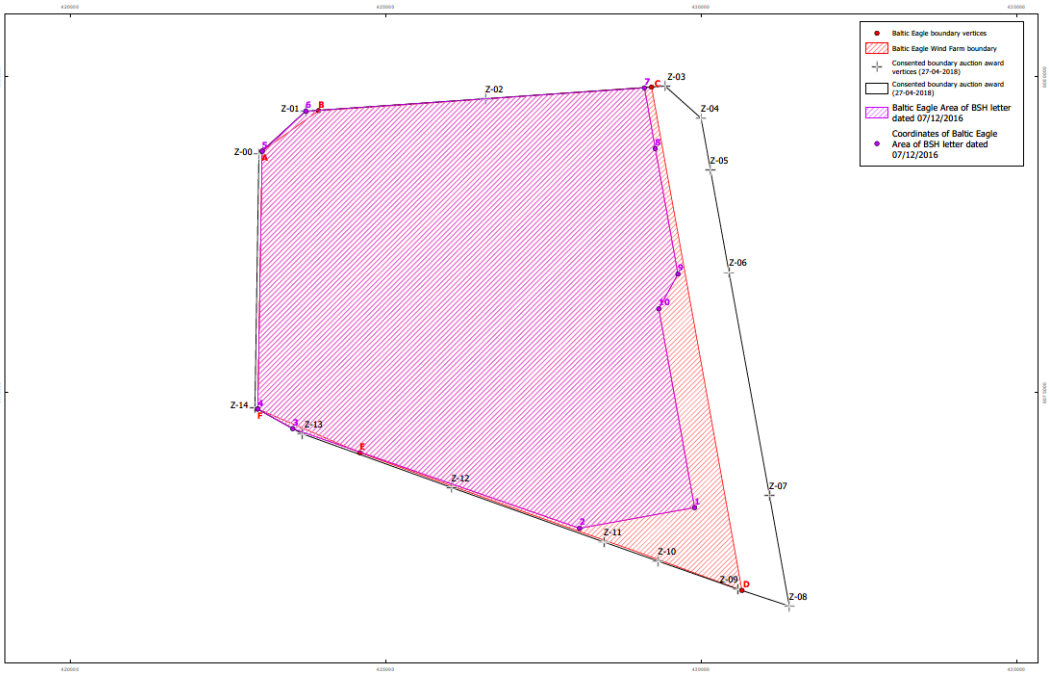

Figure 3: Areas and corner coordinates of the assessment of the BSH on the likelihood of approval on 07/12/2016 (purple, points 1-10), of the BNetzA's award of 27 April 2018 (black border, Points Z00-Z14) and the current planing (red crosshatching, Points A-F)

3.2 Planning Approval Procedure

The project area of the "Baltic Eagle" OWF is located in the Exclusive Economic Zone (EEZ) of the Federal Republic of Germany. Pursuant to § 45 WindSeeG, the construction and operation of wind turbines at sea requires planning approval. The Federal Maritime and Hydrographic Agency is the competent hearing and planning approval authority.

Pursuant to § 48 para. 4 WindSeeG, the plan may only be adopted if

1. the marine environment is not endangered, in particular
   a) pollution of the marine environment within the meaning of Article 1(1)(4) of the United Nations Convention on the Law of the Sea of 10 December 1982 (BGBl. 1994 II p. 1799) is not a concern and
   b) the migration of birds is not endangered; and
2. the safety and ease of traffic is not affected,
3. the security of national and alliance defence is not compromised,
4. it is compatible with priority mining activities,
5. it is compatible with existing and planned cable, offshore connection, pipe and other lines,
6. it is compatible with existing and planned locations of converter platforms or substations
7. the obligation under § 66(2) WindSeeG has been declared effective if the plan relates to offshore wind turbines, and
8. other requirements according to the WindSeeG and other public law regulations are observed.

Pursuant to § 48(4) sentence 2 WindSeeG, in the case of offshore wind energy installations, the plan may only be adopted if the project developer has an award in the case of the Baltic Eagle OWF pursuant to §34 WindSeeG for the area to which the plan refers. Proof of the award for the area in question (if the plan relates to offshore wind turbines) is attached in Part 3 of the planning documents.

The contract in the transitional tendering procedure under the WindSeeG was awarded by decision of the Federal Network Agency on 27/04/2018. The updated planning documents for the continuation of the procedure, which must be submitted within 12 months of the award in accordance with WindSeeG, were submitted to the BSH in due time by letter dated 29/03/2019.

3.3 Energy Policy Objectives

In the interest of climate protection, it is the declared aim of the German government to increase the proportion of renewable energies in the electricity supply. In accordance with the German government's Integrated Energy and Climate Programme (2007), the current version of the Renewable Energy Sources Act (2012) sets a concrete target of at least 35 % by 2020, which is to be increased continuously to 80 % by 2050. Considerable potential for this lies in the use of offshore wind energy. According to the strategy of the Federal Government for the use of offshore wind energy within the framework of the sustainability strategy of the Federal Government (January 2002), framework conditions for developing these as quickly as possible are to be created.

Against this background, provisions were made in 2005 for special suitability areas in accordance with § 3a SeeAnlV in the German Exclusive Economic Zone (EEZ). The Regulation on Regional Planning in the German Exclusive Economic Zone in the Baltic Sea (EEZ Baltic Sea REG) entered into force on 10 December 2009. The special suitability areas according to SeeAnlV "Westlich Adlergrund" and "Kriegers Flak" were taken into account in the objectives of the regional planning of the Baltic Sea and were designated as priority areas for wind energy. According to the explanatory memorandum of SeeAnlV, the targets for renewable energies formulated in the EEG will probably not be achieved without the generation of wind energy at sea. In the summer of 2019, the Federal Ministry of the Interior, Building and Homeland Affairs, which is responsible for this area, provided information on the updating of the regional development plans. Following a consultation, the BSH prepared drafts of the spatial development plan and the environmental reports for the German North Sea and Baltic Sea EEZ and submitted these for consultation on 25.09.2020.

The current EEG 2017 reaffirms the German government's goal of energy system transformation and defines the concrete expansion of renewable energies. By 2025, the proportion of renewable energies should be between 40 and 45 percent and by 2035 it should be between 55 and 60 percent. The proportion of offshore wind energy should be 6.5 gigawatts by 2020 and 15 gigawatts by 2030, clearly demonstrating the need to expand offshore wind energy.

On 3 June 2020, the Cabinet of the Federal Government decided to amend the Wind Energy at Sea Act. The bill included an increase in the expansion target to 20 gigawatts by 2030 and, in the long term, to 40 gigawatts by 2040. The draft version of the area development plan 2020 for the German North Sea and

Baltic Sea dated 04/09/202020 from the Federal Maritime and Hydrographic Agency (BSH) provides for corresponding provisions regarding areas for the implementation of 20 GW by 2030.

On the basis of the German Energy Industry Act (EnWG), the political and planning framework conditions are set, inter alia, by the development and updating of the Federal Offshore Specialist Plan and the Offshore Grid Development Plan, thus confirming the need for the expansion of offshore wind energy.

3.4 Federal Offshore Grid Plans

The federal offshore grid plans for the German EEZ in the North Sea and Baltic Sea have been drawn up since 2011 on the basis of § 17a of the German Energy Industry Act (EnWG). Responsibility for drawing up the Spatial Offshore Sectoral Plans lay with the Federal Maritime and Hydrographic Agency, which drew them up in agreement with the Federal Network Agency and in coordination with the Federal Agency for Nature Conservation and the coastal states.

The Spatial Offshore Grid Plan specifies the route of the grid connection systems and the locations of the converter and transformer platforms and defines standardised technical specifications and planning principles.

The Spatial Offshore Grid Plan 2013 for the Baltic Sea was drawn up on 7 March 2014. In 2016 and 2017, the Spatial Offshore Grid Plan for the Baltic Sea EEZ was updated and became effective on 9 December 2016 and 22 December 2017. The Spatial Offshore Grid Plans will not be continued and will be replaced by the Site Development Plan. The currently valid land development plan 2019 was published by BSH on 28 June 2019.

3.5 Site development plan

With the introduction of tenders for offshore wind energy, the central model (for the commissioning of offshore wind turbines from 2026 onwards) is based on the site development plan (FEP) as the controlling planning instrument for the synchronous expansion of wind energy and its offshore grid connections. The site development plan (FEP) incorporates the previous Spatial Offshore Grid Plan (BFO) and parts of the previous Offshore Grid Development Plan (O-NEP). As stipulated in the WindSeeG, the area development plan is prepared by the BSH in agreement with the Federal Network Agency (BNetzA) and in coordination with the Federal Agency for Nature Conservation (BfN), the Directorate General for Waterways and Shipping (GDWS) and the federal coastal states. The currently valid 2019 spatial development plan was published by the BSH on 28 June 2019. Following the decision on the bill for the amendment of the Wind Energy at Sea Act by the Cabinet on 3 June 2020 and other regulations, and in particular due to the increased expansion path of 20 gigawatts of offshore wind energy by 2030 provided for in it, the site development plan will be extended until the end of 2020.

3.6 Grid Development Plan

With the amendment of the Energy Industry Act (EnWG) of 28 December 2012, it was decided to draw up offshore grid development plans on an annual basis. According to this provision, transmission system operators were required to submit an annual national offshore grid development plan for the exclusive economic zone of the Federal Republic of Germany and the territorial sea up to the network connection points on land, together with the national grid development plan, to the regulatory authority for confirmation on the basis of the scenario framework.

The joint national offshore grid development plan should contain all effective measures, with a time schedule, for demand-orientated optimisation, reinforcement and expansion of the offshore connecting lines that are necessary in the next ten years for a gradual, demand-orientated and economic expansion as well as for a safe and reliable operation of the offshore connecting lines, taking into account the provisions of the respective current Federal Offshore Energy Plan in the sense of § 17a EnWG.

The "Baltic Eagle" OWF is located in network connection cluster 2 of the Baltic Sea in the immediate vicinity of network connection cluster 1 of the Baltic Sea, where the "Westlich Adlergrund" special suitability area is also located, together with the "Wikinger" and "Arkona-Becken Südostt" OWFs that have been constructed in the meantime. On 22/12/2017, the Federal Network Agency confirmed the Offshore Grid Development Plan 2017-2030, thereby also confirming the necessity of the grid connection systems OST-2-1, OST-2-2 and OST 2-3.

The grid development plan (NEP) contained the planning of the offshore connection systems for the first time in the version NEP 2019-2030. The grid development plan (NEP) thus replaces the previous offshore grid development plan (O-NEP) and continues the network planning for the offshore sector.

3.7 Regional Planning for the German Baltic Sea EEZ

The spatial development plans for the German North Sea and Baltic Sea EEZ are drawn up by the Federal Maritime and Hydrographic Agency (BSH) on behalf of the responsible Federal Ministry. The spatial development plan for the area of the Baltic Sea was drawn up on 10/12/2009. The legal basis is the Regional Planning Act (ROG), which was extended to the EEZ in accordance with the United Nations Convention on the Law of the Sea of 10 December 1982. The statutory objectives of regional planning in the German EEZ are economic and scientific exploitation, ensuring the safety and ease of navigation and protecting the marine environment.

In a letter dated 11 June 2019, the Federal Ministry of the Interior, Building and Homeland Affairs (BMI) informed about the planned update of the spatial development plans for Germany's Exclusive Economic Zone in the North Sea and the Baltic Sea with the support of the Federal Maritime and Hydrographic Agency (BSH). On 31/01/2020, the BSH submitted the draft of the investigation framework for the Strategic Environmental Assessment pursuant to § 8(1) ROG and the concept for updating the spatial development plans for consultation, and held a meeting on 18 and 19 March 2020 to discuss this. On this basis, the BSH prepared a draft spatial plan and draft environmental reports for the German North Sea and Baltic Sea EEZ and presented them on 25/09/2020. The update is expected to completed in 2021.

4 DESCRIPTION OF THE PROJECT

4.1 Project Area

The "Baltic Eagle" OWF is located in the German Exclusive Economic Zone (EEZ) of the Baltic Sea, some 27,6 km northeast of the coast of the island of Rügen. The location of the project Vorhabens is shown in Figure 4. The corner coordinates of the project are listed in Table 1. The project area has a size of 42.9 km² and water depths between 41 and 45 m.

The project area is located about 7 km west of the priority area for wind energy "Westlich Adlergrund" defined in accordance with the Regulation on Spatial Planning in the German Exclusive Economic Zone in the Baltic Sea (AWZ Ostsee-ROV), which includes the operating OWPs "Wikinger" and "Arkona-Becken Südost" as well as the OWF "Wikinger Süd", which was also awarded in the transitional tendering procedure in 2018. The ancestral OWF "Arcadis Ost 1", which has already been approved for planning and which was also awarded funding in the transitional tendering procedure in 2018, lies approx. 4,7 km southwest of the project area within the 12-mile zone and thus within the jurisdiction of the state of Mecklenburg-Western Pomerania. The situation of the projects is shown in Figure 4.

The subsoil in the project area is characterised by a uniform layer structure and a high degree of homogeneity within the developed layers. The surface sediment consists of silt with a layer thickness of several meters. At greater depths there are stiff to semi-solid bedload marl layers. Underneath there is chalk.

The subsoil investigations have already been carried out in accordance with the specifications of the BSH Standard Baugrunderkundung (minimum requirements for subsoil investigations and surveys for offshore wind turbines, offshore stations and power cables). The results of the subsoil investigation form the basis for the design of the foundation structures, taking into account the relevant standards and norms, here in particular the BSH Standard Construction (minimum requirements for the structural design of offshore structures in the Exclusive Economic Zone (EEZ)). These documents are submitted to the BSH for examination.

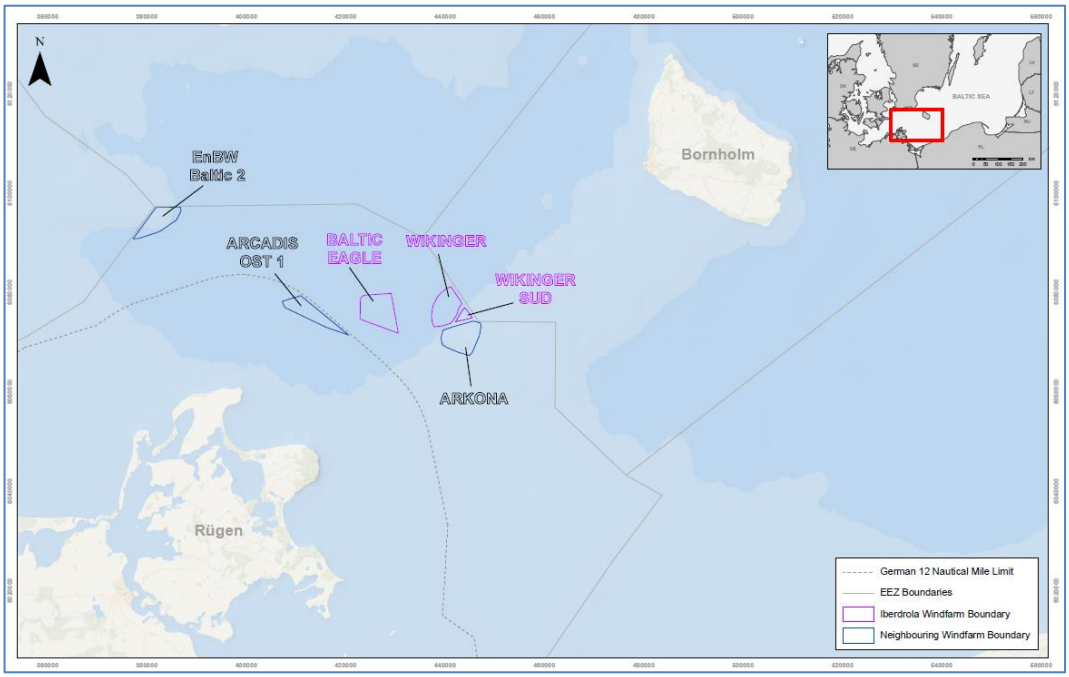

Figure 4: Location of the "Baltic Eagle" OWF and presentation of neighbouring projects

4.2 Wind Farm Layout

The current planning for the "Baltic Eagle" OWF project includes the construction and operation of 50 offshore wind turbines, an offshore transformer platform and the associated farm cabling (see Figure 5). The coordinates of the installations are listed in the list of structures in part 2.2 of the planning documents.

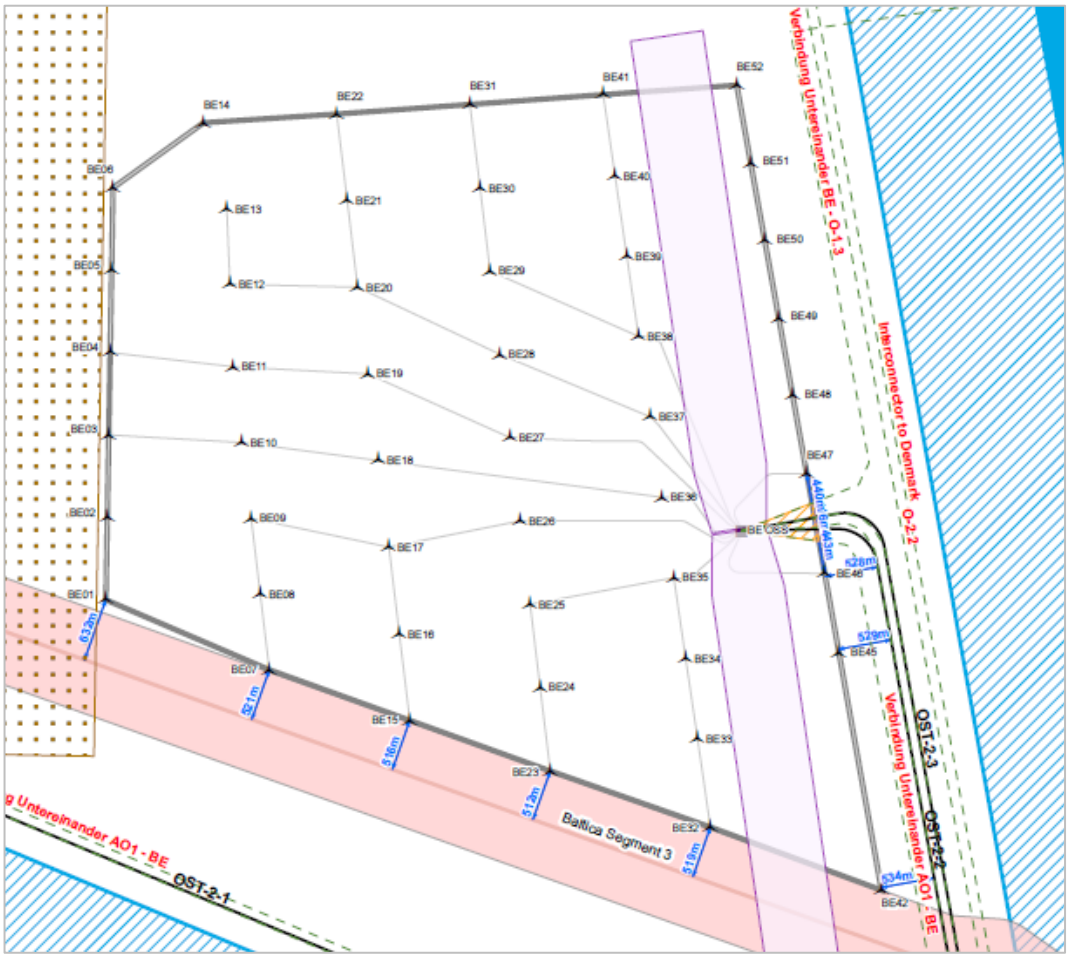

Figure 5 Representation of the wind farm layout of the "Baltic Eagle" OWF as well as schematic representation of the wind farm cabling and the grid connection cables

The layout was optimised for the selected WTG types from an operational and yield-related point of view. Optimal use of the project area is imperative, particularly in view of the competitive tendering process, to enable economic operation. In the layout, the WTGs were arranged in rows, which were optimised for the main wind direction in north-south orientation.

Due to the constant development of plant technology in recent years, modern WTGs are constantly reaching new dimensions in terms of their capacities and dimensions. The distance recommendations of the manufacturers of offshore wind turbines are of the order of seven to ten times the rotor diameter on average for the prevailing wind directions (cf. also DNVGL recommendations[1]). These distance specifications are necessary to cope with the turbulence and the resulting loads that occur in wind farms of this size with new and larger turbines.

The turbine distances adopted in the layout of the "Baltic Eagle" wind farm are, with a rotor diameter of 174 m, on average around five times the rotor diameter in the downwind direction and around seven and a half times the rotor diameter in the main wind direction (west-east).

Accordingly, a reduction in the distances would lead to higher turbulence and wave effects and thus to a greater risk of exceeding the turbulence assessment parameters of the wind turbine. Furthermore, higher vortex-induced turbulence would lead to increased fatigue loads of the supporting structures and the turbine assembly. The wind farm layout was therefore designed to meet the increased requirements of larger and more powerful wind turbines.

This development is driven by the constant need to optimise profitability and efficiency. This growth in WTGs also has the effect that fewer and fewer of the larger WTGs need to be erected for an existing wind farm area in order to achieve the total output of the wind farm. The decreasing number of WTGs means that the distances between the WTGs are increasing, which in turn correlates with the distances between the turbines recommended by the WTG manufacturers. As a result of the ever-increasing distances between the turbines, the maximum distances of 1,000 m between the peripheral WTGs, which were regularly required by the BSH in the past, can no longer be complied with. Thus, the peripheral WTGs on the northern and southern borders of the wind farm reach distances of well over 1,000 m from each other. This must be taken into account accordingly in the further planning and when setting up the safety zone.

The implementation of the technically necessary minimum distances between the wind turbines when planning the wind farm layout follows the spatial planning principle of the most space-saving arrangement of the wind turbines (BSH 2009).

[1] DNVGL (translated): "For offshore wind projects in Northern Europe, DNVGL typically recommends a minimum distance of at least six times the rotor diameter in the main wind direction and at least four times the rotor diameter in the cross wind direction. Irrespective of this minimum guideline, DNVGL considers distances of approximately eight times the rotor diameter in both directions as typical for large wind farm projects."

Table 6: Distances between the individual einzelnen boundary WTGs

Distances	Length (m)	Distances	Length (m)
BE01 to BE02	816	BE49 to BE50	782
BE02 to BE03	816	BE48 to BE49	782
BE03 to BE04	816	BE47 to BE48	782
BE04 to BE05	816	BE46 to BE47	1000
BE05 to BE06	816	BE45 to BE46	796
BE06 to BE14	1102	BE42 to BE45	2392
BE14 to BE22	1322	BE32 to BE42	1804
BE22 to BE31	1321	BE32 to BE23	1680
BE31 to BE41	1321	BE15 to BE23	1477
BE41 to BE52	1325	BE07 to BE15	1477
BE51 to BE52	782	BE01 to BE07	1760
BE50 to BE51	782		

4.3 Wind Turbine Generators

The planned wind turbines are of the type MHI Vestas V174-9.5 MW. This turbine has a rotor diameter of 174 m and a hub height of 109 m above SKN, thus reaching a total height of 196 m above SKN. The nominal output of this plant is up to 9.525 MW.

This type of wind turbine has a windward mounted, 3-blade rotor. The turbines operate fully automatically and start automatically from wind speeds of 3 m/s, reach their rated output at wind speeds in the range from around 12 to 13 m/s and operate up to wind speeds of 25 m/s or 31 m/s depending on the design. The control of the rotor speed and the angle of attack of the rotor blades ensure maximum aerodynamic efficiency.

The SCADA system (**S**upervisory **C**ontrol **a**nd **D**ata **A**cquisition), the wind farm's communication network, permanently monitors the wind turbines. Remote system monitoring makes it possible to continuously receive operating and error messages as well as electrical, mechanical, statistical and meteorological information and data on the power grid. It is also possible to intervene in turbine operation.

The plan is to equip the WTGs with a condition monitoring system that permanently records and evaluates operating conditions and vibrations in the main components. This enables regular recording of the status of the components and, if necessary, the planning of further inspection or maintenance measures in advance.

The WTGs are equipped with transformers that transform the generated electrical energy to the voltage level of the wind farm's internal grid of 66 kV.

The tower of the WTG is expected to be 92 m long and weigh around 345 t. The nacelle measures approx. 21 m x 9 m x 9 m (length x width x height) and weighs around 294 tons. The total weight of the rotor is 184 t, whereby each rotor blade has a length of about 85 m and a weight of about 35 t. The interface from the tower to the foundation structure is about 14 m above SKN.

Table 7: Technical Data of the WTGs

	MHI V174-9.5 MW Offshore Wind Turbine
Generator type	MHI V174-9.5 MW turbine
Nominal power	9525 kW
Rotor diameter	174 m
Nominal rotor speed	9.9 rpm
Rotor speed ranges, normal operation	5.2-13.1 rpm
Cut-in wind speed	3 m/s
Cut-out wind speed	25 m/s without MAX Storm option 31 m/s with MAX Storm option
Rotational direction	Clockwise (front view)
Orientation	Upwind
Number of blades	3
Blades length	85m
WTG-Tower length	92 m
Tower top maximum diameter	4530mm
Tower bottom maximum diameter	6500mm
Distance from tower top to hub height centre line	3.04 m
WTG-Tower mass without internals*	345 ton
Nacelle mass**	293.882 ton
Rotor mass**	183.542 ton
Tower head mass	477.424 ton
Tower TP interface height	+13.96mMSL
Minimum blade tip height	+22 mMSL

The use of particularly corrosion-resistant materials and a special multiple coating of susceptible components according to DNVGL-ST-0361 protection classes according to DIN EN ISO 12944 ensure optimum corrosion protection. Cooling is provided by heat exchanger systems. The turbines are designed in such a way that humidity and salty outside air cannot enter the machine house or that salty ambient air is desalinated.

In WTGs, operating materials such as oils and greases are used to lubricate plant components, coolants are used to dissipate heat generated or hydraulic oils are used to operate hydraulic systems. The WTGs are designed in such a way that if operating substances escape from units, they are retained by means of constructive measures (collecting troughs) to prevent operating substances from escaping into the environment.

The WTGs are equipped with suitable lightning protection systems to protect them against the consequences of a lightning strike.

When selecting the type of WTG, particular attention was paid to factors such as cost, efficiency, robustness and reliability.

The WTGs will be labelled as an obstacle to aviation in accordance with the applicable requirements for labelling. The specifications are defined in consultation with the competent authorities.

The access to the turbines for maintenance and repair will mainly be provided by ship. In exceptional situations, the use of a helicopter can also be considered. To this end, the WTGs will be equipped with winch operating areas that meet the applicable requirements.

4.4 Foundation of the WTGs

The choice of the foundation concept is based on the requirements of the wind turbine, the prevailing water depths and ground conditions as well as the special requirements resulting from manufacture and installation. Special attention is paid to environmental compatibility, especially with regard to sound insulation during installation.

For the Baltic Eagle OWF, a monopile foundation (monopile foundation) has been chosen. In principle, a monopile foundation consists of a closed steel casing, which is usually installed in the ground by means of ramming. The upper end of the monopile ends above the water surface after installation. The transition piece is located on it. The diameter of the monopile will be a maximum of 9.5 m at the seabed and will taper to about 6.5 m in the water column towards the surface.

The transition piece connects the monopile with the tower of the WTG. The interface from the tower to the foundation structure is expected to be located at a height of about 14 m above SKN. The transition piece is attached to the monopile with a flange connection. Sealing against the ambient conditions is done by means of a grout connection (grout mortar/concrete). The working platform and resting platforms as well as the boat landing (boat landing), through which the technicians from the ships enter the WTG, are on the transition piece.

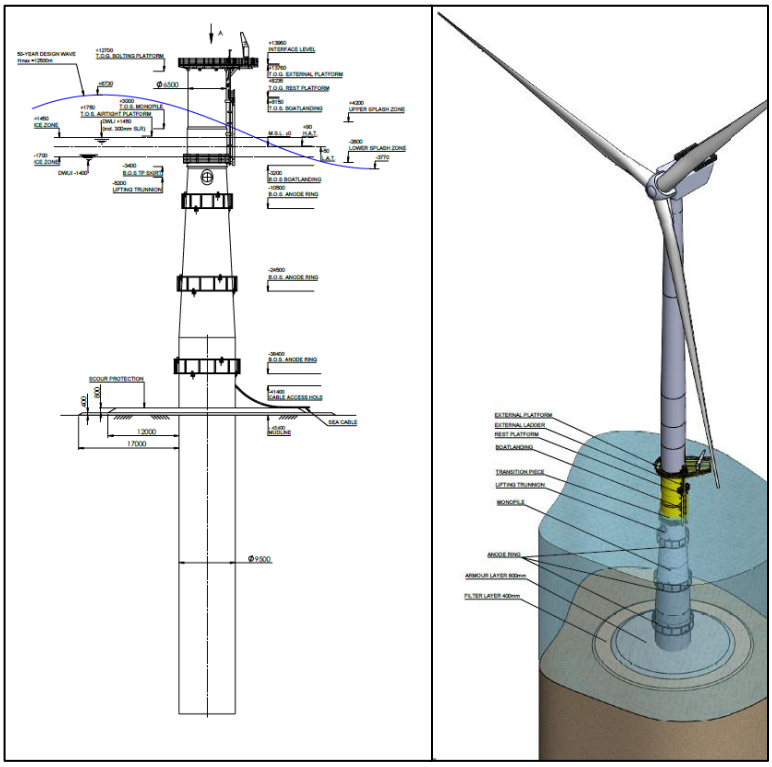

Figure 6: Schematic layout of the foundation structure

The cables of the wind farm's internal cabling are routed inside the monopile from the opening in the area of the seabed to the tower of the wind turbine.

In accordance with the BSH standard construction, a preliminary design has been prepared for the foundation structure. The detailed planning of the foundation structure is the subject of the ongoing construction phase, in which the standards published by the BSH (subsoil investigation, structural design of offshore wind turbines), in particular, as well as the relevant and applicable guidelines and standards are taken into account. In accordance with the requirements of the BSH Standard Construction, the foundation structure is designed to be "collision friendly". A corresponding collision analysis is attached to the planning documents in part 2.4.

The foundation structures will be equipped in accordance with the applicable requirements for navigation marking. This includes colour coding (yellow paint) as well as the equipment with beacons for close-range and long-range identification and sonar transponders. The specifications are defined in accordance with the applicable regulations and in consultation with the competent authorities.

4.4.1 Scour Protection

The foundations will most likely be equipped with scour protection. The extent and design of the scour protection depends on the ground conditions, the local flow and the details of the foundation elements. The structure usually consists of a filter layer and a cover layer. According to current plans, the radius of the scour protection around the monopile will be 17 m. With a diameter of the monopile of 9.5 m, the

diameter of the scour protection amounts to 43.50 m. The scour protection is usually produced by means of stone fill.

4.4.2 Corrosion Protection

All steel components of the WTG, including the foundation, must be protected against corrosion. For the protection of the individual structure, coatings that are evidently resistant to seawater and are also resistant to UV radiation in combination with seawater, especially in the area of the water-air layer of the foundation, are chosen. The paint coats will correspond to the state of the art used in hydraulic engineering. Special emphasis is placed on the compatibility of the colours with the marine environment. There is no plan to paint the foundations with antifouling agents against possible growth.

The underwater area is particularly at risk of corrosion and is practically inaccessible or difficult to access for coating work for the lifetime of the foundations. When designing offshore systems, it must be ensured to a special degree that the strengths assumed for dimensioning are maintained over the entire estimated service life due to the highly corrosive environmental conditions. For offshore foundation structures, corrosion protection systems consisting of a combination of coating and cathodic corrosion protection (external current system or galvanic anodes) are regularly used under water.

External power systems have special technical requirements which, in the event of damage or failure, can lead to irreversible damage to the components that need to be protected. Due to the special salinity conditions in the Baltic Sea, the use of an external external power system would require a subsequent installation (after the monopile has been rammed) of electrical equipment in cages at greater water depths to ensure the necessary corrosion protection for the lower part of the structures as well. This is not necessary, for example, for North Sea projects and would represent a major restriction on access to system-relevant components and the first use of such a system. The accessibility of the systems is made more difficult by the high safety requirements (occupational health and safety) that apply in offshore wind farms both during construction and during operation (maintenance/repair). This would possibly impede the urgently required timely repair of underwater components. In addition, there are also limitations on achieving and monitoring the operational performance of the system for all parts of the foundation structures, as the installation of sensors on the monopile is limited during the installation of monopiles due to the ramming process, thus creating the risk of a localised inadequate protection or the protection over-functioning. Therefore, it was decided not to use an external power supply system.

To minimise the use of galvanic anodes, the use of TSA (thermal sprayed aluminium) is planned for the corrosion protection of WTG foundations. According to the current state of planning, the surface of the monopile will be covered with an epoxy coating in the upper area.The TSA coating will be applied in the range of presumably -10.00 m SKN to 16 m below the sea floor with a layer thickness of 0.35 mm. The corrosion protection of the transition piece is achieved by a combination of coating and galvanic anodes. The use of an external power supply system for the transition piece is not possible, as this combination involves a high risk and a high uncertainty regarding the reliability of the control system, which can lead to overprotection (overvoltages) and the resulting cathodic delamination of both the epoxy coating and

the TSA-coated section of the pile. In addition, excessive protection can lead to increased brittleness of the primary steel and hydrogen cracks in welds.

To achieve sufficient corrosion protection, special coatings are applied to the technical components. Corrosivity classes C5-M apply to external surfaces of structures exposed to a high concentration of salt mist and splash water, C4-M to internal surfaces subject to the influence of external air and C3-M to internal surfaces not exposed to the influence of external air.

Corrosion protection will be planned and executed in accordance with applicable standards (DIN EN ISO) and guidelines as well as the BSH requirements for corrosion protection for offshore plants.

4.5 Transformer Platform

The central component and heart of the wind farm is the offshore transformer platform. On the transformer platform, the cables of the wind farm's internal grid are brought together and the electricity from the wind turbines is transformed to the operating voltage of 220 kV of the transmission grid for the purpose of transmission to land.

The electricity is transmitted to the grid connection point on land via the 220 kV connection lines. The grid connection of the wind farm for the discharge of the electricity generated at sea, from the offshore transformer platform to the onshore feed-in point (Lubmin), is the responsibility of the responsible transmission system operator 50Hertz Transmission GmbH. The grid connection is not part of the application presented here.

The planning of the transformer platform, especially with regard to the grid connection, is carried out in close cooperation with the transmission system operator 50Hertz. In doing so, extensive experience from the planning and implementation of the transformer platform and grid connection of the OWF Wikinger, which was constructed in 2016 and 2017, can be drawn upon.

The transformer platform is planned as an unmanned platform. Structurally it consists of the topside and the foundation structure. The topside accommodates the entire technical equipment of the substation and consists of several decks. It houses the cable entrances, cable connections, transformers, switchgear, control equipment, etc. These facilities will be installed for both the medium voltage side (66 kV) for the operation of the wind farm and the high voltage side (220 kV) for the operation of the transmission grid. In addition, there are work and protection rooms for the maintenance personnel on the platform.

The planning and dimensioning of the transformer platform is carried out on the basis of the requirements for weights, space requirements and functions of the electrotechnical components, both on the medium-voltage side through the wind farm's internal grid and on the high-voltage side through the grid connection of the transmission system operator. Based on the current planning, it is assumed that the platform will have a ground plan of around 51 m x 31 m. In addition, other projecting components such as the helicopter landing deck can be added. A crane is installed on the platform for handling heavy loads on the platform or loads being transferred from supply ships to the platform.

Regular access to the transformer platform is exclusively by ship. The transformer platform will also be equipped with a helicopter landing deck (HSLD), which is only intended for medical or technical emergencies. The location of the transformer platform between the two easternmost rows of wind turbines allows a suitable approach and departure corridor to the landing deck. The expert opinion on the location of the helicopter landing deck is contained in Section 2.9 of the design documents.

When planning the shape of the transformer plate, the requirements with regard to collision friendliness in accordance with the BSH standard design are taken into account accordingly. As proof of the collision-friendly design, this was assessed by expert opinion. This collision analysis is attached to the documents in Section 2.5.

4.6 Foundation Structure Transformer platform

According to the current state of planning, the transformer platform will have a 4-leg jacket structure as a foundation. The jacket consists of a grid structure that is anchored to the seabed via foundation piles. According to the current state of planning, each jacket leg is anchored to the seabed by means of two foundation piles. The foundation piles will probably have a diameter of 2.5 m and will also be installed in the ground by means of driving. According to the current state of planning, the installation of the foundation piles could be carried out using the post-piling method, i.e. the foundation piles are driven through the pile guides of the foundation structure already placed on the seabed. The jacket structure and foundation piles are usually connected by grouting.

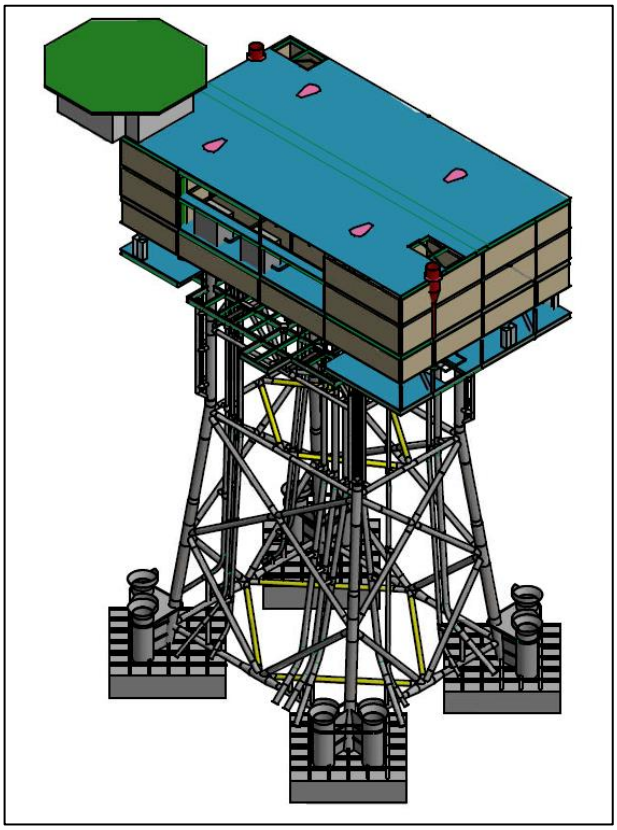

Figure 7: 3D view of the possible transformer platform

4.6.1 Scour Protection

The need for scour protection depends on the ground conditions, the local flow and the details of the foundation elements. According to the current planning status, no scour protection is planned for the foundation of the transformer platform.

4.6.2 Corrosion Protection

All steel components of the transformer platform, including the foundation, must be protected against corrosion. For the protection of the individual structure, coatings that are evidently resistant to seawater and are also resistant to UV radiation in combination with seawater, especially in the area of the water-air layer of the foundation, are chosen. The paint coats will correspond to the state of the art used in hydraulic engineering. Special emphasis is placed on the compatibility of the colours with the marine environment. There is no plan to paint the foundations with antifouling agents against possible growth.

The underwater area is particularly at risk of corrosion and is practically inaccessible or difficult to access for coating work for the lifetime of the foundations. When designing offshore systems, it must be ensured to a special degree that the strengths assumed for dimensioning are maintained over the entire estimated service life due to the highly corrosive environmental conditions. For offshore foundation structures, corrosion protection systems consisting of a combination of coating and cathodic corrosion protection (by

means of impressed current system or galvanic anodes) are regularly used under water. Due to the high safety requirements (occupational health and safety) prevailing in offshore wind farms during construction and operation (maintenance/repair), access to the cathodic corrosion protection systems is very difficult, which must be taken into account accordingly in the planning.-

To protect the transformer platform foundation against corrosion, a combination of coating and cathodic corrosion protection system with galvanic anodes is planned. In the course of further planning, alternative corrosion protection systems will also be tested and the corrosion protection concept will be definitively specified.

To achieve sufficient corrosion protection, special coatings are applied to the technical components. Corrosivity classes C5-M apply to external surfaces of structures exposed to a high concentration of salt mist and splash water, C4-M to internal surfaces subject to the influence of external air and C3-M to internal surfaces not exposed to the influence of external air.

The corrosion protection will be planned and executed according to applicable standards (DIN EN ISO) and guidelines. The BSH requirements for corrosion protection for offshore plants are taken into account in the design.

4.7 Inter Array Cabling

In order to dissipate the electrical energy generated in the wind turbines, they are connected to the transformer station via the farm's internal cabling. According to current planning, the internal cabling of the farm consists of 8 cable strands (Figure 5) and is designed in three-phase technology with an operating voltage of 66 kV. According to the current planning status, the total length of the farm cabling amounts to approx. 68 km.

For the farm cabling, three-core submarine cables are used, which are adapted to the respective transmission lengths and outputs with cross sections between 185 mm^2 and 1000 mm^2 can be executed. The cable structure consists of three stranded copper or aluminium conductors with an insulation of, cross-linked polyethylene (XLPE), for example. Submarine cables usually have longitudinal and transverse water protection and have steel wire armouring to protect them against damage. The insulating material has an inhibiting effect on electrochemical corrosion and is designed for a maximum operating temperature of 90°C during continuous operation.

The submarine cables are laid in the seabed for protection, so that they are sufficiently covered. During planning, particular attention is paid to the minimum installation depth required to meet the 2K criterion, which is determined by the properties of the cables and the subsoil. Based on preliminary calculations (see document 6.8 Cable Heating), it is assumed that the 2K criterion can be met with an installation depth in the range of 1.5 m to 2.0 m. The planned installation depth is in the range of 1.5 m to 2.0 m, so that it can be assumed that the 2K criterion is safely met. The final installation depth will be further specified and determined in the course of the implementation planning. On the basis of the detailed design, the calculation for compliance with the requirements of the 2K criterion is carried out again and submitted to the approval authority.

The areas of the farm's internal cabling between the exit of the submarine cables from the seabed to the entry into the cable opening of the monopile or J-tube are protected by cable protection systems. If necessary, cable layers can also be secured, for example with stone fills. Intersectins with other cables or pipelines are not planned.

4.8 Construction of the Wind Farm

The construction of the Baltic Eagle offshore wind farm will essentially take place in two phases.

The first phase comprises the construction of the transformer platform, consisting of foundation structure and topside, as well as the gradual commissioning of the transformer platform and the preparations for entry, connection and commissioning of the submarine cable systems of the grid connection by the transmission system operator. The step-by-step commissioning also includes the commissioning of the identification and communication systems of the transformer platform.

In the second section, the monopiles will be installed and the transition pieces will be mounted on them. The foundation structures are then connected to the transformer platform via the wind farm's own submarine cables. After the farm cabling has been commissioned, the offshore wind turbines are erected and commissioned.

The construction concept will be further developed in the course of further planning based, inter alia, on the results of the awards for the individual specialisation areas. The actual construction concept will then form the basis of the implementation planning, which is submitted to the regulatory authorities in good time before construction begins.

4.8.1 Marking of the Construction Area

Before construction begins, the construction area will be set up and marked (cardinal tons) in accordance with the applicable requirements and in coordination with the authorities. A labelling concept is attached to the planning documents in part 2.6. The competent authorities will be kept regularly informed of the progress of the construction work.

During the construction phase, the construction area will be additionally secured by means of a traffic safety vehicle. The task of the traffic safety vehicle is to observe the traffic area by means of radar and AIS and, if necessary, to advise ships of safe passing possibilities. In the event of emergency situations, the traffic control centre and the marine coordination will be informed.

In addition, a Marine Coordination Unit will be set up to coordinate and monitor the movement of vessels and people in the construction area and to take over the tasks of sea surveillance. The concept for sea surveillance will be developed in due course and submitted to the authorities for review.

It is planned to temporarily install or remove the construction area marking and the traffic safety vehicle for the period of several months after the erection of the transformer platform and before the wind turbines (foundation structures, farm cabling and wind turbines) are erected. For this purpose, the transformer platform will be marked as a stand-alone structure. A corresponding identification concept for the

transformer platform as a stand-alone structure is attached to the planning documents in part 2.6. Temporary removal of the construction site marking and removal of the traffic safety vehicle will take place after commissioning and successful acceptance of the marking in consultation with and with the approval of the responsible authorities. The construction area will be completely set up again in good time before the start of construction of the wind turbines (foundation structures, farm cabling and wind turbines), .

During the construction phase, there will be an increased volume of ships in the construction area. Table 8 gives an overview of ship types that can operate in the construction area during the construction phase.

Installation cranes will be equipped with appropriate day and night markings if they should present an obstacle to aviation due to their height during the erection process.

Table 8: Vehicles to be expected in the construction phase

Vehicle	**Tasks**
Floating crane	Installation of large components (monopiles and transition pieces, OSS foundation structure and topside)
Lifting/jackup ship	Construction of the WTG
Cable ship	Laying the cables within the wind farm
Transport barge and ships	Transport of large components (monopiles and transition pieces, OSS foundation structure and topside)
Tugboat	Moving barges, assistance with positioning, anchor handling, etc.
Crew transfer ship	Transporting people
Supply vessels	Transport of components, materials, etc.
Research vessels	Monitoring measures during construction
Traffic safety vessel	Monitoring of the sea area and securing the construction site

4.8.2 Construction of the Transformer Platform

To erect the transformer platform, the jacket foundation structure is first lowered to the seabed by a crane ship. After it has been placed, the foundation structure is levelled. Once the foundation structure has been levelled, the foundation piles are inserted into the pile guides and driven into the seabed by means of a pile driving method. Once all foundation piles have been installed, they are connected to the jacket foundation structure by means of grout joints.

Once the foundation structure has been installed, the topside is lifted onto the foundation structure using a crane ship and connected to it. As soon as the transformer platform has been set up, the commissioning work will begin. This also includes the installation and connection of the grid connection cables and their commissioning as well as the installation of the wind farm internal cabling and the installation and connection of the farm cables of the individual strands.

Due to the high amount of work involved in commissioning the OSS, a jack-up vessel is often placed next to the OSS, to enable multi-shift operation and simplified access to the OSS via gangway. The transport of personnel, equipment and material to the OSS can also be carried out by means of crew transfer ships. If necessary, material can also be transported to the OSS by supply ships.

4.8.3 Erection of the WTG Foundation Structures

The first step in the installation of the monopiles is to install scour protection by means of stone fill (if this is planned). The monopile is then driven into the seabed using a pile driving method.

During the installation of the foundation piles for the WTG and OSS by means of pile driving, process-related noise emissions occur. The sound emissions to be expected are described in the impact sound prognosis in part 6.6 of the planning documents. The use of a suitable noise control system will be necessary to counteract the predicted noise emissions. Good results have been achieved in noise reduction with the sound insulation systems used in wind farms with monopile foundations that have already been constructed. This experience is taken into account in the selection and application of noise reduction measures.

After the installation of the mono piles, the transition pieces are placed on the monopiles and connected by means of a screwed flange. Then the annular gap between the monopole and the transition piece is sealed with a grout material.

4.8.4 Inter Array Cabling

The installation of the wind farm's internal cabling will take place after the foundations of the WTG have been laid.

First of all, the cables of the wind farm's internal cabling are laid on the seabed and the cable ends are pulled through the cable openings of the monopiles in the case of WTGs or via J-tubes in the case of OSS and connected in the system. The cable protection systems for the protection of submarine cables in the

area between the exit of the submarine cables from the seabed to the entry into the cable opening of the monopile or J-tube are installed before the cable is pulled in.

Due to the nature of the surface sediments, it is assumed that the deposited submarine cables will sink into the surface sediment in places by a few centimetres (probably about 5 cm) due to their own weight. The cables are then brought to the planned installation depth using a post-burial process. A flushing method is used for the subsequent insertion of the cables into the seabed. The laying device is equipped with a corresponding sensor system that determines the spatial position of the submarine cables before and after they are laid at the target depth.

In the flushing process, a jet plough is used to fluidise the seabed below the overlying cable using water jet technology, upon which the cable sinks into the seabed to the planned target depth. This method does not create an open trench. Rather, the loosened soil behind the laying device solidifies again due to the sedimentation of the fluidised soil material. Slight depressions may remain in the laying area, but due to small-scale rearrangements of the soft sediments in the project area, these will level out again within a short time and will thus hardly be noticeable afterwards.

Based on the current planning status, a laying depth in the range of 1.5 m to 2.0 m is assumed. The final target depth for the cable laying will be determined during the implementation planning. After all boundary conditions have been established, the calculation for compliance with the 2K criterion is carried out again and submitted to the approval authority.

4.8.5 Construction of the WTG

The construction can be carried out by means of floating crane or jackup vessel. The installation ship would position itself next to the prepared foundation and install the tower, the nacelle, the rotor hubs and the rotor blades on the transition piece one after the other. The ship is then moved to the next location. The installation vessel can either fetch the new WTGs for installation itself from the base port of the installation or be supplied with new components by a feeder ship.

The commissioning of the WTG is then carried out by the commissioning personnel. The transport of personnel, equipment and material is done by crew transfer ships. If required, material can also be transported to the WTG by supply ships.

During the commissioning of the WTG and the wind farm in general, the corresponding day and night markings for shipping and aviation will also be put into operation. The labelling concept is attached to the planning documents in part 2.6. The competent authorities will be kept regularly informed of the progress of the construction work.

4.9 Operation of the Wind Farm

The operation of the wind farm is largely fully automated. The WTGs start up independently at wind speeds of around 3 m/s and automatically position the nacelles and rotor blades in the wind for optimal

operation. If the wind speed is too high, for instance during very strong storms, the turbines automatically turn the rotor blades out of the wind in order not to endanger the stability of the WTG.

The operation of each individual WTG and OSS is remotely monitored by the SCADA system. In this way, information on plant operation and the status of all components can be continuously transmitted to the control centre and, if necessary, the operation of the installations can be intervened in. The constant data transfer guarantees optimal monitoring of the installations and allows optimised planning of regular maintenance operations and also of necessary repairs.

In addition to constantly monitoring the operation of the turbines, the onshore operations centre also plans, coordinates and supervises maintenance and repair work as well as shipping traffic in the wind farm and personnel transfers to turbines. In addition to the premises used by the operations management, operational control centres usually have rooms for maintenance personnel, storage capacity for materials and tools and ideally direct access to the quay edge from where the maintenance ships leave for the wind farm. For the Wikinger wind farm, the operations centre is located in Neu-Mukran (Sassnitz) on the island of Rügen. For the Baltic Eagle wind farm it is being examined whether and how the existing infrastructure can be used.

Regular access to the wind farm, i.e. the regular transport of personnel and material to the wind farm, is exclusively by ship due to the short distance. Due to the short distance from the coast and the relatively high costs, no use of helicopters for regular access is envisaged. Nevertheless, a helicopter landing deck is planned on the OSS to enable a helicopter to land on the OSS in the event of a medical or technical emergency. The WTGs will be equipped with winch operating areas.

4.10 Dismantling

After the wind farm is shut down, the turbines will be dismantled. According to current planning, the WTGs, including transition pieces, as well as the topside and jacket of the OSS, will be dismantled, transported to land and disposed of properly. Foundation elements placed in the ground will be separated below the seabed, also transported to land and disposed of properly. The separation takes place so deep below the seabed that any parts remaining in the bed do not pose a danger to shipping and fishing even after possible sediment relocation in the future. The dismantling of the plant will be carried out according to the state of the art at the time of dismantling. There are no indications that the volume of ships during dismantling will be significantly different from that during the construction of the wind farm. The dismantling concept will be drawn up during the implementation planning phase and submitted to the authorities in good time before the start of construction.

In accordance with the usual requirements of the planning approval procedure for offshore wind farms, a guarantee for the dismantling of the turbines must be submitted to the planning approval authority before construction begins.

As a prerequisite for the plan approval pursuant to § 48(4)(1) No. 7 WindSeeG, the wind farm operator must submit a declaration of commitment pursuant to § 66(2) WindSeeG to the Federal Maritime and Hydrographic Agency, in which it undertakes to transfer the WTG and accessories without any claim to

remuneration after the plan approval decision has become ineffective. If such a transfer of ownership is required, the dismantling obligations are transferred to the transferee of the installations (cf. explanatory memorandum to the law, BR-Drs. 310/16, p. 388 f.).

5 IMPACT ON PUBLIC INTERESTS AFFECTED BY THE PROJECT

5.1 Threats to the Marine Environment or Bird Migration

In Table 9 below, the assessment of the existing objects and the impacts are summarised for each (partially) protected object and the possible resulting hazard of each protected object is derived as a component of the marine environment. The derivation of the hazard of a protected resource is carried out under consideration of possible measures to avoid and reduce environmental impacts. In principle, it can be assumed that a low or medium intensity of impairment does not constitute a significant effect within the meaning of the UVPG.

The impact assessment in Table 9 did not indicate any potential threat to the marine environment.

Table 9: Presentation of a possible threat to the marine environment and bird migration in relation to the protected resources

Protected resource	Population assessment	Structural and functional changes	Hazard of the protected resource
People, especially human health	low	low	None
Floor, area	Medium	low	None
Water	high	low	None
Climate / Air	high	low	None
Landscape / scenery	high	Medium	None
Cultural heritage and other tangible assets	very low	low	None
Macrozoobenthos*	low	low	None
Fish and cyclostomes	Medium	low	none**
Resting birds	low	Medium	None
Migratory birds Water birds Land birds that migrate at night Land birds that migrate by day Birds of prey Crane	high high medium medium high	low	None
Bats	Medium	low	None
Sea mammal Harbour porpoise Grey seal Seal	medium medium medium	low	none**

* Including macrophytes for which no structural and functional influences or hazards to the protected property are inferred; ** Including measures for prevention and reduction

Effects on the marine environment are described and assessed in the Environmental Impact Assessment (EIA) report. The issues of species protection, biotope protection and FFH compatibility are dealt with in corresponding separate technical articles. The above-mentioned documents are located in part 6 of the planning documents.

5.2 Pollution of the Marine Environment

Pursuant to § 48(4)(1) no. 1 WindSeeG, the plan may only be adopted if the marine environment is not endangered, in particular if pollution of the marine environment within the meaning of Article 1(1)(4) of the United Nations Convention on the Law of the Sea of 10 December 1982 (BGBl. 1994 II, p. 1799) does not give rise to concern and the migration of birds is not endangered. The risk posed by the project to the individual protected resources is derived within the EIA report from the intersection of the inventory value and the degree of structural and functional change using an evaluation matrix. There is no threat to the marine environment or bird migration (see EIA report, Section 9.1.2).

The impacts of the planned OWF can lead to minor to medium, and in the event of an accident to major structural and functional changes for the individual protected resources, not taking into account measures for prevention and mitigation. However, they are not to be understood as "pollution of the marine environment" within the meaning of § 48(4)(1) WindSeeG. The environmental impacts identified in the EIA report with regard to the protected resources as components of the marine environment, which are to be examined individually and in interaction, showed that if a selection of the proposed measures for prevention and reduction is implemented, a risk to these cannot be predicted. For all protected resources, the continued existence and possible developments are given both in terms of time and space.

Possible adverse effects on the waters of the Baltic Sea will be countered by a whole bundle of ordered measures to prevent and take precautions against water pollution, so that there is no cause for concern about pollution of the marine environment within the meaning of § 48(4)(1) No. 1 WindSeeG. Consideration of the requirements of the Marine Strategy Framework Directive is provided in a separate document in part 6.9 of the planning documents, which is additionally referred to here.

A protection and safety concept, in which the means to be provided and the measures to be taken are described and prescribed which, in accordance with the state of the art, prevent or minimise any effects of imminent or actual impairments (e.g. water pollution), will be submitted prior to the start of construction and operation.

In summary, the results of the environmental impact assessment for the "Baltic Eagle" OWF showed that the project is assessed as environmentally compatible in the overall result.

The above-mentioned documents can be found in part 6 of the planning documents.

The substances and materials used in the project during construction and operation as well as expected emissions including potential emission paths are compiled in an emission study. In addition, planned precautions and facilities which serve to avoid and reduce potential emissions are set out. In the course of the more detailed planning of the project, a corresponding waste and operating materials concept will

be drawn up and the emissions study will be updated in accordance with the planning status. These will be submitted for official review. The emission study is attached to the planning documents in part 6.7.

5.3 Endangerment of Bird Migration

According to the statements of the BSH (2009), the general rule is that a threat to bird migration within the meaning of § 48(4)(1) no. 1 lit. b) WindSeeG does not already apply if there is an abstract danger that individual birds may be harmed when passing through an OWF. Bird migration is not considered to be endangered until sufficient evidence is available to justify the prediction that the number of birds likely to be affected is such that, taking into account their population size, it is reasonably certain that one or more populations will be significantly affected. The biogeographic population of the respective migratory bird species is the reference value for the quantitative consideration.

The construction of the WTGs of the "Baltic Eagle" OWF is likely to result in losses due to bird strikes. According to the existing legal situation, individual losses of birds during bird migration must be accepted (BSH 2009a). Migratory bird populations are subject to natural mortality. Migration, especially over sea, is associated with increased losses for many land birds (e.g. KLAASSEN et al. 2014, SILLETT & HOLMES 2002). The extent of both natural and already existing anthropogenic losses varies from species to species. Therefore, there is no universal threshold for mortality applicable to all species. At the same time, there are no species-specific migration rates, especially for night owls. In the absence of species-specific threshold values, a threshold of one percent is therefore used here (BSH 2009a). A threat to bird migration is assumed if the expected mortality in the "Baltic Eagle" OWF exceeds 1% of the biogeographic population of a species.

The collision risk at the "Baltic Eagle" OWF is assessed in Chapter 8.8.4 of the EIA report for the main species groups. According to this, the risk of collision is expected to be low for daytime migrators, including seabirds, waterfowl and cranes, due to their flight altitudes and avoidance behaviour.

The highest risk of collision can be assumed for land birds migrating across the Baltic Sea at night. However, an increased risk is largely limited to phases with unfavourable weather conditions, especially with poor visibility, when luring effects from illuminated structures are to be expected. The forecast in Chapter 8.8.4 of the EIA report indicates an individual collision risk of less than 0.1% for nighttime migrators flying over the project area "Baltic Eagle". This figure is sufficiently far below the threshold of 1%, which also refers to the much larger total biogeographic population of each species. Even the projected total losses of 1296 night-birds per year are not suitable to reach the 1% threshold, compared to a total of 200-250 million Scandinavian night-birds.

The assessment of the barrier effect (Chapter 8.8.4 of the EIA report) does not give any indication of increased mortality of migratory birds due to an extended migratory route when flying around the "Baltic Eagle" OWF. In particular, for the wide front migration group, no impairment of the migration behaviour can be assumed. The additional energetic expenditure due to changed flight paths is negligible.

In summary, it can be assumed that the construction and operation of the WTG of the offshore wind farm "Baltic Eagle" will not endanger bird migration.

Effects on bird migration are described and assessed in the Environmental Impact Assessment (EIA) report. The issues of species protection and FFH compatibility are dealt with in corresponding separate technical articles. The above-mentioned documents are located in part 6 of the planning documents.

5.4 Safety and Ease of Shipping Traffic

5.4.1 Shipping

The specifications for shipping in the spatial development plan for the German Baltic Sea EEZ are the result of comprehensive spatial planning considerations, based on the determination of the main shipping routes, based on the evaluation of current traffic flows. These provisions concern priority and reserved areas for shipping, which must be kept free of incompatible uses, in particular buildings. In addition, minimum distances of 500 m from the spatially ordered priority and reserved areas must be maintained, taking into account the establishment of safety zones around the structural facilities of wind farms in accordance with § 53 WindSeeG.

The project area lies over 4 km south of shipping area No. 19, as listed in the spatial development plan, (from VTG North of Rügen to VTG Bornholmsgat), 1.2 km west of shipping area No. 20 (ferry connection Swinemünde-Ystad) and about 3 km north of shipping area No. 21 (south of the Adlergrund). Shipping traffic in these areas is directed through the relevant traffic separation areas. Shipping traffic tied to routes takes place only to a limited extent near the special suitability area "Westlich Adlergrund" (BSH 2005). The only exception to this are the seasonal ferries between Sassnitz and Bornholm. However, this route is not affected by the application area. The project area lies outside these regulated and therefore more heavily sailed areas.

The equipping and labelling of the wind farm in the construction and operating phase will be carried out according to the state of the art, taking into account the requirements of the guidelines of the Waterways and Shipping Administration in the currently valid version and in accordance with the IALA guidelines. For the safety of shipping, proper visual and radio identification with AIS and sonar transponders will be carried out in coordination with the competent authorities. The concepts for marking the construction phase, the temporarily stand-alone transformer platform and the normal operation of the wind farm are attached to the planning documents in part 2.6.

To determine the risk of collision, a risk analysis was carried out by DNV-GL in accordance with the BSH standard "Design of Offshore Wind Turbines". The risk analysis is attached to the planning documents in part 2.4. The risk analysis comes to the conclusion that under consideration of all risk reducing factors, such as the effect of AIS devices at the wind farm, existing emergency towing capacities and a traffic monitoring/sea space observation of variant 3, the average statistical repetition period is 192 years and thus corresponds to the approval criterion of a statistical collision frequency of over 100 years.

This ensures that all regularly travelled routes can be used trouble-free and without complications. An impairment of the safety and ease of traffic, here in particular of shipping traffic, in accordance with § 48(4)(1) no. 2 WindSeeG can therefore be ruled out.

5.4.2 Aviation

The project area is located about 7 km west of the special suitability area "Westlich Adlergrund". The suitability area "Westlich Adlergrund" and thus also the project area is used for training flights of the German Federal Armed Forces and for pollution control flights of the Federal Police (Pollution Control Flights) and sport aviation (BSH 2005). No shooting takes place in the airspace above the suitability area. Instead, the airspace of approx. 2,100 m to 9,200 m is used for positioning the aircraft for approaching the training areas for shooting practice located south of the OWF. Pollution control flights are generally carried out at altitudes well above 300 m. Light aircraft and smaller propeller-driven aircraft can use the airspace up to an altitude of at least 150 m MSL, with the exception of take-off and landing. Flying lower than this is contrary to the provisions of ICAO Annex 2 applicable in the EEZ.

During the designation of the special suitability area "Westlich Adlergrund" it was determined that air traffic is not expected to be impaired by the installation and operation of wind turbines within the special suitability area (BSH 2005). Due to the geographical proximity, it can be assumed that this statement regarding air traffic can also be applied to the Baltic Eagle OWF project. Thus, there is no reason to expect the air traffic to be impeded by the project.

The wind farm turbines will be included in the aeronautical charts as flight obstacles and equipped with day and night markings in accordance with the state of the art and the applicable regulations. The concepts for marking the construction phase, the temporarily stand-alone transformer platform and the normal operation of the wind farm are attached to the planning documents in part 2.6.

An impairment of the safety and ease of traffic, here in particular of aviation traffic, in accordance with § 48(4)(1) no. 2 WindSeeG can therefore be ruled out.

5.5 Security of National and Alliance Defence

A large part of the Baltic Sea EEZ is covered with military exercise areas according to the information provided in the spatial development plan for the Baltic Sea EEZ. The application area is located below the air warning area (danger area) ED-D 47 C, in which, however, only flight manoeuvres to approach the practice shooting range located south of the OWF are carried out (BSH 2009).

In a statement dated 5/04/2013, the Federal Office for Infrastructure, Environmental Protection and Services of the Bundeswehr - Competence Centre for Construction Management Kiel, Division K4 - announced that the German Air Force has no objections to the total height of 181.50 m applied for at the time. If higher turbines are constructed, it would have to be re-examined whether military interests would be affected. Within the scope of a preliminary planning enquiry, the Federal Office for Infrastructure, Environmental Protection and Services of the Bundeswehr announced in January 2018 that there were no objections to the overall heights, some of which were significantly higher than the total height of 196 m above SKN planned here, submitted for examination. It can therefore be assumed that the Bundeswehr has no reservations about this project.

Furthermore, the wind farm will be equipped with sonar transponders in accordance with the specifications of the German Federal Armed Forces. The concept for sonar transponder equipment is included in the concept for marking during normal operation, which is attached to the plan documents in Part 2.6.

An impairment of the security of the national and alliance defence according to § 48(4)(1) no. 3 WindSeeG as well as other military interests by the project can thus be excluded.

5.6 Priority Mining Activities

The project area lies outside the areas with permits in accordance with the Federal Mining Act (BBergG), as described in the spatial development plan for the Baltic Sea EEZ. To the southeast, beyond the special suitability area "Westlich Adlergrund" acc. SeeAnlV (BSH 2005), lie the areas "Adlergrund Nord" (distance > 15 km) and "Adlergrund Nordost" (distance 20 km) with mining permits (BSH 2009), whose time limits have been extended until 31/12/2040.

It was already confirmed during the procedure for the determination of the special suitability area "Westlich Adlergrund", in the statement of the Stralsund Mining Office, that there is no overlap with the areas "Adlergrund Nord" and "Adlergrund Nordost" (BSH 2005). Since the project area applied for is located at an even greater distance from the areas with mining rights, it can be assumed that the area applied for is not affected by mining interests either.

In a letter dated 23 April 2020, the Stralsund Mining Office, which is responsible for the project, stated that no mining interests under the Federal Mining Act (BbergG) are affected and that no mining permits or applications for mining permits have been submitted for the project area.

In the event of any simultaneous land use for wind energy use and the exploration and extraction of raw materials, the interests would have to be coordinated and criteria for the compatible design of the uses would have to be agreed (BSH 2009). The Baltic Eagle project is thus compatible with priority mining activities in accordance with section 48(4)(1) no. 4 WindSeeG.

5.7 Existing and Planned Cable, Offshore Connection, Pipe and Other Lines

The "Baltica Segment 3" submarine cable of the Danish telecommunications company TDC, which is currently in operation, runs south of the wind farm area. The distance between the wind turbines and this submarine cable is 500 m in accordance with the relevant regulations and also the specifications in the BFO-O and FEP. The wind farm planning was coordinated with TDC, which in turn gave its consent to the planning of the neighbouring wind farm.

The section of a planned natural gas pipeline in the project area is listed in the spatial development plan for the Baltic Sea EEZ (2009). In its letter of 18/03/2013, the Stralsund Mining Office points out that this is the "Baltic Pipe" transit pipeline. This project is being developed by the Polish gas transmission system operator GAZ-SYSTEM S.A. and the Danish gas and electricity transmission system operator Energinet.dk. After a very long rest period, a scoping meeting took place on 23/05/2018 on the planned routes in the area of the German Baltic Sea EEZ. Following the scoping date, GAZ SYSTEM S.A.

announced in a press release on 20/08/2018 that the route would now be followed outside German territorial waters. On 25 January 2019 GAZ-SYSTEM S.A. then submitted an application for the construction and operation of the natural gas pipeline "Baltic Pipe" from Denmark to Poland via Denmark. The new route applied for is therefore outside the German EEZ.

According to the BFO-O 2016/2017 and the area development plan (FEP) announced by the BSH on 28 June 2019, it can be assumed that offshore wind energy will be expanded on area O-1.3 north of the priority area "Westlich Adlergrund". The O-2.2 area north of OWF Baltic Eagle is under review. There are no other areas available for the development of offshore wind energy in this part of the German Baltic Sea EEZ. According to BFO-O 2016/2017 and FEP, the route rooms for the grid connections of area O-1.3 are located on the western edge of Cluster 1 and for area O-2.2 on the eastern edge of Cluster 2. The specifications of the BFO-O were taken into account accordingly in the planning of the project area.

The Baltic Eagle project is thus compatible with existing and planned cable, offshore connection, pipe and other lines in accordance with § 48(4)(1) no. 5 WindSeeG.

5.8 Existing and Planned Locations of Converter Platforms or Substations

There are no existing or planned locations of converter platforms (for DC technology) or transformer stations (for AC technology) in the Baltic Eagle project area. A possible location for a transformer platform was described in BFO-O 2016/2017. The planned position of the transformer platform of the Baltic Eagle project is approximately 1,000 m south of the possible site for a transformer platform as described in BFO-O 2016/2017, but is still within the search area for transformer platforms of BFO-O 2016/2017. The standard concept for grid connections of OWFs in the Baltic Sea is based on 220 kV three-phase current technology according to BFO-O 2016/2017 and FEP 2019. In previous versions of the BFO-O, the option of a collection platform in the south of Cluster 2 was considered and a search area for collection platforms and cable systems was defined for this purpose. In accordance with FEP 2019, only area O-1.3 (north of the "Westlich Adlergrund" priority area) and possibly (currently still under consideration) area O-2.2 (north of the "Baltic Eagle" OWF) are planned for the further expansion of offshore wind energy in this sea area (Clusters 1 and 2). According to FEP 2019, the grid connection for these two areas is to be carried out directly via 220 kV AC connections. Accordingly, the search area for collection or converter platforms has been omitted in the FEP 2019.

Transformer platforms must be planned in accordance with BFO-O and FEP within the respective wind farm areas. This means that there are no implications for other planned transformer platforms.

The Baltic Eagle project is thus compatible with existing and planned locations of converter platforms or transformer stations pursuant to § 48(4)(1) no. 6 WindSeeG.

5.9 Declaration Regarding the Obligation According to § 66(2) WindSeeG

For the Baltic Eagle project, the obligation under § 66(2)(1) WindSeeG is declared effective in accordance with § 48(4)(1) no. 7 WindSeeG.

5.10 Compliance with Other Requirements According to WindseeG and Other Public Law Regulations

5.10.1 Marine Spatial Plan for the German EEZ

The marine spatial plan for the German Baltic Sea EEZ came into force with the Ordinance on Spatial Planning in the German Exclusive Economic Zone in the Baltic Sea (EEZ Baltic Sea ROV) of 10 December 2009.

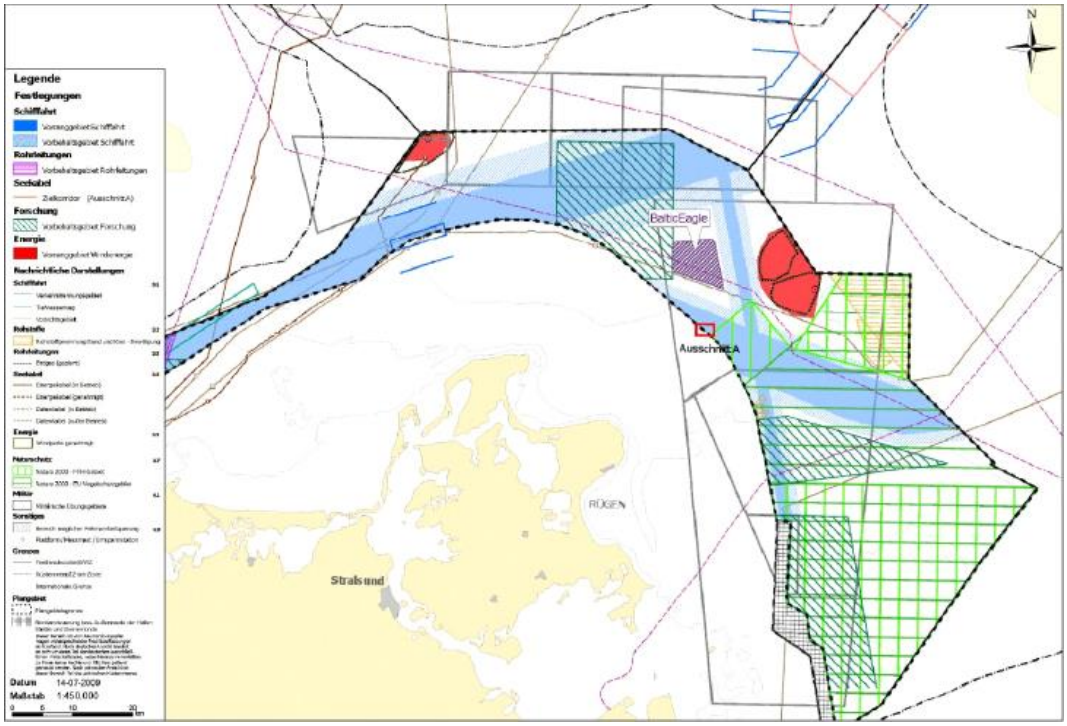

Figure 8: Integration into the spatial development plan of the German Baltic Sea EEZ (2009)

Pure white areas without any spatial planning specifications and notifications of area categories were not included in the spatial development plan for the German Baltic Sea EEZ. However, the location of the project area was chosen in such a way that there are no conflicts or only minor ones, which in any case do not conflict with the objectives and concerns of regional planning.

The project area "Baltic Eagle" OWF is located on an area for which "military training areas" are presented for information purposes. This is a training area of the air force, which occupies the airspace well above sea level. This also applies to the regional priority area of wind energy "Westlich Adlergrund", which is located 7 km east of the project area Baltic Eagle and also below the military training area. In the area of the water and the seabed, it is therefore possible to assume a so-called white area, so that both uses are compatible due to the vertical separation of the areas.

The project area lies outside the priority and reserved areas for shipping as defined in the spatial development plan. Shipping area no. 19 (from VTG North of Rügen to VTG Bornholmsgat) is located over 4 km north, shipping area no. 20 (ferry connection Swinemünde-Ystad) 1.2 km east and shipping area

no. 21 (south of the Adlergrund) about 3 km south of the reserved area. The required minimum distance of 500 m from all spatial priority and reserved areas of navigation is maintained.

The area reserved for research lies to the west of the project area. In accordance with the principles of regional planning, particular weight is placed here on carrying out scientific research activities. This must be taken into account accordingly when weighing it up against other plans, measures and projects of importance for the region. The safety zone to be established for the "Baltic Eagle" OWF in accordance with § 53 WindSeeG of generally 500 m around the wind farm will overlap with this reserved area, which means that the navigation rules still to be issued will also extend to this overlapping area. This area that is reserved for research has a area of more than 400 km² and is mainly used by the Thuenen Institute for Baltic Sea Fisheries for research catches. Within the framework of the preliminary planning, discussions were held with the Thuenen Institute regarding the planning of the "Baltic Eagle" OWF project and the research activities in this neighbouring reserved area. The distribution and location of the research surveys' fishing hauls is determined randomly. Although these may also be located in the affected overlapping area, this is considered very rare due to the very small size of the overlapping area compared to the total area of the reserved area. If a randomly determined train of barges were to be located in or move into the overlapping area and also run towards the wind farm, this train of barges would have to be relocated. This would be feasible without significantly affecting the research work. An agreement has also been reached with the Thuenen Institute for Baltic Sea Fisheries, which will allow a closer approach to the turbines for research purposes. From the point of view of the Thuenen Institute of Baltic Sea Fisheries there are therefore no concerns regarding the planning of the "Baltic Eagle" OWF project.

A data cable (which is in operation) runs to the south of the wind farm area. This is the submarine cable "Baltica Segment 3" of the Danish telecommunications company TDC. The distance between the wind turbines and this submarine cable is over 500 m. TDC has given its consent to the planning of the wind farm in the neighbourhood of the data cable (see Chapter 5.7).

The spatial development plan shows the section of a planned natural gas pipeline in the vicinity of the project area for information purposes. This planning involves the transit pipeline "Baltic Pipe". During the planning, the route was adjusted and it no longer runs within the German EEZ. (see Chapter 5.7)

The updating of the spatial development plans for Germany's North Sea and Baltic Sea EEZ by the Federal Ministry of the Interior, Building and Homeland Affairs (BMI) with the support of the Federal Maritime and Hydrographic Agency (BSH) began on 11 June 2019. On 31/01/2020, the BSH submitted the draft of the framework for the Strategic Environmental Assessment pursuant to § 8(1) ROG and the concept for updating the spatial development plans for consultation, and held a meeting on 18 and 19 March 2020. A first draft is expected to be presented for consultation in mid 2020.

In accordance with the presented concept for updating the regional development plans, the area in which the "Baltic Eagle" OWF project is located will probably be designated as a reserved area for offshore wind energy.

The "Baltic Eagle" OWF project complies with other requirements under the WindSeeG and other public law provisions pursuant to § 48(4)(1) no. 8 WindSeeG, here relating to the spatial development plan for the German Baltic Sea EEZ.

The basis of the technically necessary minimum distances between the wind turbines when planning the wind farm layout follows the spatial planning principle of the most space-saving arrangement of the wind turbines (BSH 2009).

5.10.2 Federal Spatial Offshore Grid Plan

The relevant document for the OWF Baltic Eagle is the Federal Offshore Plan for the German Exclusive Economic Zone of the Baltic Sea 2016/2017 (BFO-O 2016/2017), which was prepared on 22/12/2017, see Figure 9. The BFO is responsible for the spatial planning of the clusters for offshore wind turbines, the locations for the converter platforms in the North Sea area and the transformer platforms in the Baltic Sea area, as well as the routes and route corridors for the submarine cable systems, on the basis of standardised technology specifications and planning principles. The provisions of BFO-O 2016/2017 must be taken into account for the planning of offshore wind farms and grid connections.

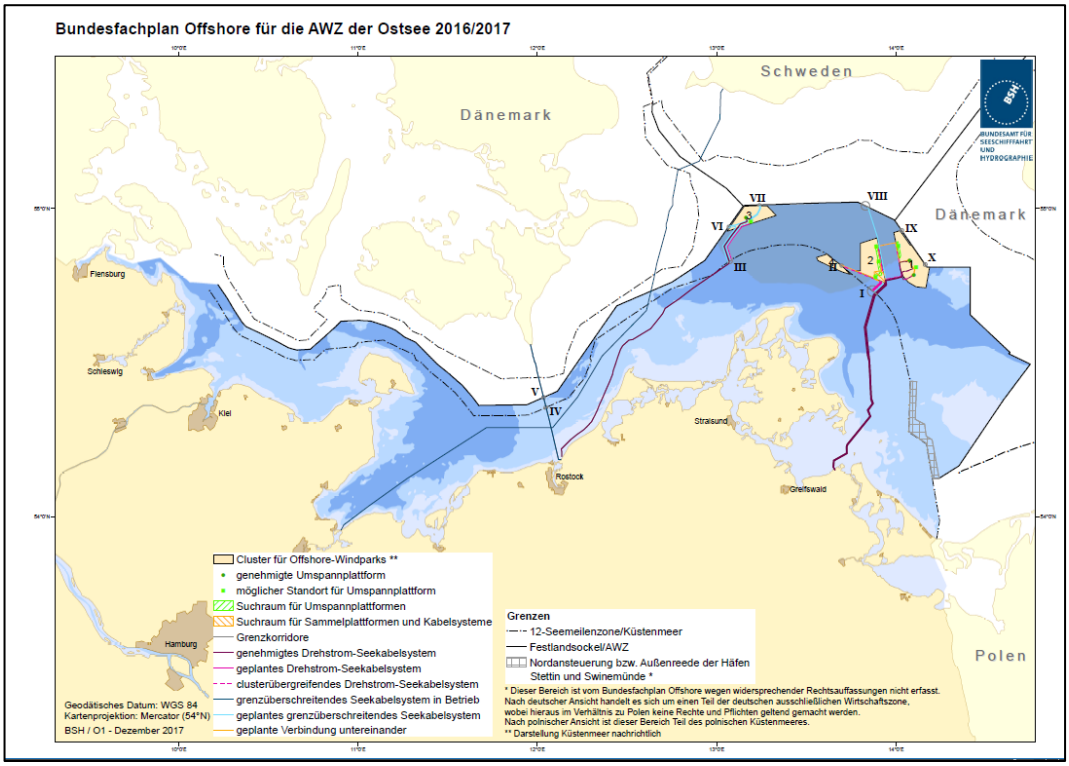

Figure 9: Federal Offshore Plan for the Baltic Sea 2016/2017

Section 3.3 of the BFO-O 2016/2017 explicitly stipulates the possibility to derogate from the requirements and principles in justified individual cases. Derogations must be included in the respective individual approval procedures, justified for each principle or technology specification in a comprehensible and plausible manner, and compliance with the legal requirements must be demonstrated in particular with regard to the following aspects:

- any concerns of public and private interest (including the network user)

- Agreement or Consent with or from Affected Third Parties
- consideration of the economical and environmentally friendly use of the area in accordance with § 2(2) no. 6 SAA

In this section, the relevant principles and technical specifications are considered and their compliance is explained, or existing derogations are justified in a comprehensible and plausible manner.

The "Baltic Eagle" OWF project is located in Cluster 2 of the Federal Offshore Plan for the Baltic Sea EEZ 2016/2017. The incorporation of the Baltic Eagle offshore wind farm is shown Figure 10 schematically.

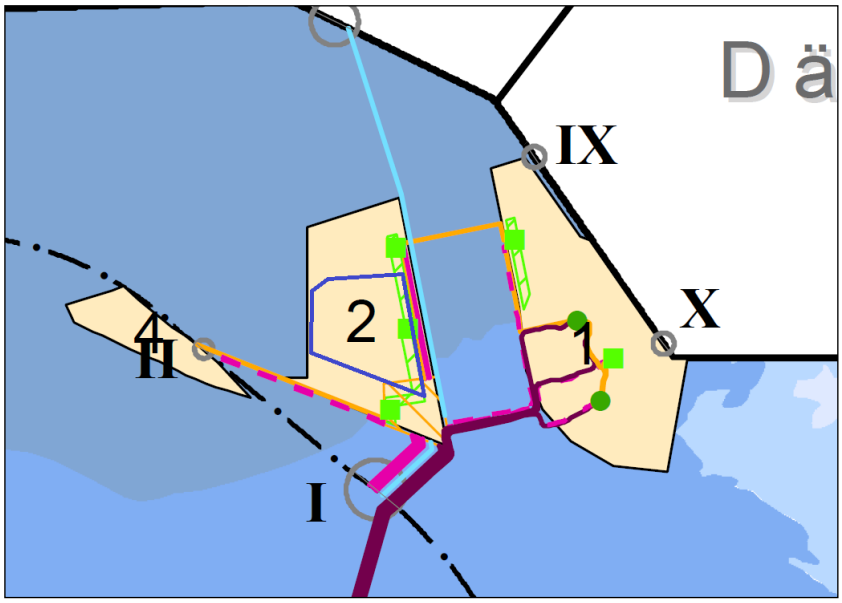

Figure 10: Incorporation of the "Baltic Eagle" OWF (blue) into BFO-O 2016/2017

Location of the Transformer Platform

BFO-O 2016/2017 defines the following technical specifications and planning principles for the locations of the transformer platforms:

BFO-O Specifications:

With regard to the technical specifications, the BFO summarises the following:

- Application of three-phase current technology
- Uniform transfer voltage 220 kV
- Use of the transformer platform of the offshore wind farm by the TSO
- Standardisation of network components on the transformer platform
- Preconditions for the efficient use of binding capacities

With regard to the planning principles, the BFO summarises the following:

- Choice of a location from which the total length of the route to the network connection point is as low as possible and less than 100 km
- A surface area of 100 x 100 m for the transformer station as well as additional manoeuvring space
- Availability must be ensured
- Safety of traffic must not be impaired (500 m distance to priority and reserved shipping lanes)
- Consideration of all existing and approved uses, clearance 500 m
- Construction in Natura2000 areas/protected habitats is prohibited and is only permitted outside these with noise reduction measures
- Cultural assets and unexploded munitions must be considered
- Required removal of structures

In the cartographic representation of BFO 2016/2017, see Figure 10, possible locations for transformer platforms (green square) and search areas for transformer platforms (green hatched area) are defined in the eastern border area of Cluster 2.

Compliance with BFO-O:

As the transformer platforms are planned, erected and operated by the respective wind farm operator under the scope of application of BFO-O 2016/2017, the wind farm operator is responsible for taking the BFO-O specifications into account.

The planning of the transformer platform builds on a close coordination with 50Hertz as the responsible TSO on the basis of a 220 kV three-phase connection concept and a joint use of the transformer platform. In addition to standardised network components, planning also takes into account the efficient use of connection capacities by means of possible interconnections. For this purpose, appropriate technical possibilities are planned for the connection of the two power supply cables and for two further connections to each other.

The planned position of the transformer platform is located in the eastern edge area of the wind farm, i.e. in the area of Cluster 2, which BFO-O 2016/2017 plans to use as search area for the transformer platform. With regard to the possible location for the transformer platform according BFO-O 2016/2017 the planned position of the transformer platform is 1,000 m south of the description. Due to the position in the wind farm that it has been moved into in the current planning the platform integrates into the overall ensemble of the wind farm development and keeps sufficient distance from shipping priority and reserved areas. Existing and approved uses are not available. In addition, there is sufficient space and manoeuvring room for the construction and operation of the transformer platform.

Regular access to the transformer platform is by ship. In case of a medical or technical emergency, it is additionally equipped with a helicopter landing deck. The location of the transformer platform between the two easternmost rows of wind turbines allows a suitable approach and departure corridor to the helicopter

landing deck. This planning is based on joint coordination with the network operator 50Hertz in the course of the planning for the joint use of the transformer platform.

Should cultural assets or even explosive ordnance be discovered in the course of further planning and investigations, this will be taken into account in the planning of the wind farm or any necessary measures. The transformer platform will be dismantled after the wind farm has stopped operating.

The specifications of BFO-O 2016/2017 regarding the location of the transformer platform are essentially complied with. Concerning the possible location for the transformer platform of the BFO-O 2016/2017 there is a deviation present.

Route Corridors for Three-Phase Submarine Cable Systems and Interconnections

BFO-O 2016/2017 defines the following technical specifications and planning principles for the route corridors for three-phase submarine cable systems.

BFO Specifications:

With regard to the technical specifications, the BFO summarises the following:

- Application of three-phase current technology
- Uniform transfer voltage 220 kV

With regard to the planning principles, the BFO summarises the following:

- Maximum bundling within the scope of a parallel routing
- Distance for parallel cable laying: 100 m; after every second cable system, 200 m depending on the conditions along the route
- Conduction through boundary corridors I and III
- If possible, crossing the priority and reserved shipping lanes at right angles
- Consideration of existing infrastructure and approved uses (building, 500 m clearance, shipping routes, 300 m clearance)
- Avoid crossovers; if these are absolutely necessary, then as far as possible make them right angled; distance between turning points 250 m
- Superposition, which ensures permanent safety of the cable systems
- Laying outside Natura2000 areas/protected habitats
- Prevention of sediment warming (compliance with 2 K criterion)
- Gentle laying process
- Timing of overall coordination of the laying work
- Cultural assets and unexploded munitions must be considered
- Required removal of structures

In the cartographic representation, the area for the route corridor is defined schematically in the eastern border area of Cluster 2.

Compliance with BFO-O:

The grid connection systems are entirely the responsibility of the TSO responsible for the grid connection of the offshore wind farms, from planning, construction and operation to decommissioning. In this respect, compliance with the technical specifications and planning principles is essentially the responsibility of 50Hertz as the responsible TSO. However, the planning principles, especially the distance specifications, also require consideration by the wind farm operator when planning the route areas.

For example, the planning of wind farms must take into account appropriate spaces for route corridors which allow sufficient distances to be maintained from shipping priority and reserved areas, and from built-up areas between the planned parallel submarine cable systems for grid connections, interconnections and cross-border systems.

The grid connection systems of the projects already constructed and those in Clusters 1, 2 and 4, which were awarded funding in the 2018 call for tenders, will extend into the BFO-O search area for collection platforms and cable systems via border corridor I in the German EEZ. This search space also coincides with the virtual bundling point for the connection systems OST-2-1, OST-2-2 and OST-2-3 according to ONEP 2017-2030 and also forms the starting point for the cross-cluster connections for Clusters 1, 2 and 4 according to BFO-O 2016/2017. From this search space onwards, the network connection systems for Cluster 1 swivel to the east, for Cluster 4 to the west and for Cluster 2 to the north.

According to BFO-O 2016/2017, the route corridor on the eastern edge of Cluster 2 is intended for the routing of the three-phase submarine cable systems for the connection of offshore wind farms in Cluster 2. The submarine cables for interconnections and for cross-border submarine cable systems also run along this route corridor.

According to current planning, the grid connection cable systems "OST-2-2" and "OST-2-3" for connecting the "Baltic Eagle" OWF will be laid in this route corridor, will leave the route corridor in the area of the transformer platform and will turn towards the transformer station of the "Baltic Eagle" OWF. There is also sufficient space in this route corridor for the possible laying of a possible submarine cable system to connect the area north of the "Baltic Eagle" OWF (according to FEP 2019, the area O-2.2 currently under consideration) and a cross-border submarine cable system to Sweden (according to BFO-O 2016/2017; according to FEP 2019 now going to Denmark).

In addition, submarine cable systems for possible interconnections are taken into account in this route corridor according to BFO-O 2016/2017. These would run from the "Baltic Eagle" OWF substation south to the "Arcadis Ost 1" OWF and north to the O-1.3 area (according to FEP 2019 in tender 2021). The creation of the interconnection to the "Arcadis Ost 1" OWF, which was also awarded a contract in the transitional tender 2018, is currently not planned and is therefore not currently being applied for by the transmission system operator. If the connection to the "Arcadis Ost 1" OWF were to be created in the future, this submarine cable system would be laid south of the transformer station of the "Baltic Eagle" OWF with a distance of 300 m from the peripheral wind turbines. An agreement for this would have to to be concluded with the transmission system operator 50Hertz.

The routing of the grid connection cables in the route corridor east of the "Baltic Eagle" OWF corresponds to the specifications of BFO-O 2016/2017. The distances that can be achieved in this route corridor for submarine cable systems, in particular between submarine cable systems and shipping routes, between submarine cable systems laid in parallel and between submarine cable systems and construction can be adhered to as far as possible according to the planning principles of BFO-O 2016/2017. The reduced distance of 300 m of the submarine cable system for the interconnection of the "Arcadis Ost 1" OWF (in the event of the cables being laid) to the three WTGs of the "Baltic Eagle" OWF would be a deviation from the planning principles of BFO-O 2016/2017.

Routing corridors for cross-boundary undersea cable systems

BFO-O 2016/2017 defines the following technical specifications and planning principles for the route corridors for cross-border submarine cable systems.

BFO Specifications:

With regard to the technical specifications, the BFO summarises the following:

- Designed as a direct-current marine cable system with bundled feed and return lines
- Consideration and inclusion in network planning

With regard to the planning principles, the BFO summarises the following:

- Maximum bundling within the scope of a parallel routing
- Distance for parallel cable laying: 100 m; after every second cable system, 200 m depending on the conditions along the route
- Connection through boundary corridors
- Right-angled crossing of priority and reserved shipping areas
- Consideration of existing infrastructure and approved uses (building, 500 m clearance, shipping routes, 300 m clearance)
- Avoid crossovers; if these are absolutely necessary, then as far as possible make them right angled; distance between turning points 250 m
- Superposition, which ensures permanent safety of the cable systems
- Laying outside Natura2000 areas/protected habitats
- Prevention of sediment warming (compliance with 2 K criterion)
- Gentle laying process
- Timing of overall coordination of the laying work
- Cultural assets and unexploded munitions must be considered
- Required removal of structures

In the schematic, cartographic representation, the route corridor in the eastern border area of Cluster 2 is defined for this purpose. In addition, existing pipelines and submarine cables must be duly taken into account when selecting the course of the route for new cross-boundary marine cable systems; a clearance of 500 m is required.

Compliance with BFO-O:

Cross-border submarine cable systems may be the responsibility of the relevant TSO, as is the case, for example, with the implemented and planned cross-border submarine cable systems in the area of Cluster 3. However, such planning can also be carried out by third parties. For wind farms, the planning principles of the BFO may require appropriate consideration in wind farm planning, particularly with regard to the distance specifications.

According to the BFO-O 2016/2017, the border corridor VIII with the Swedish EEZ should be used for a possible cross-border submarine cable system. However, when the FEP 2019 was drawn up, this route planning was adapted in such a way that instead of border corridor VIII, border corridor IX to the Danish EEZ must now be used for a possible cross-border submarine cable system of this kind. The route of the cross-border submarine cable system must be selected using the route corridor on the eastern edge of Cluster 2. Thecurrent planning was based on these specifications of BFO 2016/2017 regarding the route selection for a possible cross-border submarine cable system of this kind.

The planning principle of BFO-O 2016/2017 specifies a distance of 500 m from existing pipelines and submarine cables for cross-border submarine cable systems. The FEP 2019, which replaces the BFO-O 2016/2017, no longer specifies this special distance requirement as a planning principle; instead, the same planning principles as for other submarine cable systems now apply to cross-border submarine cable systems.

Currently 50Hertz is planning a cross-border submarine cable system to Sweden in the Kriegers-Flak area with the Hansa-Power-Bridge. No further plans for a cross-border submarine cable system to Sweden parallel to the Hansa Power Bridge are known. At this stage, there is no known planning for cross-border submarine cable systems in this area. Any future planning for cross-border submarine cable systems will therefore fall under the FEP, so that the previous planning principles of the BFO-O are not relevant for a possible cross-border submarine cable system.

Conclusion and Application for Derogation from the Requirements and Principles of BFO 2016/2017

The planning of the Baltic Eagle wind farm pursued here is essentially in line with the provisions of BFO-O 2016/2017.

The current location of the transformer platform is approximately 1,000 m south of the possible site for the transformer platform according to BFO-O 2016/2017, but still within the search area for the transformer platform. The site was chosen in consultation with the transmission system operator, taking into account technical and operational requirements. As the position of the transformer platform has been moved to the south, the route may be shortened. A deviation from the cartographic representation of the possible location for the transformer platform is hereby requested.

The route for the two connection systems of the OWP "Baltic Eagle" OST-2-2 and OST-2-3 is located east of the project area, in line with the spatial definitions of the BFO-O. The distance from the planned wind energy generators of "Baltic Eagle" is more than 500 m, which corresponds to the textual

specifications of the BFO-O. In accordance with the BFO-O, a connection could be made to the "Arcadis East 1" offshore wind farm. However, there are no known plans for this connection between the different sites at present. Should this connection be implemented in the future, this submarine cable system would be laid at a distance of 300 m from the "Baltic Eagle" wind turbines. An agreement will then be sought with the responsible 50Hertz grid operator for the installation of this submarine cable system. This reduction of the distance from 500 m to 300 m would then correspond to a deviation, which is hereby requested as a precautionary measure.

Any Concerns of Public and Private Interest (Including the Network User)

The slight deviation of the location of the transformer platform compared to the possible location for the transformer platform shown in the map does not affect any public and private interests and concerns. The current location of the transformer platform was determined in coordination with the transmission system operator. The current location allows for the installation of a helicopter landing deck as an additional means of access to the platform for both medical and technical emergencies. For medical emergencies, this increased accessibility means better protection of life and limb. In the event of a technical emergency, e.g. a malfunction in the transmission network, this enables increased accessibility of the transformer platform even in unfavourable weather conditions and, if necessary, a shorter reaction time. It is in the interest of the network user to rectify technical faults at short notice.

The reduction of the distance of the possible connection to the "Arcadis Ost 1" OWF to 300 m does not affect any public and private concerns and interests. Due to the prevailing subsoil conditions, it is possible to lay submarine cable systems using standard laying methods.

This deviation does not adversely affect public and private interests (including those of the network user).

Agreement or Consent with or from Affected Third Parties

The location of the transformer platform as well as the distance of the submarine cable for a potential connection to the "Arcadis Ost 1" OWF , which has been reduced to 300 m, have been coordinated with 50Hertz as the responsible transmission system operator in the joint planning and are to be recorded in corresponding agreements. Further agreements or approvals with or from affected third parties are not required.

Consideration of the Economical and Environmentally Friendly Use of the Area in Accordance with § 2(2) no. 6 SAA

One of the decisive factors for the planning of the wind farm is the efficient use of the available space. The current location of the transformer platform means that no additional space is required. The reduced distance of the submarine cable for a potential connection to the "Arcadis Ost 1" OWFto 300 m leads to a more efficient use of the route corridor. Additional areas will not be used for this purpose.

The Baltic Eagle project complies with other requirements under the WindSeeG and other public law provisions in accordance with § 48(4)(1) no. 8 WindSeeG, in this case relating to BFO-O 2016/2017.

5.11 Other Concerns

5.11.1 Fisheries

Fishing is a traditional industry (BSH 2009). Fishing and exploitation take place within the framework of fishing quotas. There are no spatially defined fishing rights in the sense of individual allocations (BSH 2005).

In 2006, international catches from the German Baltic Sea amounted to approximately 62,000 tonnes of fish, mainly herring, cod and sprat. Directly in the Baltic Eagle project area, cod and flounder were fished in 2006 with demersal otter trawls and gillnets. According to PEDERSEN et al. (2009) the Baltic Eagle project area can be classified as being subject to little fishing activity on the basis of the geographical distribution of international fishing efforts (IfAÖ 2012).

As far as it seems permissible from the point of view of the operational and safety concept, there is nothing to prevent small ships from entering the offshore wind farm from the applicant's point of view. However, to protect the wind farm equipment (measuring equipment, probes, internal cabling), the use of trawls and drift nets will not be possible. This is likely to restrict fishing during the operational phase of the offshore wind farm.

Due to the size of the project area and the low to medium intensity of fishing use, it can be assumed that the implementation of the OWF Baltic Eagle project will not have any significant adverse effects on fishing. A fisheries report is attached to the planning documents in Part 2.9.

All catch statistics from the Federal Agency for Agriculture and Food (BLE) as well as from the State Agency for Agriculture, Food Safety and Fisheries Mecklenburg-Western Pomerania (LALLF) from recent years show the dominance of the pelagic fish species herring and the demersal fish species cod, flounder and turbot for the German Baltic Sea off Mecklenburg-Western Pomerania. This is also the case for ICES rectangle 38G3, on the northern boundary of which the proposed Baltic Eagle OWF is located. From this rectangle, the catches of pelagic fisheries clearly predominate in the period 2012-2015, followed by landings from single-vessel bottom trawl fisheries, two-vessel bottom trawl fisheries and gillnet fisheries, with a decreasing importance.

The fisheries' income from ICES rectangle 38G3 has fluctuated between approximately 3.2 and 4.5 million euro in the years 2012-2015 . The leading species are alternately cod and herring, which are responsible for over 80% of the revenue each year.

In the period 2012 to 2015, the fishing intensity in the ICES rectangle was highest in 2012 and lowest in 2014; the centre (except in 2014) is located east of Rügen. The VMS data, averaged over the period and by quarter, show the first quarter with the highest and the third quarter with the lowest fishing intensity.

The ratio of the fishing intensity of trawlers in the project area to that in the ICES rectangle has been used to calculate the revenue from landings from the project area over the period 2012 to 2015. The estimated

revenue for German trawlers from the project area varies between € 13,200 and € 36,400 (average value: € 23,200). These estimates can only be rough; however, they give at least an order of magnitude. More precise estimates were not possible due to the scarce data available.

The consequences of the loss of area for fisheries due to the "Baltic Eagle" OWF are only minor, as the fishing vessels can move to neighbouring areas. Increasing offshore activities and area closures will cause more disruption to fishing in the coming decades. Offshore wind farms could at least have a positive effect on the fishing industry, since the fishing ban and the increased attractiveness of their WTGs for commercial fish species will lead to local increases. The areas outside the wind farms will then benefit from this increase through the migration of fish and ultimately so will the fishing industry. Whether this will compensate for the loss of fishing areas (which will be further exacerbated by likely catch restrictions in FFH and bird sanctuaries), increased competition over the remaining areas and the costs of longer steam routes to the fishing grounds cannot be estimated at present.

5.11.2 Tourism

The project area is not directly used by people seeking recreation. Sailors and recreational boating are also considered to be exceptional during the summer season. Therefore, there should be no adverse effects for tourists (IfAÖ 2012).

The EEZ of the Baltic Sea is currently free of any structures that can be perceived from the coast and thus has a typical peculiarity with its characteristic vastness and visual privacy. The offshore wind farm is located at a distance of over 38 km from the nearest coastal point (Jasmund, island of Rügen).

The wind farm will be visible from the coast. However, the visibility will depend on the height of the observer's location and especially on the weather-related visibility.

A visualisation report prepared in the context of the definition of "Westlich Adlergrund" the special suitability area comes to the conclusion that the visible horizon view from the Königstuhl (120 m above NN eye level) on the Jasmund peninsula is 42 km, and accordingly turbines at a distance of < 42 km will be visible if meteorological conditions permit. According to these investigations, visibility ranges of 40 km and more occur on approx. 94 days per year (26%). From the beach at the foot of the Königstuhl (2 m above NN eye level), the visible horizon view is 5 km, i.e. the turbines will only be partially visible from the beach, assuming appropriate meteorological conditions.

With the presently applied for offshore wind farm, the horizon area which can be perceived from the coast and which is built up with wind turbines will be increased, taking into account the already approved offshore wind farms "Wikinger" and "Arkona-Becken Südost" in the "Westlich Adlergrund" special suitability area. Due to the concentration in the eastern part of the Arkona Basin through the connection to already approved offshore wind farms, large parts of the horizon remain undeveloped.

Due to the distance, the turbines in the project area will be visible only very slightly on the horizon from the coast, and only under good visibility conditions. Highly intense impairment is therefore not to be expected.

A study by the Baltic Sea Institute for Marketing, Transport and Tourism at the University of Rostock (2003), based on the evaluation of 8 acceptance studies from different German states and the analysis of the effects of wind turbines in Denmark and Holland, dealt with the expected effects of offshore wind turbines in Mecklenburg-Vorpommern on tourism demand and supply structures. The study comes to the conclusion that there is no consistent correlation between the development of the number of wind turbines on land and the number of guests arriving or staying overnight. In Mecklenburg-Western Pomerania, on the other hand, the tourism indicators examined rose in parallel with the increasing number of wind turbines. Offshore wind turbines are perceived as less disruptive than larger wind farms on land. According to the study, no lasting negative effects on visitor numbers are expected from the installation of offshore turbines.

The degree of impairment depends not only on visibility, but also on the subjective perception and attitude of the observer towards this form of renewable electricity generation. Negative effects on tourism from the planned offshore wind farm cannot be predicted at present.

The environmental impact study in part 6 of the planning documents deals separately with the landscape/landscape as a protected asset.

5.11.3 Material and Cultural Assets

Cultural assets are objects and structures of special cultural significance as well as cultural and natural monuments. In the marine environment, wrecks or special geomorphological structures (continental shelf) are the most likely cultural assets. Well-known underwater objects, especially wrecks, are listed in the nautical charts or in the wreck file of the BSH. There are no corresponding entries in the project area. Should underwater objects of archaeological significance be discovered in the course of geophysical exploration of the building site, the applicant will contact the responsible authorities.

5.11.4 Neighbouring Wind Farms

The project area is located about 7 km west of the "Westlich Adlergrund" priority area for wind energy defined in the regional planning of the German Baltic Sea EEZ (AWZ Ostsee-ROV), which includes the operating OWFs "Wikinger" and "Arkona-Becken Südost" as well as the "Wikinger Süd" OWF, which was also awarded in the interim tendering procedure 2018. The "Arcadis Ost 1" OWF, which has already been approved for planning and which was also awarded in the transitional tendering procedure in 2018, lies approx. 4,7 km west of the project area within the 12-mile zone and thus in the jurisdiction of the state of Mecklenburg-Western Pomerania. The situation of the projects is shown in Figure 4.

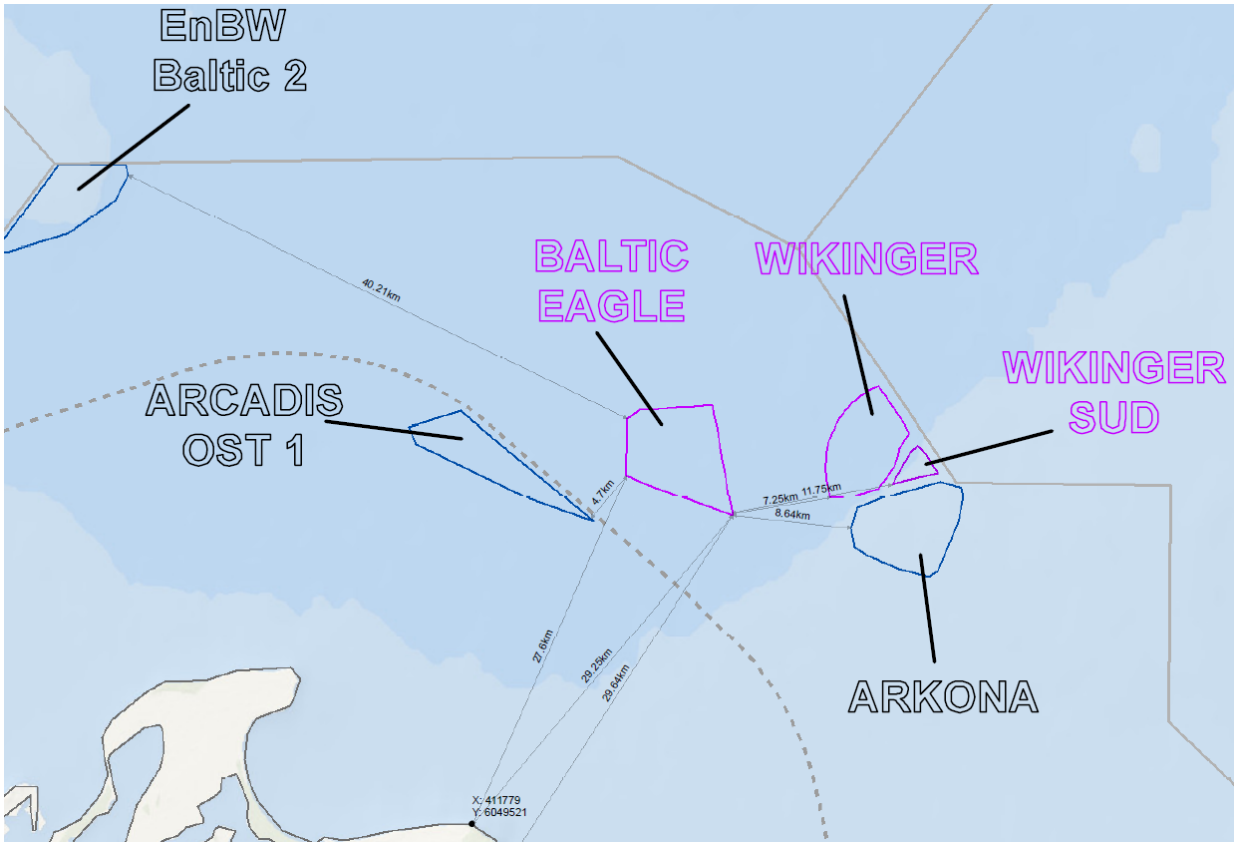

Figure 11: Distances from other OWFs and the island of Rügen

6 OTHER POSSIBLE SOLUTIONS EXAMINED

The basis of the project applied for is the public interest in the implementation of energy system transformation. The German government has confirmed that the expansion of offshore wind energy is an indispensable component of the energy transformation. In this respect, there are no other possible solutions in terms of technology.

With regard to the location of the project, the existing uses in the sea area were analysed in the search for a suitable site for the offshore wind farm. These included:

- Use by the shipping industry (shipping routes)
- Marine environment including designated and potential protected areas
- Military matters
- Distance from the coast - impact on the landscape and accessibility of facilities
- Existence of suitable areas for wind energy use
- Spatial development plan for the German Baltic Sea EEZ
- Cables and submarine cables

The project area identified here has little or no conflict potential. The stated overlapping uses, which could potentially represent a conflict, are compatible with each other, which means that this area is suitable for the use of wind energy. The same conditions apply to the priority area for wind energy in the east. Other

areas of the Baltic Sea, on the other hand, have a greater potential for conflict, with total incompatibilities in some cases, so that there are no other possible solutions with regard to the choice of location.

For the promotion of the project under the EEG and the allocation of grid connection capacity, the Federal Network Agency has awarded the project sponsor a contract which is tied to the project area. Pursuant to § 48(4)(2) WindSeeG, planning approval is only permissible for the area for which a subsidy has been granted, so that erection of the wind farm elsewhere is ruled out for legal reasons alone. Furthermore, the minimum number of WTGs is approximately determined by the bidding volume (in MW) awarded in the notice of award. There are therefore no other possible solutions that differ significantly from the present plan in terms of area or number of WTGs.

7 JUSTIFICATION OF PLANS

The expansion of offshore wind energy as part of the implementation of the energy transformation is in the public interest of the Federal Republic of Germany. As a contribution to the promotion of offshore wind energy, the Federal Government has already created a planning basis by defining special areas of suitability in accordance with SeeAnlV and incorporating these areas into the regional planning of the German EEZ. With the amendment of the Energy Industry Act (EnWG) in 2011 and the introduction of the Spatial Offshore Grid Plan and the Offshore Grid Development Plan, further mechanisms have been introduced to promote and plan the expansion of offshore wind energy. The "Baltic Eagle" OWF project largely corresponds to the textual and spatial requirements and specifications of the Spatial Offshore Grid Plan for the Baltic Sea (5.10.2). The offshore grid development plan includes the grid connection of the project.

On 01/01/2017, the Act on the Development and Promotion of Wind Energy at Sea (Wind Energy at Sea Act - WindSeeG) came into force. The purpose of this Act is to expand the use of offshore wind energy, particularly in the interests of climate and environmental protection, with the aim of increasing the installed capacity of offshore wind turbines from 2021 to a total of 15 gigawatts by 2030. This is to be continuous and cost-efficient and to take account of the network capacities required for the acceptance, transmission and distribution of the electricity. To ensure cost efficiency, tenders were also introduced for the competitive determination of the market premium in accordance with § 22 of the Renewable Energy Sources Act (EEG) for offshore wind turbines. In the course of the transitional tendering procedure, the Baltic Eagle project was awarded a grant in accordance with § 34 WindSeeG for the bidding date of 01/04/2018. In § 59 WindSeeG, relatively tight deadlines for implementation were laid down in order to ensure the rapid construction of wind farm projects under threat of financial sanctions. In this respect, there is an energy policy interest in the realisation of the "Baltic Eagle" OWF project.

8 SAFETY AND PRECAUTIONARY MEASURES

A protection and safety concept is being drawn up for the construction and operation phase of the "Baltic Eagle" OWF project. Due to the individual design of offshore wind farms and the sometimes different

framework conditions, protection and safety concepts have to be drawn up on a project-specific basis. However, the basic structure and principles are largely the same.

The requirements of the Federal Maritime and Hydrographic Agency (BSH) (including BSH standards and licensing requirements), the Federal Ministry of Transport and Digital Infrastructure (BMVi) (offshore wind energy safety framework concept and implementation guideline "Sea Space Observation Offshore Wind Farms"), the Directorate-General for Waterways and Shipping (GDWS) and the WSV's specialist unit for traffic engineering (FVT) (framework requirements for ensuring the professional implementation of traffic engineering requirements in the vicinity of offshore installations (labelling) and the "Offshore Installations" guideline for ensuring the safety and ease of navigation).

The following points form the basis of the approach and structure:

- Legal basis
- Safety strategy/overarching risk assessment/objectives
- Labelling concept with implementation plan (audited)
- Maritime surveillance (accident prevention aspect)
- Occupational and operational safety concept
  - Applicable industrial safety regulations, workplace law, ProdSiG, etc.
  - Health protection
  - Occupational safety (including the responsible person (§ 56 WindSeeG))
  - Risk assessment of explosive ordnance
  - Flight operation manual
  - Winch operating area manual (WTG)
  - Diving work
- SiGe Plan
- Waste and operating material concept / environmental protection
- Emergency and rescue concept:
  - Emergency plan / emergency precautionary concept
  - Fire protection concept, OWEA, OSS incl. heli-deck (with test report from fire protection expert)
  - Escape concept

A concept for the development of the protection and safety concept can be found in Part 4 of the planning documents. The concepts for the identification of the project in the construction phase and in the operating phase as well as for the monitoring of the sea area are prepared in the further planning phase on a project-specific basis and submitted to the authorities for examination in good time.

9 TIMETABLE AND ACTION PLAN

The timing of the project is determined by both internal and external factors. The timetable and action plan for the Baltic Eagle project is contained in Part 5.

10 SOURCES

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