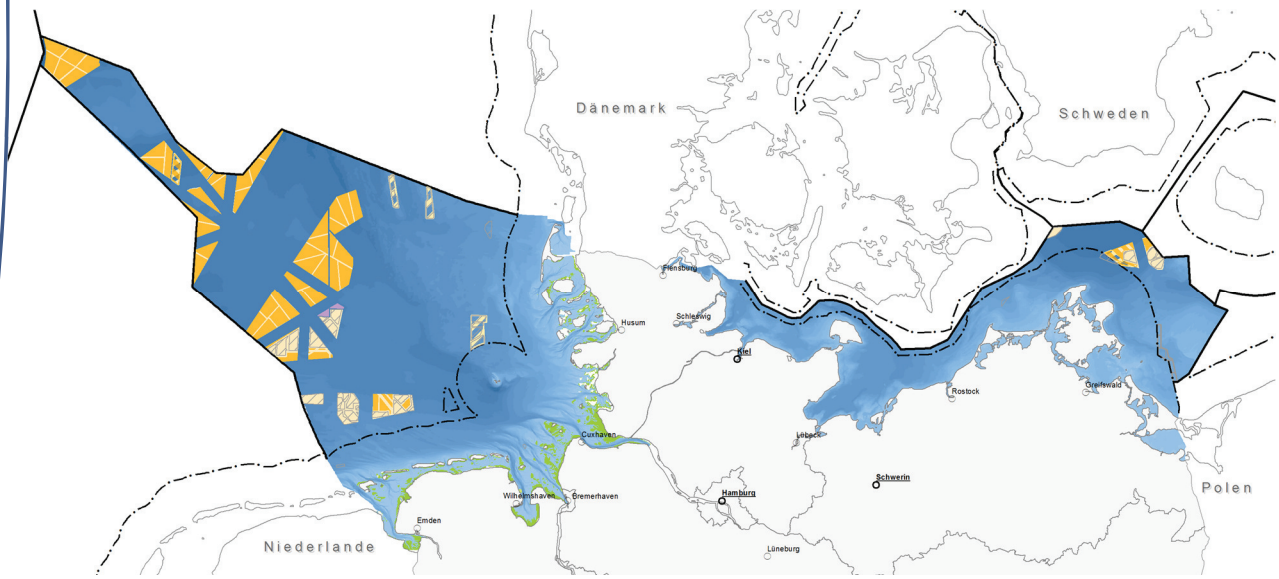
BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE

Amendment and updating of the Site Development Plan

Scope for the Strategic Environmental Impact Assessment for the German Exclusive Economic Zone of the North Sea

- Draft -



Hamburg, 17 December 2021

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ASCOBANS	Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas
EEZ	Exclusive Economic Zone
BBergG	Federal Mining Act
BfN	Federal Agency for Nature Conservation
BGBl	Federal Law Gazette
BMI	Federal Ministry of the Interior, for Building and Homeland
BMUB	Federal Ministry for the Environment, Nature Conservation, Construction and Reactor Safety
BNatSchG	Law on nature conservation and landscape management (Federal Nature Conservation Act)
BSH	Federal Maritime and Hydrographic Agency
CMS	Convention on the Conservation of Migratory Species of Wild Animals
EEG	Law for the expansion of renewable energies (Renewable Energy Sources Act)
EIA	Environmental impact assessment
EUROBATS	Agreement on the conservation of European bat populations
Federal Network Agency	Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway
FEP	Site development plan
FFH	Flora Fauna Habitat
GW	Gigawatt
HELCOM	Helsinki Commission
MARPOL	International Convention for the Prevention of Pollution from Ships
MRO	Maritime spatial planning
MSRL	Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a Framework for Community Action in the field of Marine Environmental Policy (Marine Strategy Framework Directive)
NSG	Nature reserve
OSPAR	Oslo-Paris-Übereinkommen (Convention for the Protection of the Marine Environment of the North-East Atlantic)
ROG	Spatial Planning Act
ROP	Spatial development plan
SPEC	Species of European Conservation Concern (Important species for bird conservation in Europe)
StUK4	Standard "Investigation of the effects of offshore wind energy plants".
SUP	Strategic Environmental Assessment
SUP-RL	Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (SEA Directive)
UBA	Federal Environment Agency
UVPG	Law on environmental impact assessment
UVS	Environmental impact study
V-RL	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (Birds Directive)
WindSeaG	Act on the development and promotion of offshore wind energy (Wind Energy at Sea Act)

1 Introduction

1.1 Legal basis and tasks of the environmental assessment

In accordance with Sections 4 et seq. of the Wind Energy at Sea Act (WindSeeG), the BSH prepares a Site Development Plan (FEP) 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 FEP was last updated in 2020. A new update will be initiated on 17 December 2021.

During the preparation of the FEP, a detailed environmental assessment within the meaning of the Environmental Impact Assessment Act (UVPG)[1], the so-called Strategic Environmental Assessment (SEA), was carried out. The environmental reports were published together with the final plan on 28.06.2019. The implementation of an SEA with the preparation of an environmental report is based on § 35 para. 1 no. 1 UVPG in connection with. No. 1.17 of Annex 5, as site development plans are subject to the SEA obligation pursuant to Section 5 WindSeeG. In principle, this also applies if the FEP is updated or amended.

In the context of the update initiated on 17 December 2021, areas and sites will be identified for the implementation of the energy policy objectives that go beyond the FEP 2020 and are therefore also not covered by the SEA carried out in this procedure.

In contrast to the last update of the FEP, with the completion of the update procedure for maritime spatial planning, a spatial plan 2021 for the German EEZ of the North Sea and Baltic Sea (ROP)[2] is now available, which came into force on 1 September 2021. As part of the spatial planning update process, a comprehensive SEA was carried out and an environmental report was prepared for each of the German EEZs in the North Sea and Baltic Sea. The update of the FEP will essentially build on the provisions of the maritime spatial planning for offshore wind energy and transmission lines and develop them in terms of sectoral planning.

Against this background, the SEA for the update of the FEP will also be based essentially on the results of the SEA carried out in the spatial planning update procedure: According to § 5 para. 3 sentence 4 WindSeeG in conjunction with. § Section 39 (3) sentence 3 UVPG, the SEA to be carried out in the procedure for amending and updating the FEP is to be limited to additional or other significant environmental impacts compared to the SEA for the ROP, as well as to necessary updates and deepening.

The SEA for the update of the FEP is also based on the environmental reports on the preparation and update of the FEP from the years 2019 and 2020. Insofar as new findings on existing determinations should be available and are relevant, these are also taken into account.

In the following, the scope of the assessment is therefore limited to additional or other significant environmental impacts as well as to necessary updates and deepening. This follows for the reference to the environmental reports of the spatial development plan from Section 39 (3) sentence 3 UVPG. With regard to the reference to environmental reports on the existing FEP, the aforementioned limitation of the scope of the assessment is based on the fact that in the absence of indications of actual changes in the circumstances, no new assessment needs to take place.

[1] In the version published on 24 February 2010, Federal Law Gazette I p. 94, last amended by Article 2 of the Act of 30 November 2016 (Federal Law Gazette I p. 2749).

[2] Ordinance on Spatial Planning in the German Exclusive Economic Zone in the North Sea and the Baltic Sea of 19 August 2021, BGBl. I p. 3886.

According to Art. 1 of the SEA Directive 2001/42/EC, the objective of strategic environmental assessment is to ensure a high level of environmental protection in order to promote sustainable development and to contribute to ensuring that environmental considerations are adequately taken into account in the preparation and adoption of plans well in advance of their actual planning.

The Strategic Environmental Assessment has the task of identifying the likely significant environmental effects of implementing the plan, describing them at an early stage in an environmental report and evaluating them. It serves to ensure effective environmental precaution in accordance with the applicable laws and is carried out according to uniform principles and with public participation. All protected assets pursuant to Article 2 (1) UVPG are to be considered:

- people, especially human health,
- animals, plants and biodiversity,
- area, soil, water, air, climate and landscape,
- cultural heritage and other tangible assets, and
- the interactions between the above-mentioned protected assets.

The main content document of the Strategic Environmental Assessment will be the Environmental Report to be prepared. This report shall identify, describe and assess the likely significant environmental effects of the implementation of the FEP and possible alternative planning options, taking into account the main purposes of the plan.

1.2 Definition of the scope of the investigation

At the beginning of the Strategic Environmental Assessment, the scope for the environmental assessment, including the required scope and level of detail of the information to be included in the environmental report, is defined (cf. Section 39 (1) UVPG). The authorities whose environmental and health-related area of responsibility is affected by the plan or programme are involved in determining the scope of the Strategic Environmental Assessment as well as the scope and level of detail of the information to be included in the Environmental Report (cf. Section 39 para. 4 sentence 1 UVPG). Pursuant to Section 6 (4) sentence 1 WindSeeG, the scope of the assessment is determined on the basis of the results of the hearing.

The scope of the investigation is determined, taking into account § 33 UVPG in conjunction with § 2 para. 1 UVPG, in accordance with the legal provisions governing the decision to prepare, adopt or amend the plan. This is limited by the fact that the environmental report only contains information that can be determined with reasonable effort. In doing so, it takes into account the current state of knowledge and public statements known to the authority, generally accepted auditing methods, the content and level of detail of the plan and its position in the decision-making process. The authorities whose environmental and health-related tasks are affected by the plan or programme shall be involved in determining the scope of the Strategic Environmental Assessment and the scope and level of detail of the information to be included in the environmental report (cf. Art. 39 para. 4 sentence 1 UVPG). According to § 6 para. 4 sentence 1 WindSeeG, the scope of the investigation is determined on the basis of the results of the hearing.

The present draft of the scope for the environmental assessment applies both to the EEZs of the North Sea and the Baltic Sea. Regionally different bases or methods of the SEA are marked accordingly.

1.3 Outline of the content and the main objectives of the site development plan

According to § 4 para. 1 WindSeeG, it is the purpose of the FEP to draw up sectoral planning specifications for the exclusive economic zone (EEZ) of the Federal Republic of Germany.

§ Section 4 (2) of the WindSeeG stipulates that, for the expansion of offshore wind turbines and offshore connecting lines required for this purpose, the Site Development Plan shall draw up rules with the aim of

- achieving the expansion targets pursuant to § 1 para. 2 sentence 1 WindSeeG,
- expanding electricity generation from offshore wind turbines in a spatially ordered and compact manner, and
- ensuring an ordered and efficient utilisation and loading of offshore connection lines and planning, installation, commissioning and use of offshore connection lines in parallel with the expansion of electricity generation from offshore wind turbines.

According to the statutory mandate of section 5 subsection 1 of the Offshore Wind Energy Act, the Site Development Plan contains designations for the period from 2026 to at least 2030 for the German EEZ and in accordance with the following provisions for coastal waters:

1. areas; in the territorial sea, areas can only be designated if the competent Land has identified the areas as a possible subject of the Land development plan,
2. sites in the areas determined in accordance with number 1; in the territorial sea, sites may only be determined if the competent Land has designated the sites as a possible subject of the land development plan,
3. the chronological order in which the specified areas are to come up for tender under Part 3 Section 2, including the designation of the respective calendar years,
4. the calendar years including the quarter in the respective calendar year in which the surcharged offshore wind turbines and the corresponding offshore connecting cables are to be commissioned on the specified sites, as well as the quarters in the respective calendar year in which the cable installation of the inner park cabling of the surcharged offshore wind turbines is to be carried out at the converter platform or the transformer platform,
5. the expected capacity of offshore wind turbines to be installed in the designated areas and on the designated sites,
6. Locations of converter platforms, collector platforms and, where possible, substations,
7. Routes or route corridors for offshore connecting cables,
8. Locations where the offshore connecting cables cross the boundary between the exclusive economic zone and the territorial sea,
9. Routes or route corridors for cross-border power cables,
10. routes or corridors for possible connections between the installations, routes or corridors mentioned in numbers 1, 2, 6, 7 and 9; and
11. standardised technical principles and planning principles.

For the period from 2021 onwards, the FEP may designate available grid connection capacities on existing offshore connection lines or on offshore connecting cables to be completed in the following years for areas in the German

EEZ and in the territorial sea, these may be allocated to pilot offshore wind turbines in accordance with section 70 (2) of the WindSeeG. The FEP may make spatial specifications for the construction of pilot offshore wind turbines in areas and designate the technical conditions of the offshore connecting cable and the resulting technical requirements for the grid connection of pilot offshore wind turbines.

Pursuant to § 5 para. 2a WindSeeG, the FEP may designate other energy production areas outside of areas.

In accordance with § 3 No. 8 WindSeeG, an other energy production area is an area outside areas on which offshore wind turbines and other energy production installations, each of which is not connected to the grid, can be - erected in spatial coherence and which is subject to the approval procedure according to § 2 of the Marine Facilities Act. According to § 4 para. 3 WindSeeG, the objective of the designation is to enable the practical testing and implementation of innovative concepts for energy generation not connected to the grid in a spatially ordered and land-saving manner.

Within the framework of the Strategic Environmental Assessment, a "conventional" offshore wind farm is assumed on the basis of the knowledge gained to date with regard to electricity generation. Environmental impacts going beyond this are highly dependent on the respective type of use and should therefore be comprehensively examined at the approval level. In this respect, the SEA for other energy production areas is carried out in the same way as the assessment of sites for offshore wind energy.

2 Relationship to other relevant plans, programmes and projects

The FEP relates to other plans and programmes within the EEZ, in adjacent areas, particularly in the territorial sea, and to plans and projects at upstream and downstream planning and approval levels.

2.1 Spatial development plans in adjacent areas

In the interests of coherent planning, coordination processes with the plans of the coastal federal states and neighbouring states are advisable and must be taken into account in the cumulative and, where relevant, transboundary assessment of the impacts on the marine environment. In particular, close coordination with the coastal federal states is necessary with regard to the onshore connection of the offshore wind farms and the routing of the routes through the coastal sea. At present, the regional planning for Lower Saxony is being updated.

2.1.1 Mecklenburg-Western Pomerania

For the Land of Mecklenburg-Western Pomerania, the highest state planning authority is the Ministry for Energy, Infrastructure and Digitalisation of Mecklenburg-Western Pomerania. It is responsible for regional planning at the state level, including the coastal sea.

The current State Spatial Development Programme of Mecklenburg-Western Pomerania (LEP M-V) came into force on 9 June 2016.

2.1.2 Lower Saxony

The spatial development plan for the Land of Lower Saxony, including the coastal sea of Lower Saxony, is the Land Regional Planning Programme (LROP). The Ministry of Food, Agriculture and Consumer Protection of Lower Saxony, as the highest state planning authority, is responsible for drawing up and amending it;

the final decision on the LROP is the responsibility of the state government. The LROP is based on an ordinance from 1994 and has been updated several times since then, most recently in 2017. At the end of 2019, the procedure for a new update was initiated. In December 2021, the second participation procedure for the draft amendment and update to the LROP was initiated.

2.1.3 Schleswig-Holstein

In Schleswig-Holstein, the Land Development Plan (LEP S-H) is the basis for the spatial development of the state. The Ministry of the Interior, Rural Areas, Integration and Equality of Schleswig-Holstein (MILIG) is responsible for its preparation and amendment. The recent Land Ordinance on the Land Development Plan - Update 2021 (LEP-VO 2021) came into force on 16 December 2021 after an extensive participation process.

2.2 MSFD Programme of Measures

Each EU Member State must develop a Marine Strategy to achieve good status for its marine waters, in Germany for the North Sea and the Baltic Sea. The key to this is the establishment of a programme of measures to achieve or maintain good environmental status and the practical implementation of this programme of measures. The establishment of the programme of measures (BMUB, 2016) is regulated in Germany by Section 45h of the Federal Water Act (WHG). Under Objective 2.4 "Oceans with sustainably and carefully used resources", the current MSFD Programme of Measures mentions maritime spatial planning as a contribution of existing measures to achieving the operational objectives of the MSFD. In addition, the catalogue of measures also formulates a concrete review mandate for the updating of the spatial development plans with regard to measures for the protection of migratory species in the marine area. Both the environmental objectives of the MSFD and the MSFD programme of measures are taken into account in the SEA.

2.3 Management plans for nature conservation areas in the EEZ

On 17 November 2017, the Federal Agency for Nature Conservation (BfN) initiated the participation procedure under Article 7 (3) of the Regulation on the Establishment of the "Borkum Riffgrund" Nature Conservation Area (NSGBRgV)[3], Article 7 (3) of the Regulation on the Establishment of the "Doggerbank" Nature Conservation Area (NSGDgbV) [4]and Article 9 (3) of the Regulation on the Establishment of the "Sylt Outer Reef - Eastern German Bight" Nature Conservation Area (NSGSylV)[5] on the management plans for the nature conservation areas in the German North Sea EEZ. On 13 May 2020, the management plans "Borkum Riffgrund"[6], "Doggerbank" [7]and "Sylt Outer Reef - Eastern German Bight" were [8]published in the Federal Gazette.

For the Baltic Sea EEZ, the regulations on the designation of the nature reserves "Fehmarnbelt" (NSGFmbV), "Kadetrinne" (NSGKdrV) and "Pommersche Bucht - Rönnebank" (NSGPBRV) came into force in September 2017. According to the ordinances, the measures necessary to achieve the conservation objectives established for the nature reserves are presented in management plans. These plans are drawn up by the Federal Agency for Nature Conservation (BfN) in consultation with the neighbouring Länder and the technically affected public agencies, and with the participation of the interested public and the

[3] Of 22 September 2017 (BGBl. I p. 3395).

[4] Of 22 September 2017 (BGBl. I p. 3400).

[5] Of 22 September 2017 (BGBl. I p. 3423).

[6] Published on 17 April 2020, BAnz AT 13.05.2020 B9.

[7] Published on 13 May 2020, BAnz AT 13.05.2020 B10.

[8] Published on 13 May 2020, BAnz AT 13.05.2020 B11.

nature conservation associations recognised by the Federation.

On 16 June 2020, BfN initiated the participation procedure under Article 7 (3) NSGFmbV, Article 7 (3) NSGKdrV and Article 11 (3) NSGPBRV on the management plans for the nature conservation areas in the German Baltic Sea EEZ. As part of the participation procedure, a hearing on the drafts was held on 17 August 2020. The management plans for the Baltic Sea EEZ have not yet been published.

2.4 Staged planning procedure for offshore wind energy and power lines (central model)

Within the framework of the central model, the FEP is the steering instrument for the orderly expansion of offshore wind energy in a staged planning process. The SEA for the FEP is linked to the respective upstream and downstream environmental assessments.

Looking at the central model as a whole, the planning process for the EEZ area is divided into several stages:

At the highest and superordinate level is the instrument of maritime spatial planning. The spatial plan for the German EEZ in the North Sea and the Baltic Sea is the forward-looking planning instrument that coordinates the most various interests of users in the areas of business, science and research as well as protection claims. A Strategic Environmental Assessment (SEA) must be carried out when the spatial development plan is drawn up. The SEA for the ROP is related to various downstream environmental assessments, in particular the directly downstream SEA for the Site Development Plan (FEP).

The next step is the FEP. Within the framework of the so-called central model, the FEP is the steering instrument for the orderly expansion of offshore wind energy and power cables in a staged planning process. The FEP has the character of a sectoral plan. The sectoral plan is designed to plan the use of offshore wind energy and power cables in a targeted manner and as optimally as possible under the given framework conditions - in particular the requirements of regional planning - by defining areas and sites as well as locations, routes and corridors for grid connections and for cross-border submarine cable systems. As a matter of principle, an SEA is carried out to accompany the preparation, updating and amendment of the FEP.

In the next step, the sites for offshore wind turbines identified in the FEP are pre-surveyed. The preliminary investigation is followed by the determination of the suitability of the area for the construction and operation of offshore wind turbines if the requirements of Section 12 (2) WindSeeG are met. The determination of the suitability of an area is also subject to the obligation to carry out an SEA.

If the suitability of an area for the use of offshore wind energy is determined, the area is put out to tender and the winning bidder or the person entitled to do so is granted the right to conduct a planning licensing procedure for the construction and operation of wind turbines on the area specified in the FEP. If the requirements are met, an environmental impact assessment is carried out as part of the planning licensing procedure.

While the sites defined in the FEP for the use of offshore wind energy are pre-surveyed and put out to tender, this is not the case for defined sites, routes and corridors for grid connections or cross-border submarine cable systems. Upon application, a planning approval procedure including environmental assessment is usually carried out for the construction and operation of grid connection cables. The same applies to cross-border submarine cable systems.

Figure 1 Overview of the staged planning and approval process in the EEZ.

In the case of multi-stage planning and approval processes, it follows from the relevant legislation (e.g. Spatial Planning Act, WindSeeG and BBergG) or, more generally, from Article 39 (3) UVPG that, in the case of plans, it should be determined at the time of defining the scope of the investigation at which of the stages of the process certain environmental impacts are to be assessed. In this way, multiple assessments are to be avoided. The nature and extent of the environmental impacts, technical requirements, and the content and subject matter of the plan must be taken into account.

In the case of subsequent plans and subsequent approvals of projects for which the plan sets a framework, the environmental assessment pursuant to Article 39 (3) sentence 3 UVPG shall be limited to additional or other significant environmental impacts as well as to necessary updates and more detailed investigations.

As part of the staged planning and approval process, all reviews have in common that environmental impacts on the protected assets specified in Article 2 (1) UVPG are considered, including their interactions.

According to the definition in Article 2 (2) of the UVPG, environmental impacts within the meaning of the UVPG are direct and indirect impacts of a project or the implementation of a plan or programme on the protected assets.

According to Article 3 of the Environmental Impact Assessment Act, environmental assessments comprise the identification, description and assessment of the significant impacts of a project or a plan or programme on the protected assets. They serve to ensure effective environmental protection in accordance with the applicable laws and are carried out according to uniform principles and with public participation.

In the offshore sector, the special conservation goods avifauna have become established as sub-categories of the legally protection objectives animals, plants and biological diversity: seabirds/resting and migratory birds, benthos, biotope types, plankton, marine mammals, fish and bats.

Figure 2 Overview of the protected assets in the environmental assessments.

In detail, the staged planning process is as follows:

2.4.1 Maritime Spatial Planning (EEZ)

At the highest and superordinate level is the instrument of maritime spatial planning. For sustainable spatial development in the EEZ, the BSH prepares a spatial development plan on behalf of the responsible federal ministry, which comes into force in the form of statutory orders. The ROP for the German EEZ in the

North Sea and the Baltic Sea came into force on 1 September 2021.

The spatial development plans should **define**, taking into account possible interactions between land and sea and safety aspects

- to ensure the safety and ease of navigation,
- to further economic uses,
- on scientific uses and
- to protect and improve the marine environment.

In the context of spatial planning, definitions are mainly made in the form of priority and reserved areas and other objectives and principles. According to Section 8 (1) ROG, when drawing up spatial development plans, the body responsible for the spatial development plan must carry out a strategic environmental assessment in which the probable significant impacts of the respective spatial development plan on the objects to be protected, including interactions, must be identified, described and evaluated.

The **aim of** the instrument of spatial planning is to optimise overall planning solutions. A wider spectrum of uses and functions is considered. Fundamental strategic questions should be clarified at the beginning of a planning process. Thus the instrument primarily functions, and within the framework of the legal provisions, as a controlling planning instrument for the planning administrative bodies in order to create a framework for all uses which is compatible with the spatial and natural environment as far as possible.

In spatial planning, the **depth of examination** of the SEA is generally characterised by a greater breadth of investigation, i.e. a fundamentally greater number of planning options, and a lesser depth of investigation in terms of detailed analyses. Above all, regional, national and global impacts as well as secondary, cumulative and synergetic effects are taken into account.

The **focus** is therefore on possible cumulative effects, strategic and large-scale planning options and possible transboundary impacts.

2.4.2 Site development plan

The next level is the FEP.

The **specifications** to be made by the FEP and to be examined within the framework of the SEA result from § 5 para. 1 WindSeeG. The plan mainly specifies areas and sites for wind energy plants as well as the expected capacity to be installed on these sites. In addition, the FEP also specifies routes, route corridors and sites. Planning and technical principles are also laid down. Although these also serve, among other things, to reduce environmental impacts, they may in turn lead to impacts, so that an assessment is required as part of the SEA.

In addition, the FEP specifies temporal aspects, such as the chronological order in which the sites for offshore wind energy are to be put out to tender and the calendar years for commissioning. These are not a focus of the SEA, as they do not result in any further environmental impacts compared to the spatial specifications.

The specifications of the FEP must be permissible in accordance with the requirements of § 5 WindSeeG. Pursuant to Section 5 para. 3 sentence 2 no. 2 WindSeeG, specifications are inadmissible in particular if they conflict with overriding public or private interests. In the context of the SEA, this means that the determinations to be examined are in particular inadmissible if they

- endanger the marine environment or
- pursuant to § 5 para. 3 sentence 2 no. 5 WindSeeG, in the case of the designation of a site or area, it is located in a protected area designated pursuant to § 57 BNatSchG, or
- in the case of a designation under section 5(2a), the other energy production

area is located in a protected area designated under section 57 of the Federal Nature Conservation Act.

Pursuant to Section 40 (1) sentence 2 UVPG, the environmental report must identify, describe and assess the likely significant environmental effects of implementing the plan as well as reasonable alternatives. Pursuant to Section 40 (3) UVPG, the competent authority shall provisionally assess the environmental effects of the plan on the protected assets in the environmental report in accordance with the principles of environmental assessment. The assessment standards of the sectoral legislation and the UVPG are essentially congruent, as the assessment of the environmental effects in the environmental assessments is carried out in accordance with the applicable legislation.

With regard to the FEP's **objectives,** it deals with the fundamental questions of the use of offshore wind energy and grid connections on the basis of the legal requirements, especially with the need, purpose, technology and the identification of sites and routes or route corridors. The plan therefore primarily has the function of a steering planning instrument in order to create a spatially and, as far as possible, nature-compatible framework for the implementation of individual projects, i.e. the construction and operation of offshore wind energy plants, their grid connections, cross-border submarine cable systems and interconnections.

The **depth of the assessment** of likely significant environmental effects is characterised by a wider scope of investigation, i.e. a larger number of alternatives and, in principle, a lower depth of investigation. At the level of sectoral planning, detailed analyses are generally not yet performed. Above all, local, national and global impacts as well as secondary, cumulative and synergistic impacts in the sense of an overall view are taken into account.

As with the instrument of maritime spatial planning, the **focus of the** audit is on possible cumulative effects as well as possible cross-border impacts. Against this background, the environmental report of the FEP update that is now to be prepared should not repeat the assessments; instead, in accordance with Article 39 (3) sentence 3 UVPG, the environmental assessment should be limited to additional or other significant environmental impacts and to necessary updates and deepenings. More in-depth assessments are carried out for the uses of wind energy and submarine cables, for example with regard to strategic, technical and spatial alternatives.

2.4.3 Aptitude test as part the preliminary investigation

The next step in the staged planning process is the suitability testing of sites for the construction and operation of offshore wind turbines. In addition, the power to be installed is determined on the site in question.

In the suitability test, it is examined in accordance with section 10 subsection (2) WindSeeG whether the construction and operation of offshore wind energy installations on the site does not conflict with the criteria for the inadmissibility of defining an area in the site development plan in accordance with section 5 subsection (3) WindSeeG or, insofar as they can be assessed independently of the later design of the project, with the interests relevant for the plan approval in accordance with section 48 subsection (4) sentence 1 WindSeeG.

Both the criteria of § 5 (3) WindSeeG and the concerns of § 48 (4) sentence 1 WindSeeG require an examination of whether the marine environment is endangered. With regard to the latter concerns, it must be examined in particular whether pollution of the marine environment within the meaning of Article 1 (1) No. 4 of the United Nations Convention on the Law of the Sea is not to be feared and whether bird migration is not endangered.

The preliminary investigation with the suitability test or determination is thus the instrument connected between the FEP and the individual approval procedure for offshore wind energy

plants. It refers to a concrete area designated in the FEP and is thus much smaller than the FEP. It is distinguished from the plan approval procedure by the fact that an inspection approach is to be applied which is independent of the later concrete type of installation and layout. Thus, the impact prognosis is based on model parameters, e.g. in scenarios or ranges of scenarios which are intended to represent possible realistic developments.

Compared to the FEP, the SEA of the proficiency test is thus characterised by a smaller examination area and a greater **depth of examination**. In principle, fewer alternatives, limited spatially to the site, are seriously considered. The two primary alternatives are the determination of the suitability of an area on the one hand and the determination of its (possibly partial) unsuitability (see section 12 para. 6 WindSeeG) on the other. Restrictions on the type and extent of development, which are included as specifications in the determination of suitability, are not alternatives in this sense.

The **focus of** the environmental assessment within the framework of the suitability test is on the consideration of the local impacts of a development with wind energy plants in relation to the area and the location of the development on the area.

2.4.4 Approval procedure (planning approval and planning licensing procedure) for offshore wind turbines

The next step after the preliminary investigation is the approval procedure for the installation and operation of offshore wind turbines. After the area under investigation has been put out to tender by the BNetzA, the winning bidder can, with the acceptance of the bid by the BNetzA, submit an application for planning approval or - if the prerequisites are met - for planning permission for the construction and operation of offshore wind energy plants including the necessary ancillary plants on the area under investigation.

In addition to the legal requirements of § 73 para. 1 sentence 2 VwVfG, the plan must include the information contained in § 47 para. 1 WindSeeG. The plan may only be established under certain conditions listed in section 48(4) WindSeeG, and only if, inter alia, the marine environment is not endangered, in particular if there is no cause for concern about pollution of the marine environment within the meaning of Article 1(1)(4) of the Convention on the Law of the Sea and if bird migration is not endangered.

Under § 24 UVPG, the competent authority prepares a summary

- the environmental impact of the project,
- the characteristics of the project and of the site, which are intended to prevent, reduce or offset significant adverse environmental effects,
- measures to prevent, reduce or offset significant negative environmental impacts, and
- the replacement measures in case of interventions in nature and landscape.

Under Article 16 (1) of the UVPG, the project developer must submit a report to the competent authority on the expected environmental impacts of the project (EIA report), which must contain at least the following information:

- a description of the project, including information on the location, nature, scale and design, size and other essential characteristics of the project,
- a description of the environment and its components within the project's sphere of influence,
- a description of the characteristics of the project and of the location of the project to exclude, reduce or offset the occurrence of significant adverse environmental effects of the project,
- a description of the measures planned to prevent, reduce or offset any significant adverse effects of the project on

the environment and a description of planned replacement measures,

- a description of the expected significant environmental effects of the project,
- a description of the reasonable alternatives, relevant to the project and its specific characteristics, that have been considered by the developer and the main reasons for the choice made, taking into account the specific environmental effects of the project; and
- a generally understandable, non-technical summary of the EIA report.

Pilot wind energy plants are only dealt with in the context of the environmental assessment in the approval procedure and not already at upstream stages.

2.4.5 Approval procedure for grid connections (converter platforms and submarine cable systems)

In the staged planning process, the establishment and operation of grid connections for offshore wind energy plants (converter platform and submarine cable systems, if applicable) is examined at the level of the approval procedures (planning approval and planning permission procedures) in implementation of the regional planning requirements and the specifications of the FEP at the request of the respective project executing agency - the responsible TSO.

According to § 44 (1) in conjunction with § 45 para 1 WindSeeG, the construction and operation of facilities for the transmission of electricity require planning approval. In addition to the legal requirements of § 73 para. 1 sentence 2 VwVfG, the plan must include the information contained in § 47 para. 1 WindSeeG. The plan may only be approved under certain conditions listed in section 48(4) WindSeeG and only if, inter alia, the marine environment is not endangered, in particular if there is no cause for concern about pollution of the marine environment within the meaning of Article 1(1)(4) of the Convention on the Law of the Sea and no threat to bird migration.

Moreover, according to Article 1 para 4 UVPG, the requirements for the environmental impact assessment of offshore wind energy installations, including ancillary installations, apply accordingly to the performance of the environmental assessment.

2.4.6 Cross-border submarine cable systems

According to § 133 (1) in conjunction with para. 4 BBergG, the construction and operation of an underwater cable in or on the continental shelf requires a permit

- from a mining point of view (by the competent state mining authority) and
- concerning the organisation of the use and exploitation of waters above the continental shelf and the airspace above these waters (by the BSH).

Pursuant to § 133 (2) BBergG, the above-mentioned permits may only be refused if there is a risk to the life or health of persons or material goods or an impairment of overriding public interests which cannot be prevented or compensated for by a time limit, conditions or requirements. An impairment of overriding public interests exists in particular in the cases specified in § 132 (2) No. 3 BBergG. Pursuant to Section 132 (2) No. 3 b) and d) BBergG, an impairment of overriding public interests with regard to the marine environment exists in particular if the flora and fauna would be impaired in an unacceptable manner or if there is reason to believe that the sea will be polluted.

According to § 1 (4) UVPG, the essential requirements of the UVPG must be observed for the construction and operation of transboundary submarine cable systems.

Spatial Plan Strategic environmental assessment (SEA)	Site Development Plan Strategic environmental assessment (SEA)	Site investigation Suitability evaluation Strategic environmental assessment (SEA)		Approval process (Planning approval or planning permission) grid connections EA	Approval process Cross-border cables EA
Strategic planning for the rules	**Strategic planning for the rules**	**Strategic suitability evaluation for sites with wind turbines**		**Environmental assessment Application for**	**Environmental assessment Application for**
Rules and object of the assessment					
Priority and reservation areas • for ensuring the safety and ease of movement of shipping traffic • for further economic uses, especially offshore wind energy and pipelines • for scientific uses and Protection and improvement of the marine environment Aims and principles Use of the ecosystem approach	• Areas for offshore wind turbines • Sites for offshore wind turbines, including the expected generation capacity • Platform locations • Routes and route corridors for subsea cable systems • Technical and planning approaches	• Assessment of the suitability of the site for the erection and operation of wind turbines, including the capacity to be installed • Based on the assigned and collected data (STUK)		• the erection and operation of platforms and connection lines • according to the specifications of spatial planning and the Site Development Plan	• the erection and operation of cross-border cables (interconnectors) • according to the specifications of spatial planning and the Site Development Plan •
Analysis of environmental impacts					
Analyses (determines, describes and assesses) the expected considerable effects of the plan on the marine environment.	Analyses (determines, describes and assesses) the expected considerable environmental impacts of the plan on the marine environment.	Analyses (determines, describes and assesses) the expected considerable environmental impacts of the erection and operation of wind turbines, which can be assessed independently of the subsequent design of the project.		Analyses (determines, describes and assesses the environmental impacts of the actual project (where applicable, platform and connection line).	Analyses (determines, describes and assesses) the environmental impacts of the actual project.
Aim					
Aimed at the optimisation of overall planning solutions, i.e. a comprehensive package of measures. Consideration of a wide spectrum of uses. Used at the beginning of the planning process for clarification of fundamental strategic issues, i.e. at an early point in time while there is still plenty of room for manoeuvre.	Deals with the fundamental issues for the use of offshore wind energy according to • requirement and/or legal aims • purpose • technology • capacities • locating of sites for platforms and cabling routes. Searches for environmentally appropriate groups of actions, without assessing the absolute environmental impact of the planning.	Deals with the fundamental issues for the use of wind turbines according to • suitability of the site Makes available information about the site which is legally regulated for the bid submission. Searches for environmentally appropriate groups of actions without assessing the environmental impact of the actual project.		Handles question about the actual design ('how') of a project (technical equipment, construction work). Assesses the environmental impact of the project and formulates corresponding stipulations.	Handles question about the actual design ('how') of a project (technical equipment, construction work). Assesses the environmental impact of the pro and formulates corresponding stipulations.
Functions essentially as a controlling planning instrument of the planning administration agency, to create an environmentally appropriate framework for all uses.	Functions primarily as a controlling planning instrument of the planning administration agency, to create an environmentally appropriate framework for individual projects (wind turbines and grid connections, cross-border submarine cables)	Functions as an instrument between the Site Development Plan and approval process for wind turbines on an actual site.		Functions primarily as a passive assessment instrument that reacts to the application from the project developer.	Functions primarily as a passive assessment instrument that reacts to the application from the project developer.
Assessment depth					

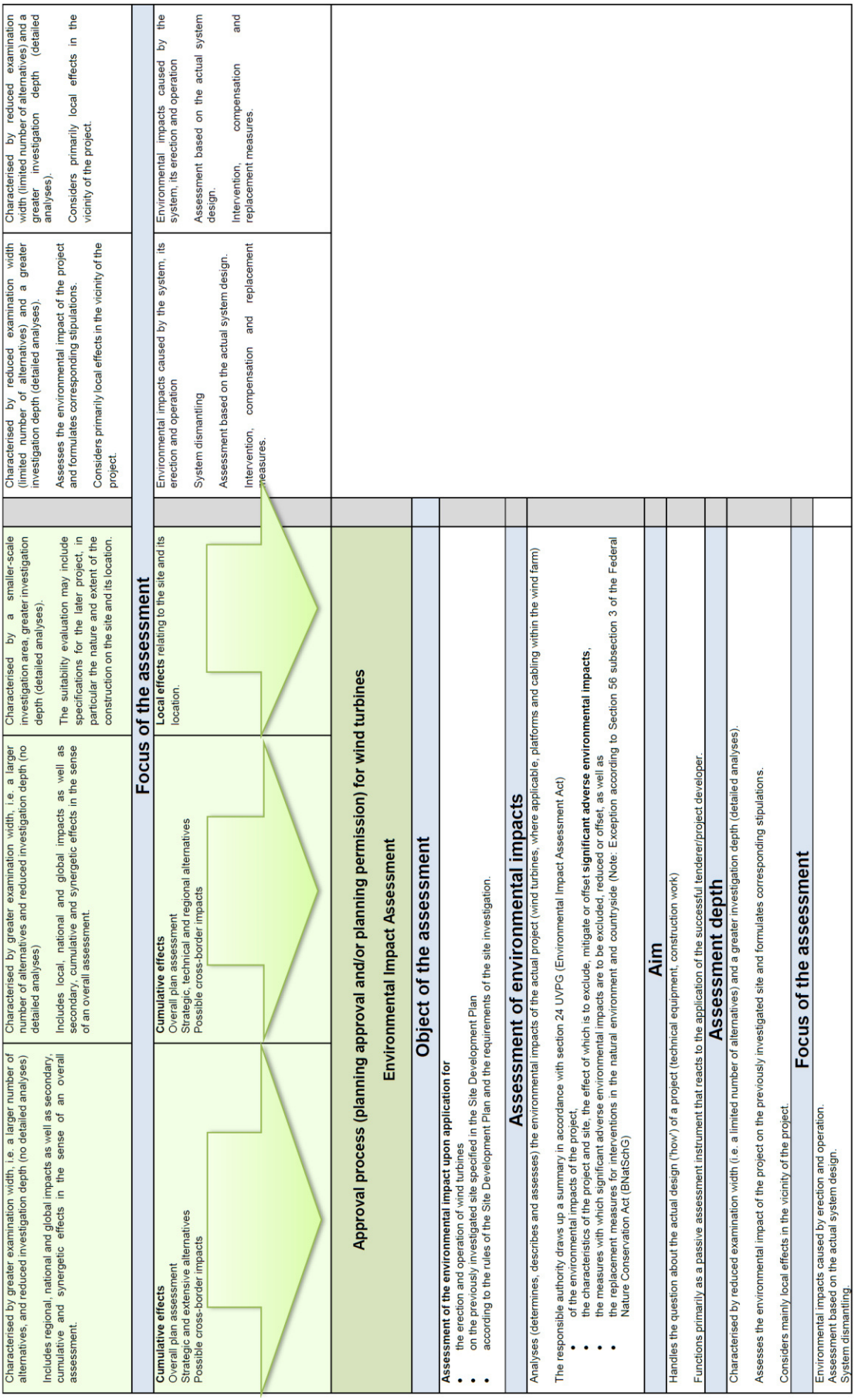

Figure 3 Overview of the priorities of environmental assessments in the planning and approval process.

3 Presentation and consideration of environmental protection objectives

The preparation and updating of the FEP as well as the implementation of the SEA are carried out in consideration of environmental protection objectives. These provide information on the environmental status to be aimed for in the future (environmental quality objectives). The environmental protection objectives can be derived from an overall view of the international, EU and national conventions and regulations that deal with marine environmental protection and on the basis of which the Federal Republic of Germany has committed itself to certain principles and objectives. The environmental reports on the ROP 2021 contain a description of how compliance with the aforementioned relevant international, EU and national regulations and recommendations is examined and implemented and what stipulations or measures are taken. Should there be a need for updates or changes in the context of the update of the FEP, a supplementary presentation will be made in the forthcoming environmental report.

3.1 International conventions on marine environmental protection

The Federal Republic of Germany is a party to all relevant international conventions on marine environmental protection.

3.1.1 Globally applicable conventions that are wholly or partly aimed at protecting the marine environment

- the 1973 Convention for the Prevention of Pollution from Ships, as amended by the 1978 Protocol (MARPOL 73/78)
- 1982 United Nations Convention on the Law of the Sea
- Convention on the prevention of marine pollution by dumping of waste and other matter (London, 1972) and the 1996 Protocol

3.1.2 Regional agreements on marine environmental protection

- Trilateral Wadden Sea Cooperation (1978) and Trilateral Monitoring and Assessment Programme of 1997 (TMAP)
- 1983 Convention concerning Cooperation between the North Sea States to combat pollution of the North Sea by oil and other harmful substances (Bonn Convention)
- 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention)
- 1992 Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention)

3.1.3 Agreements specific to protected assets

- 1979 Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)
- 1979 Convention on the conservation of migratory species of wild animals (Bonn Convention)

Under the Bonn Convention, regional agreements for the conservation of the species listed in Appendix II were concluded in accordance with Article 4 No. 3 of the Bonn Convention:

- 1995 Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA)
- 1991 Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas (ASCOBANS)
- 1991 Agreement on the Conservation of Seals in the Wadden Sea

- 1991 Agreement on the Conservation of European Bat Populations (EUROBATS)
- 1993 Convention on Biological Diversity

3.2 Environmental and nature conservation requirements at EU level

As relevant EU legislation must be taken into account:

- Council Directive 337/85/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (Environmental Impact Assessment Directive, EIA Directive)
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)
- Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive, WFD)
- Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (Strategic Environmental Assessment Directive, SEA Directive)
- Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for Community action in the field of marine environmental policy (Marine Strategy Framework Directive, MSFD),
- Directive 2009/147/EC of the European Parliament and of the Council on the conservation of wild birds (Birds Directive).

3.3 Environmental and nature conservation requirements at national level

There are also various legal provisions at national level, the requirements of which must be taken into account in the environmental report:

- Law on nature conservation and landscape management (Federal Nature Conservation Act - BNatSchG)
- Water Resources Act (WHG)
- Law on Environmental Impact Assessment (UVPG)
- Act on the Development and Promotion of Wind Energy at Sea (Wind Energy at Sea Act - WindSeeG)
- Regulation on the establishment of the nature reserve "Sylt Outer Reef - Eastern German Bight", the Regulation on the establishment of the nature reserve "Borkum Riffgrund", and the Regulation on the establishment of the nature reserve "Doggerbank" in the North Sea EEZ
- Regulation on the designation of the "Fehmarnbelt" nature reserve, Regulation on the designation of the "Kadetrinne" nature reserve and Regulation on the designation of the "Östliche Deutsche Bucht - Rönnebank" nature reserve in the Baltic Sea EEZ
- Management plans for nature conservation areas in the German North Sea EEZ
- Management plans for the nature conservation areas in the German Baltic Sea EEZ (participation procedure not yet completed)
- Energy and climate protection targets of the Federal Government

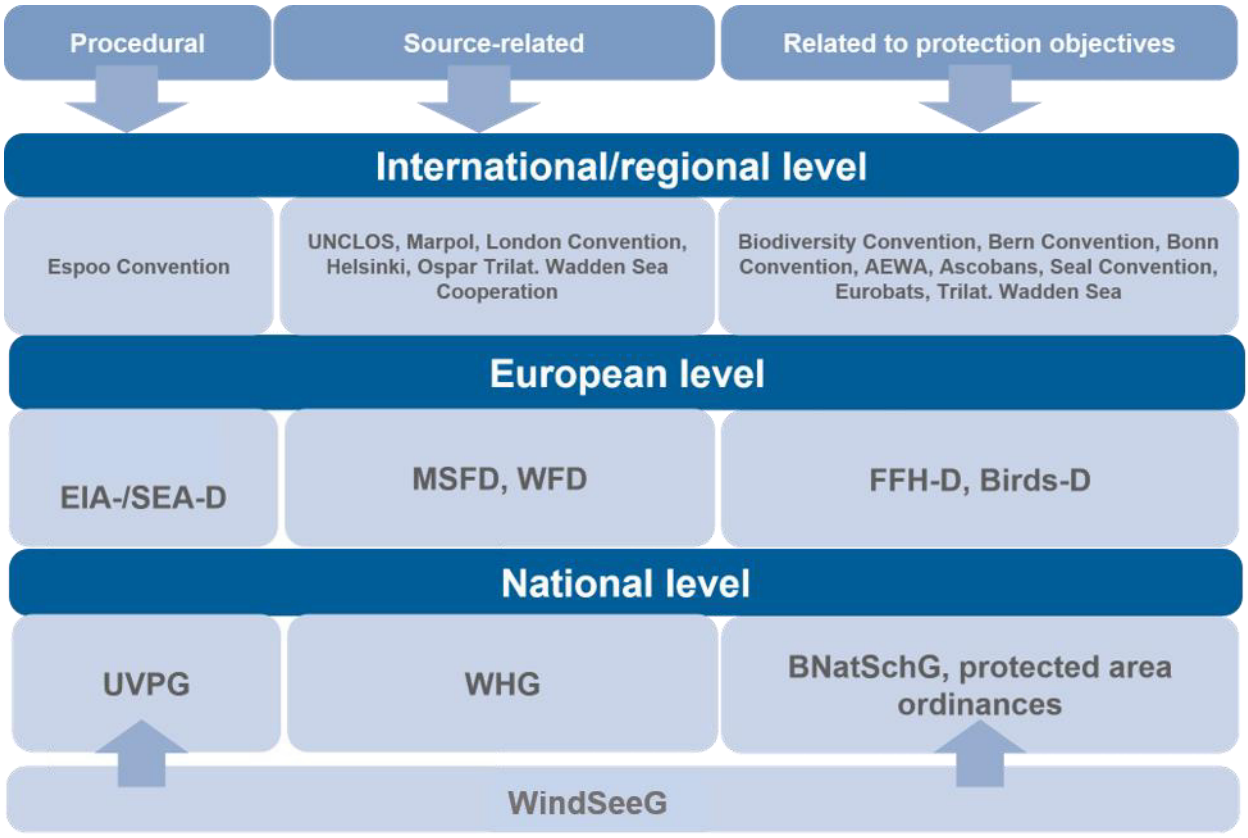

Figure 4 Overview of the normative levels of the relevant legal acts for SEA.

4 Strategic Environmental Assessment methodology

In principle, various methodological approaches can be considered when conducting the SEA. This environmental report builds on the methodology already applied in the SEA of the federal sectoral plans and the site development plan, which was also used for the SEA of the ROP with regard to offshore wind energy and transmission lines.

The methodology depends primarily on the designations of the plan to be assessed. Within the framework of this SEA, it is determined, described and assessed for each of the specifications whether the specifications are likely to have significant effects on the protected assets concerned. According to Section 1 (4) UVPG in conjunction with Section 40 (3) UVPG, the competent authority shall provisionally assess the environmental effects of the specifications in the environmental report with a view to effective environmental precautions in accordance with the applicable legislation. According to the special legal standard of § 5 para. 3 WindSeeG, the specifications must not lead to a hazard to the marine environment. In this context, the requirements under nature conservation law (Federal Nature Conservation Act) must also be examined.

The subject of the environmental report is the description and assessment of the likely significant effects of the implementation of the FEP on the marine environment for the specifications of the FEP as listed in Article 5 (1) of the WindSeeG (see 1.3).

However, the temporal specifications, such as the order of tendering or calendar years of commissioning, are less important here, as they do not lead to any further environmental impacts compared to the spatial specifications.

Although some planning and technical principles also serve to reduce environmental impacts, they can also lead to impacts, so that an assessment is necessary.

The following specifications are examined in **relation to** their likely significant environmental impacts:

- Areas and sites for offshore wind energy, including the determination of the expected capacity to be installed
- Routes and corridors, including border corridors
- Locations for platforms (converter and collection platforms and substations)
- Designation of other energy production areas
- Relevant planning and engineering principles

4.1 Examination room

The description and assessment of the environmental status relates to the EEZs of the North Sea and the Baltic Sea, for which the FEP essentially makes specifications. The SEA investigation area covers the German EEZ of the North Sea and the Baltic Sea. It should be noted that the data situation within the North Sea EEZ is significantly better for the area up to shipping route 10 than for the area northwest of shipping route 10 due to the available project-related monitoring data.

For the area northwest of shipping route 10, the FEP makes statements on areas and sites, possible routes, route corridors or border corridors for transboundary submarine cable systems. Based on the available sediment data and findings from the monitoring of the "Dogger Bank" protected area, a description and assessment of the environmental status and an evaluation of the potential environmental impacts is also possible for this area.

The adjacent territorial sea and the adjacent areas of the neighbouring states are not directly the subject of this plan, but they will be considered as part of the cumulative and transboundary assessment in this SEA, where necessary.

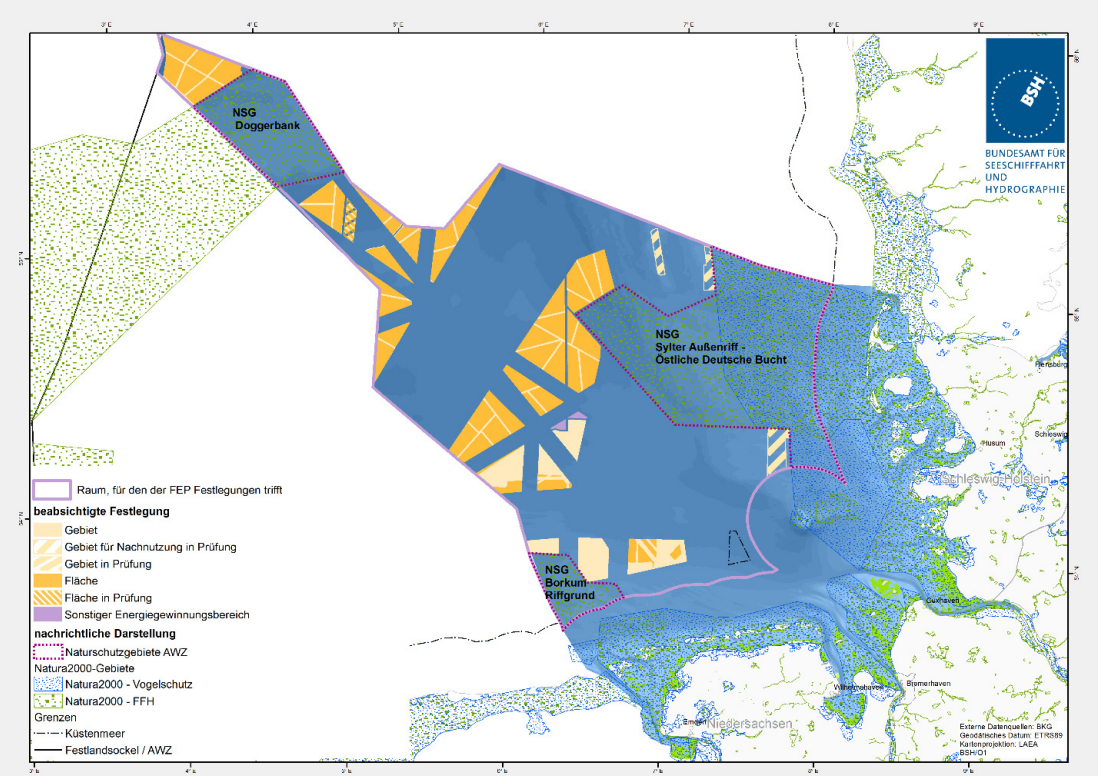

Figure 5 Delimitation of the investigation area for the SEA of the site development plan in the North Sea.

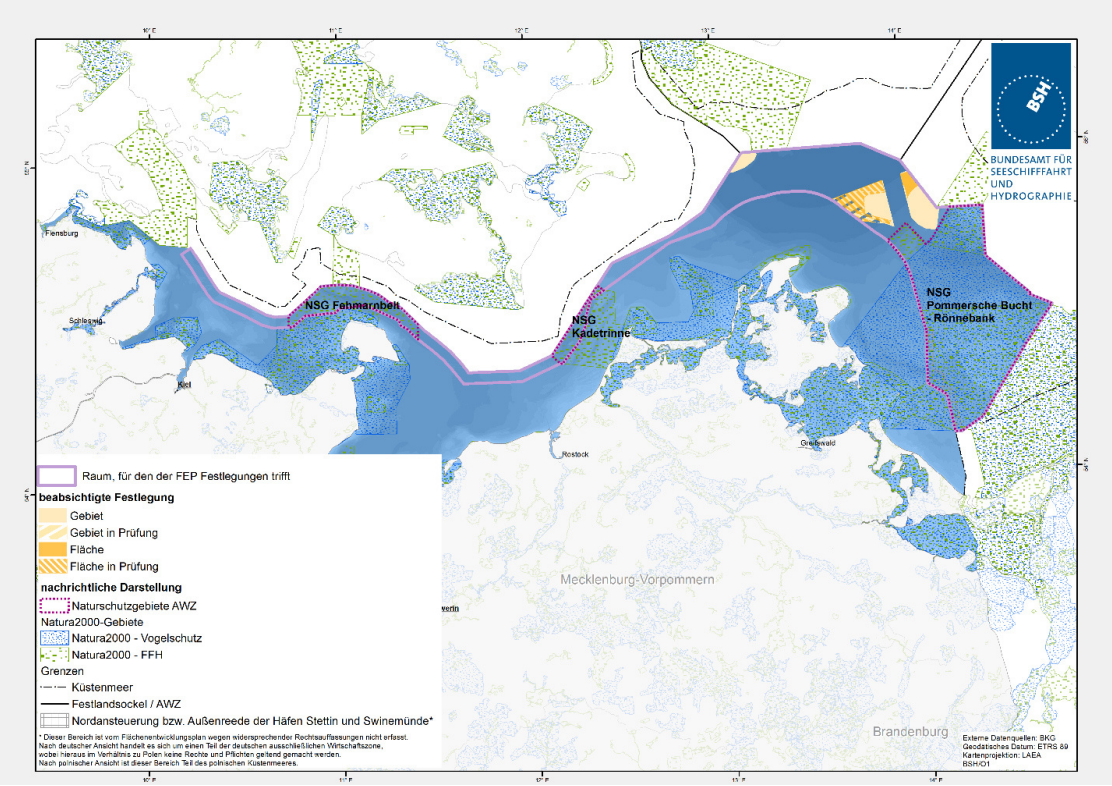

Figure 6 Delimitation of the investigation area for the SEA of the site development plan in the Baltic Sea.

4.2 Implementation of the environmental assessment

As with the SEA on maritime spatial planning, the assessment of the likely significant environmental effects of the implementation of the FEP includes secondary, cumulative, synergistic, short-, medium- and long-term, permanent and temporary, positive and negative effects in terms of protected assets. Secondary or indirect effects are those which are not immediate and therefore may take effect after some time and/or in other places. Occasionally we also speak of consequential effects or interactions.

Possible impacts of the plan implementation are described and evaluated in relation to the protected areas. A uniform definition of the term "significance" does not exist, since it is a "individually determined significance" which cannot be considered independently of the "specific characteristics of plans or programmes" (SOMMER, 2005, 25f.). In general, significant impacts can be understood to be effects that are serious and significant in the context under consideration.

According to the criteria of Annex 2 of the ROG, which are decisive for the assessment of the likely significant environmental impacts, significance is determined by

- "the probability, duration, frequency and irreversibility of the effects
- the cumulative nature of the effects;
- the cross-border nature of the effects;
- the risks to human health or the environment (e.g. in the event of accidents);
- the scale and spatial extent of the impact;
- the importance and sensitivity of the area likely to be affected, due to its specific natural characteristics or cultural heritage, the exceeding of environmental quality standards or limit values and intensive land use;
- the impact on sites or landscapes whose status is recognised as protected at national, Community or international level".

Also relevant are the characteristics of the plan, in particular

- the extent to which the plan sets a framework for projects and other activities in terms of location, type, size and operating conditions or through the use of resources
- the extent to which the plan influences other plans and programmes, including those in a planning hierarchy;
- the importance of the plan for the integration of environmental considerations, in particular with a view to promoting sustainable development
- the environmental issues relevant to the plan;
- the relevance of the plan for the implementation of Community environmental legislation (e.g. plans and programmes relating to waste management or water protection) (Annex II SEA Directive)

In some cases, further details on when an impact reaches the materiality threshold can be derived from sectoral legislation. Threshold values were developed under the law in order to be able to make a distinction.

According to the requirements of § 5 para. 3 sentence 4 WindSeeG in conjunction with § 39 para. 3 sentence 3 UVPG. § Section 39 (3) sentence 3 UVPG, it is first examined whether there are additional or other significant environmental impacts compared to the ROP and the SEA carried out in this procedure and whether updates and deepening are required. It is also examined whether there is a need for adjustments and amendments compared to the SEA of the existing FEP. Assessments for which no changes have arisen are not repeated; reference is made to the respective results in the existing environmental reports in this respect. For these two reasons, the scope of the assessment is therefore limited to additional or different significant environmental impacts as well as to necessary updates and deepening. This assessment will be carried out separately for areas and sites, platforms, submarine cable systems and other energy generation areas,

taking into account the assessment of the protected assets. Furthermore, if necessary, a differentiation will be made according to different technical designs. All plan contents that can potentially have significant environmental impacts are examined.

In this context, both the construction- and dismantling-related impacts as well as the plant- and operation-related impacts are considered. In addition, impacts that may arise in the course of maintenance and repair work are taken into account. Possible interactions, cumulative effects and transboundary impacts are also considered.

The result of the assessment as to whether additional or other significant environmental impacts arise and whether updates and deepening are required is documented in the environmental report in each case. Any assessments, updates or deepening required beyond the SEA for the existing FEP or the SEA for the ROP will be carried out as part of the upcoming SEA for the FEP and described in the environmental report.

The following protected assets are considered with regard to the assessment of the state of the environment:

- Area
- Soil
- Water
- Plankton
- Biotope types
- Benthos
- Fish
- Marine mammals
- Avifauna
- Bats
- Biodiversity
- Air
- Climate
- Landscape
- Cultural and material goods
- People, especially human health
- Interrelationships between protected assets

In general, the following methodological approaches find their way into the environmental assessment:

- Qualitative descriptions and assessments
- Quantitative descriptions and assessments
- Evaluation of studies and technical literature, expert opinions
- Visualisations
- Worst-case assumptions
- Trend assessments (e.g. on the state of the art of installations)
- Assessments by experts/ the professional public

In general, the assessment of the impacts resulting from the designations of the FEP continues to be based on the status description and status assessment and the function and significance of the individual areas, sites and routes for the individual protected assets on the one hand, and the impacts emanating from these designations and the resulting potential impacts on the other. A prognosis of the project-related impacts in the case of implementation of the FEP is implemented based on the criteria of intensity, range and duration or frequency of the effects (cf. figure 9).

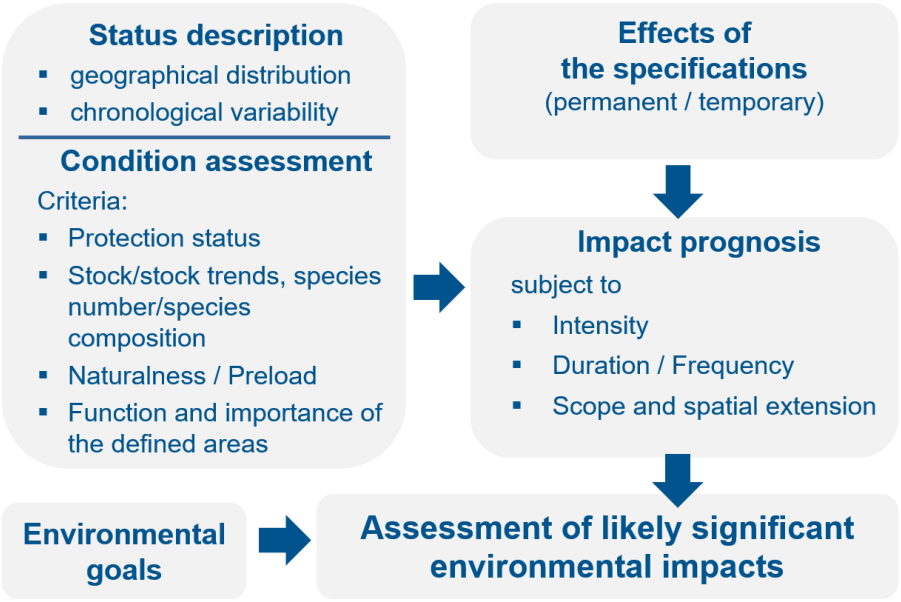

Figure 7 General methodology for the assessment of likely significant environmental effects.

4.3 Criteria for the description and assessment of the condition

The condition of the individual protected assets is assessed on the basis of various criteria. For the protected assets of area/soil, benthos and fish, the assessment is based on the aspects of rarity and vulnerability, diversity and peculiarity, and existing impacts. The description and assessment of marine mammals and marine and resting birds is based on the aspects listed in the figure. Since these are highly mobile species, an approach analogous to that for the protected assets area/soil, benthos and fish is not appropriate. For seabirds, resting birds and marine mammals, the criteria used are protection status, assessment of occurrence, assessment of spatial units and prior contamination. For migratory birds, the aspects of rarity, endangerment and existing pressures are taken into account, as are the aspects of occurrence assessment and the area's significance for bird migration over a large area. There is currently no reliable data basis for a criteria-based assessment of bats as a protected species. The biodiversity asset is evaluated in text form.

The following is a summary of the criteria that were used for the status assessment of the respective protected property. This overview deals with the protected assets which can be meaningfully delimited on the basis of criteria and which are considered in the focus area.

Soil

Aspect: Rarity and endangerment
Criterion: Percentage of sediments on the seabed and distribution of the morphological inventory of forms.
Aspect: Diversity and individuality
Criterion: Heterogeneity of the sediments on the sea floor and formation of the morphological inventory of forms.
Aspect: Preload
Criterion: Extent of the anthropogenic preload of the sediments on the sea floor and the morphological inventory of forms.

Benthos

Aspect: Rarity and endangerment
Criterion: Number of rare or endangered species based on the Red List species identified (Red List by RACHOR et al. 2013).
Aspect: Diversity and individuality
Criterion: Number of species and composition of the species communities. The extent to which species or communities characteristic of the habitat occur and how regularly they occur is assessed.
Aspect: Preload
For this criterion, the intensity of fishing exploitation, which is the most effective disturbance variable, will be used as a benchmark. Eutrophication can also affect benthic communities. For other disturbance variables, such as vessel traffic, pollutants, etc., there is currently a lack of suitable measurement and detection methods to be able to include them in the assessment.

Biotope types

Aspect: Rarity and endangerment
Criterion: national conservation status and endangerment of biotope types according to the Red List of Endangered Biotope Types in Germany (FINCK et al., 2017)
Aspect: Preload
Criterion: Hazard due to anthropogenic influences.

Fish

Aspect: Rarity and endangerment
Criterion: Proportion of species considered endangered according to the current Red List marine fish (THIEL et al. 2013) and for the diadromous species on the Red List freshwater fish (FREYHOF 2009) and assigned to Red List categories.
Aspect: Diversity and individuality
Criterion: The diversity of a fish community can be described by the number of species (α-Diversity, 'Species richness'). The species composition can be used to assess the specific nature of a fish community, i.e. how regularly habitat-typical species occur. Diversity and specificity are compared and assessed between the North Sea or Baltic Sea as a whole and the German EEZ, as well as between the EEZ and individual areas.
Aspect: Preload
Criterion: Through the removal of target species and by-catch, and the impact on the seabed in the case of bottom-dwelling fishing methods, fisheries are considered to be the most effective disturbance to the fish community and therefore serve as a measure of the pressure on fish communities in the North Sea and Baltic Sea. There is no assessment of stocks on a smaller spatial scale such as the German Bight. The input of nutrients into natural waters is another path through which human activities can affect fish communities. For this reason, eutrophication is used to assess the existing pollution.

Marine mammals

Aspect: Protection status
Criterion: Status under Annex II and Annex IV of the Habitats Directive and the following international protection agreements: Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, CMS), ASCOBANS (Agreement on the Conservation of Small Cetaceans of the Baltic and North Seas), Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)
Aspect: Assessment of the occurrence
criteria: Stock, stock changes/trends based on large-scale surveys, distribution patterns and density distributions
Aspect: Evaluation of spatial units
criteria: Function and importance of the German EEZ and the areas defined in the FEP for marine mammals as transit areas, feeding grounds or breeding grounds
Aspect: Preload
Criterion: Hazards due to anthropogenic influences and climate change.

Seabirds and resting birds

Aspect: Protection status
Criterion: Annex I status Species of the Birds Directive, European Red List from BirdLife International
Aspect: Assessment of the occurrence
criteria: Stocks in the German North Sea and Baltic Sea and stocks in the German EEZ, large-scale distribution patterns, abundances, variability
Aspect: Evaluation of spatial units
criteria: Function of the areas defined in the FEP for relevant breeding birds, migrants, as resting areas, location of protected areas
Aspect: Preload
Criterion: Hazards due to anthropogenic influences and climate change.

Migratory birds

Aspect: The importance of bird migration over a large area
Criterion: Guidelines and areas of concentration
Aspect: Assessment of the occurrence
Criterion: draught and its intensity
Aspect: Rarity and endangerment
Criterion: Number of species and endangered status of the species involved according to Annex I of the Birds Directive, Bern Convention of 1979 on the Conservation of European Wildlife and Natural Habitats, Bonn Convention of 1979 on the Conservation of Migratory Species of Wild Animals, AEWA (African-Eurasian Waterbird Agreement) and SPEC (Species of European Conservation Concern).
Aspect: Preload
Criterion: Prior pollution/hazards due to anthropogenic influences and climate change.

4.4 Consideration of climate change

Anthropogenic climate change as one of the biggest societal challenges is of particular importance for changes in the oceans and their use. In changing seas, the consideration and integration of climate impacts into planning processes is of great importance in order to develop sustainable and future-oriented plans in the long term.

Climate change will alter the physical, chemical and biological conditions in the North Sea and Baltic Sea. This will inevitably have an impact on marine ecosystems, their structure and functions, which may also change ecosystem services. The changes may also have a direct impact on uses, e.g. for renewable energy (Frazão Santos, 2020).

The designations of the FEP have considerable CO_2 reduction potential and contribute in particular to climate protection. The expansion and use of climate-friendly technologies in the sea will support energy security and the achievement of national and international climate protection objectives.

4.5 Assumptions used to describe and assess the likely significant impacts

The description and assessment of the likely significant effects of the implementation of the FEP on the marine environment are carried out separately for areas and sites, platforms, submarine cable systems and other energy production areas on the basis of the protected assets, including the status assessment described above. For each of these aspects, it is examined individually whether additional or different significant environmental impacts arise compared to the SEA for the existing FEP or the SEA for the ROP and whether updates and deepening of the descriptions and assessments are required. The following table lists, based on the main impact factors, the potential environmental impacts that may arise from the respective use and form the basis for the assessment of the likely significant environmental impacts. For the assessment, the impacts are differentiated according to whether they are due to construction/deconstruction or operation, or whether they are caused by the facility itself.

Table 1 Overview of potentially significant impacts if the FEP is implemented (t=temporary effects).

Use	Effect	Potential impact	Protected assets																
			Benthos	Fish	Seabirds and	Migratory birds	Marine mammals	Bats	Plankton	Biotope types	Biodiversity	Soil	Area	Water	Air	Climate	Man/ Health	Cultural & mate-	Landscape
Areas, sites and platform locations	Placement of hard substrate (foundations)	Habitat modification	x	x			x		x	x	x	x							
		Habitat and land loss	x	x			x			x	x	x	x					x	
		Attraction effects, increase in species diversity, change in species composition	x	x	x		x		x		x								
		Change in hydrographic conditions	x	x			x		x					x					
	Scouring/sediment shift	Habitat modification	x	x					x	x		x	x						
	Sediment resuspension and turbidity plumes (construction phase)	Impairment	x t	x t	x t				x t					x t					
		Physiological effects and chilling effects		x t			x												
	Resuspension of sediment and sedimentation (construction phase)	Impairment	x t	x t					x t					x t					
	Noise emissions during pile driving (construction phase)	Impairment/ scare effect		x t			x												
		Potential disruption/damage		x t			x												
	Visual disturbance due to construction operations	Local scouring and barrier effects		x t	x t														
	Obstacle in airspace	Scare effects, habitat loss			x														
		Barrier effect, collision			x	x		x											x

Use	Effect	Potential impact	Protected assets																
			Benthos	Fish	Seabirds and	Migratory birds	Marine mammals	Bats	Plankton	Biotope types	Biodiversity	Soil	Area	Water	Air	Climate	Man/ Health	Cultural & mate-	Landscape
	Light emissions (construction and operation)	Attraction effects, collision			x	x		x											x
	Wind farm-related shipping traffic (maintenance, construction traffic)	Impairment/ scare effects Collision	x	x	x	x	x	x	x	x	x	x	x t	x	x	x	x	x	
Submarine cable systems	Placement of hard substrate (riprap)	Habitat modification	x	x					x	x		x						x	
		Habitat and land loss	x	x						x		x	x					x	
	Heat emissions	Impairment/displacement of cold-water-loving species	x								x	x							
	Magnetic fields	Impairment	x																
		Impairment of the orientation behaviour of individual migratory species		x															
	Turbidity plumes (construction phase)	Impairment	x t	x t	x t				x t					x t					
		Physiological effects and chilling effects		x t															

In addition to the effects on the individual protected assets, cumulative effects and interactions between protected assets are also examined.

4.5.1 Cumulative consideration

According to Art. 5 para. 1 SEA Directive, the environmental report also includes the assessment of cumulative effects. Cumulative impacts result from the interaction of various independent individual effects that either add up through their interaction (cumulative effects) or reinforce each other and thus produce more than the sum of their individual effects (synergetic effects) (e.g. SCHOMERUS et al., 2006). Cumulative as well as synergetic effects can be caused by temporal as well as spatial coincidence of impacts. Effects of the construction phase are predominantly short-term and temporary in nature, while plant-related and operational effects can be permanent. The impact can be intensified by similar uses or different uses with the same effect, thus increasing the impact on one or more protected assets.

The focus of the environmental report on the FEP is on the cumulative consideration of similar uses, namely those for which the FEP makes specifications. A cumulative consideration of different uses, i.e. intersectoral, is carried out within the framework of the SEA at the higher level of the ROP for the EEZ.

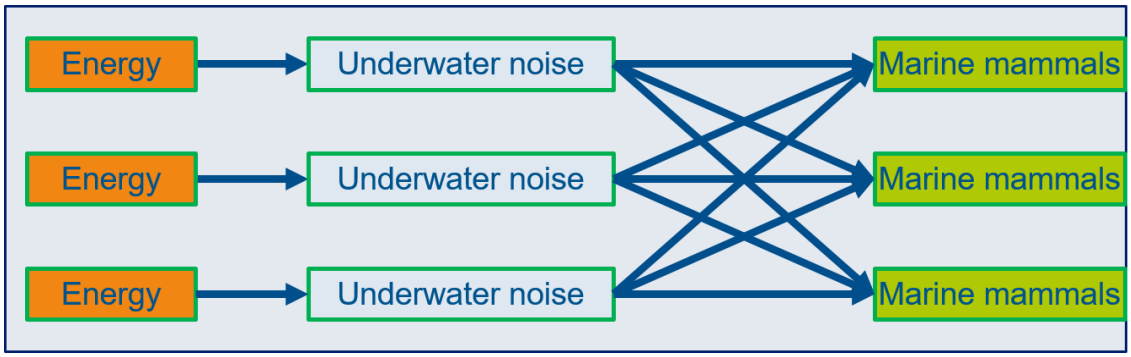

Figure 8 Exemplary cumulative effect of similar uses.

In order to examine the cumulative effects, it is necessary to assess the extent to which the designations of the plan, when taken together, can be expected to have a significant adverse effect. An examination of the designations is performed on the basis of the current state of knowledge within the meaning of Article 5 (2) of the SEA Directive. The position paper on the cumulative assessment of diver habitat loss in the German North Sea (BMU, 2009) and the BMUB's noise abatement concept (2013) form an important basis for assessing the impacts of habitat loss and underwater noise.

4.5.2 Interrelationships

In general, impacts on a protected good lead to various consequences and interactions between the protected assets. The main interdependence of the biotic protected assets exists via the food chains. Due to the variability of the habitat, interactions can only be described very imprecisely.

4.5.3 Specific assumptions for the assessment of the likely significant environmental effects

In detail, the following procedure is carried out for the analysis and assessment of the respective designations:

Areas and sites, including the expected power to be installed:

With regard to the areas, it is currently assumed that all priority and reservation areas for offshore wind energy in the ROP will be identified in the FEP. If additional areas are identified, these will be included in the scope of the SEA. Within the areas, the FEP will define sites and the expected capacity of offshore wind turbines to be installed.

For the SEA, certain parameters are assumed for the development of the areas. In detail, these include the number of turbines, power per turbine [MW], hub height [m], height of the lower rotor tip [m], rotor diameter [m], total height [m] of the turbines, diameter of foundation types [m] and diameter of the scour protection [m].

The input parameters considered in the upcoming SEA are, in particular:

- Plants already in operation or in the approval procedure (as reference and initial load)
- Forecast of certain technical developments and assumptions of bandwidths for various parameters for the consideration of the defined areas and sites.

Table 2 provides an overview of the model parameters to be used with the respective bandwidths. In order to reflect the range of possible developments, the assessment is essentially based on two scenarios. In the first scenario, many small installations are assumed, while in the second scenario, only a few large installations are assumed. Due to the range of scenarios covered, a comprehensive description and

assessment of the protected assets is made possible.

The parameters of the scenarios reflect the expected advancing state of the art and therefore differ for the different zones that are expected to be developed for offshore wind energy.

Table 2 Model parameters for the consideration of the areas and sites.

Parameter	Zone 1/2		Zone 3		Zone 4/5	
	Scenario 1	Scenario 2	Scenario 1	Scenario 2	Scenario 1	Scenario 2
Capacity per plant [MW]	5	15	15	20	20	30
Hub height [m]	100	150	150	165	165	210
Rotor diameter [m]	140	240	240	270	270	350
Total height [m]	170	270	270	300	300	385

Locations for platforms (transformer or residential platforms)

For the assessment of platform locations (transformer, converter and residential platforms), certain parameters are also assumed as a basis for the evaluation, such as the number of platforms, length of the cabling within the park [km], diameter of one or several foundations [m] and area for foundations (incl. scour protection) [m²].

Table 3 Parameters for the consideration of grid connections and platforms

Grid connection	320 kV		525 kV	220 kV
Converter platforms, transformer/residential platforms*	66 kV	155 kV	66 kV	
Spec. length park-internal cabling [km/MW]	approx. 0.12	approx. 0.12	approx. 0.12	approx. 0.12
Number of converter platforms	1	1	1	0
Area of converter platform foundation [m²]	approx. 600	approx. 600	approx. 600	
Number of transformer platforms	0	2	0	1
Number of residential platforms	2	0	2	0
Diameter foundation [m]**	approx. 2 x 10	approx. 2 x 10	approx. 2 x 10	approx. 10
Diameter scour protection [m]	approx. 2 x 50	approx. 2 x 50	approx. 2 x 50	approx. 50

* The data on transformer/residential platforms refers to the number of transformer/residential platforms per grid connection (only for completions from 2026) for the different connection concepts. Only the length of the wind farm's internal cabling is dependent on the anticipated capacity and was determined on the basis of existing plans.

** The calculation of the land use is based on the assumption of a monopile foundation. It is assumed that monopiles and jackets use approximately the same area on the seabed.

Routes and corridors for submarine cable systems

When determining routes and corridors for submarine cable systems (connection lines, cross-border submarine cable systems and interconnections), certain widths of the cable trench [m] and a certain area of the crossing structures [m ^{2}] are assumed. Mainly the construction-, operation- and repair-related environmental impacts are considered.

Table 4 Parameters for the consideration of submarine cable systems

Submarine cable systems	
Cable trench width [m]	approx. 1
Area of the crossing structures [m ^{2}]	approx. 900

Other energy production areas

For the definition of "other energy production areas", the SEA is based on the assumption of a "classic" offshore wind farm on the basis of previous knowledge of electricity production. Environmental impacts going beyond this are strongly dependent on the respective use variant and should therefore be comprehensively assessed at the approval level. In this respect, the SEA for other energy production areas is carried out in the same way as the assessment of areas for offshore wind energy and is based on the same model parameters.

Relevant planning and technical principles

By regulating planning and technical principles in the FEP, the required land use can be minimised and the potential environmental impacts reduced to a low level. The majority of the planning principles serve to prevent or reduce environmental impacts and are not expected to lead to significant impacts.

The FEP also contains some planning principles that are not related to the reduction of environmental impacts. If these are based on spatial planning objectives, they must be complied with due to the binding nature of the spatial planning objectives. Remaining planning principles are examined for likely significant environmental impacts on protected assets.

With regard to the technical principles, a DC system as a voltage-sourced high-voltage DC transmission with a voltage level of +/- 320 kV was already specified as part of the BFO North Sea and was therefore also the subject of the environmental assessment of the BFO. Changes to the standard transmission capacity, for example, will be examined in the environmental report.

5 Data basis

The basis for the SEA is a description and assessment of the state of the environment in the examination room. All protected assets are to be included. The data basis is the basis for the assessment of the likely significant environmental impacts, the site and species protection assessment and the alternatives assessment.

Pursuant to Section 39 (2) sentence 2 UVPG, the environmental report shall contain the information that can be ascertained with reasonable effort, taking into account the current state of knowledge and public statements known to the authority, generally accepted assessment methods, the content and level of detail of the plan and its position in the decision-making process.

According to Section 40 (4) UVPG, information available to the competent authority from other procedures or activities may be included in the environmental report if it is suitable for the intended purpose and sufficiently up-to-date.

The environmental report will again build on the environmental assessments carried out as part of the ROP and for the preparation and update of the FEP from 2019 and 2020.

The draft environmental report will, on the one hand, update the description and assessment of the current state of the environment as well as the likely development in case of non-implementation of the plan compared to the existing environmental reports on the FEP and the SEA on the ROP. Secondly, it will forecast and assess the likely significant additional or different environmental effects resulting from the implementation of the plan.

The descriptions and assessments are carried out with regard to the following protected assets:

- Area
- Soil
- Water
- Plankton
- Biotope types
- Benthos
- Fish
- Marine mammals
- Avifauna
- Bats
- Biological diversity
- Air
- Climate
- Landscape
- Cultural and other material goods
- People, especially human health
- Interrelationships between protected assets.

5.1 Overview of data and knowledge base

The data and knowledge situation has improved significantly in recent years, in particular due to the extensive data collection within the framework of environmental impact studies as well as the construction and operation monitoring for offshore wind farm projects and the accompanying ecological research.

In general terms, the following data and findings are used as basis for the environmental report:

- Data and findings from the operation of offshore wind farms
- Data and findings from licensing procedures for offshore wind farms, submarine cable systems
- Results from the preliminary land use study
- Results from the monitoring of Natura 2000 sites
- Mapping instructions for §30 biotope types
- Environmental Report on the 2021 Spatial Development Plan for the German Exclusive Economic Zone in the North Sea
- Environmental Report on the Spatial Development Plan 2021 for the German Exclusive Economic Zone in the Baltic Sea
- BfN (2017): Die Meeresschutzgebiete in der deutschen ausschließlichen Wirtschaftszone der Nordsee - Beschreibung und Zustandsbewertung.
- BfN (2017): Methodik der Managementplanung für die Schutzgebiete in der deutschen ausschließlichen Wirtschaftszone der Nord- und Ostsee
- MSFD Initial and Progress Assessment
- OSPAR status reports
- Findings and results from R&D projects commissioned by BfN and/or BSH and from accompanying ecological research
- Results from EU cooperation projects, such as Pan Baltic Scope and SEANSE
- Studies/ Technical literature
- Current red lists
- Comments from the technical authorities
- Comments from the professional public

A detailed overview of the individual data and findings bases is included in the annex (Chap. 8) of the study framework.

5.2 Indications of difficulties in compiling the documents

Pursuant to Article 40 (2) No. 7 UVPG, indications of difficulties encountered in compiling the information, such as technical gaps or lack of knowledge, must be presented. There are still

gaps in knowledge in places, particularly with regard to the following points:

- Long-term effects from the operation of offshore wind farms and associated facilities, such as converter platforms
- Data for assessing the environmental status of the various protected assets for the area of the outer EEZ.

In principle, forecasts on the development of the living marine environment after implementation of the FEP remain subject to a certain degree of uncertainty. There is often a lack of long-term data series or analytical methods, e.g. for combining extensive information on biotic and abiotic factors, in order to better understand complex interactions of the marine ecosystem.

In particular, there is a lack of detailed area-wide sediment and biotope mapping outside the nature conservation areas of the EEZ. As a result, there is a lack of a scientific basis for assessing the impacts of the possible use of strictly protected biotope structures. At present, a sediment and biotope mapping is being carried out on behalf of the BfN and in cooperation with the BSH, research and higher education institutions and an environmental office, with a spatial focus on the nature conservation areas.

In addition, for some protected assets there is a lack of scientific assessment criteria, both with regard to the assessment of their status and with regard to the impacts of anthropogenic activities on the development of the living marine environment, in order to fundamentally consider cumulative effects over time and space.

Various R&D studies are currently being carried out on behalf of the BSH on assessment approaches, including those for underwater noise. The projects serve the continuous further development of a uniform, quality-assured basis of marine environmental information for assessing the potential impacts of offshore installations.

The environmental report will likely make substantial reference to the environmental report on the ROP for the presentation of the specific information gaps or difficulties in compiling the documents for the individual protected assets and update these, if necessary.

6 Presentation of the individual assessment steps in the environmental report

The description and assessment of the state of the environment, the presentation of the likely development in the event of non-implementation of the plan and the assessment of the likely significant environmental effects are based on the designations of the FEP and compare these in each case with the assessments already carried out as part of the SEA for the existing FEP and the SEA for the ROP.

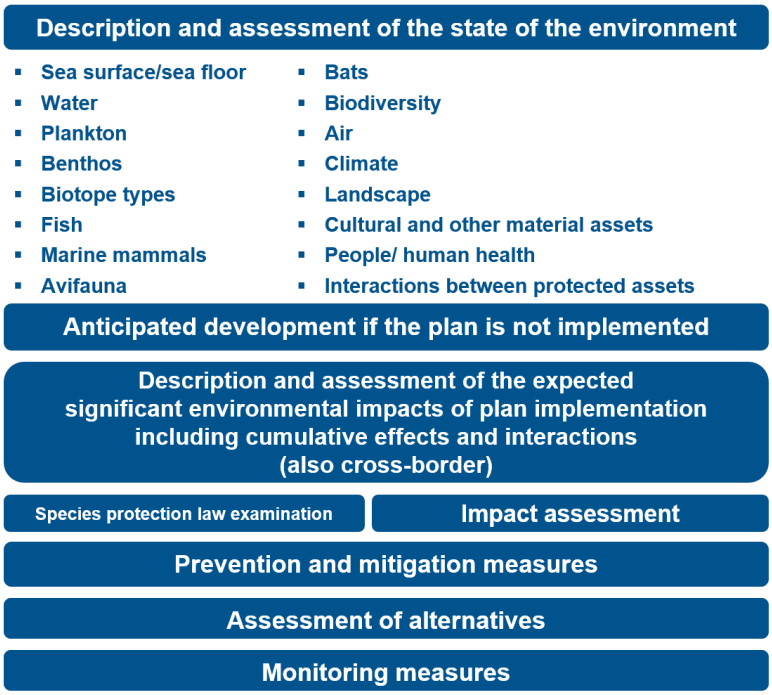

Figure 9 Components of the environmental report.

6.1 Description and assessment of the state of the environment

Pursuant to Section 40 (2) No. 3 UVPG, the environmental report contains an inventory of the relevant aspects of the current state of the environment, including the environmental characteristics of the areas likely to be significantly affected. Compared to the existing strategic environmental assessments for the FEP and the ROP, this is to be limited to additional or other significant environmental impacts and to necessary updates and deepening.

A description of the relevant aspects of the current state of the environment is fundamentally necessary in order to be able to forecast changes in it during implementation of the plan. The subject of the inventory are the protected assets listed in Article 2 (1), sentence 2, nos. 1 to 4 UVPG, as well as interactions between them. The presentation is problem-oriented. The focus is thus on possible existing impacts, environmental elements requiring special protection and on those protected assets on which the implementation of the plan will have a greater impact. In spatial terms, the description of the environment is based on the respective environmental impacts of the plan. Depending on the type of impact and the protected object concerned, these impacts vary in extent and may extend beyond the boundaries of the plan.

6.2 Anticipated development if the plan is not implemented

For a comprehensive forecast of the environmental impacts associated with the FEP, it must also be known how the environment would likely develop if the plan were not implemented. In the context of this consideration, it is particularly relevant that offshore wind energy would be expanded within the EEZ even without updating the plan. This is necessary to meet the climate protection and energy policy objectives of the German government, for which the expansion of offshore wind energy plays a key role. The anticipated development in the event of non-implementation of the plan thus includes a comparison with the environmental impacts with an identical time horizon without an updated FEP, but not a comparison of the environmental impacts of the plan with the current environmental status. The starting point for the anticipated development in the

event of non-implementation of the plan will essentially be the environmental assessment of maritime spatial planning.

6.3 Description and assessment of the likely significant effects of the implementation of the plan on the marine environment

The description and assessment of the environmental impacts focuses on the assets for which significant impacts cannot be excluded from the outset by the implementation of the FEP. Those protected assets are not considered for which a significant impairment can already be excluded during the description and assessment of the status quo. The description and assessment will be limited to additional or other significant environmental impacts as well as to necessary updates and deepening compared to the existing strategic environmental assessments for the FEP and the ROP. In addition to the significant negative impacts, possible positive effects on the marine environment will also be assessed on the basis of the standards of the sectoral legislation, i.e. § 5 para. 3 sentence 2 no. 2 WindSeeG and the Federal Nature Conservation Act. Overall, the protected assets listed in Article 2 (1) UVPG are examined.

Species protection law examination

The environmental report also presents the assessment of the species protection requirements. The assessment will be limited to additional or other significant environmental impacts as well as to necessary updates and deepening compared to the existing strategic environmental assessments for the FEP and the ROP.

Special provisions with prohibitions are applicable to fauna of specially or strictly protected species. Wild animals of specially protected species may not be injured or killed according to section 44 subsection 1 of the Federal Nature Conservation Act. Pursuant to section 44 subsection 1 no. 2 of the Federal Nature Conservation Act, wild animals of strictly protected species and of European bird species may not be significantly disturbed during their breeding, rearing, moulting, hibernation and migration periods.

Biotope protection assessment

The specifications of the FEP must also comply with the requirements of biotope protection law. According to § 30 para. 2 no. 6 BNatSchG, actions that lead to the destruction or other significant impairment of marine macrophyte populations, reefs, sublittoral sandbanks, mudflats with burrowing bottom megafauna and species-rich gravel, coarse sand and shingle beds in the marine and coastal areas are prohibited.

Impact assessment

As part of the SEA, the areas, sites, platforms and planned submarine cable routes planned in the FEP will also be assessed separately for their compatibility with the conservation purposes of the nature conservation areas. The assessment will be limited to additional or other significant environmental impacts as well as to necessary updates and deepening compared to the existing environmental assessments of the FEP and the ROP.

The nature conservation areas "Sylter Außenriff - Östliche Deutsche Bucht", "Borkum Riffgrund" and "Doggerbank" are located in the German EEZ of the North Sea and were established by ordinance of 22.09.2017.

In the German EEZ of the Baltic Sea, there are the nature conservation areas "Pomeranian Bay - Rönnebank", "Fehmarn Belt" and "Kadetrinne", which were established by ordinance of 22.09.2017.

The specifications of the plan shall be examined for their compatibility with the conservation purpose of the respective ordinance. They are admissible if, pursuant to section 36, sentence 1, no. 2 in conjunction with section 34, subsection 2 of the Federal Nature Conservation Act

(BNatSchG), they cannot lead to significant impairments of the components of the nature conservation area relevant to the conservation purpose, or if they meet the requirements under section 34, subsections 3 to 5 of the BNatSchG.

The impact assessment also takes into account the long-distance effects of the designations adopted within the EEZ on the protected areas in the adjacent territorial sea and in the adjacent waters of the neighbouring countries. This also applies to the assessment and consideration of functional relationships between the individual protected areas and the coherence of the network of protected areas pursuant to Article 56 (2) of the Federal Nature Conservation Act, since the habitat of some target species (e.g. avifauna, marine mammals) may extend across several protected areas due to their large radius of action.

6.4 Examination of reasonable alternatives

Pursuant to Art. 5 para. 1 sentence 1 SEA Directive in conjunction with the criteria in Annex I SEA Directive and § 40 para. 2 No. 8 UVPG, the environmental report contains a brief description of the reasons for the choice of the reasonable alternatives examined. At the plan level, the conceptual/strategic design, spatial and technical alternatives play a role. The prerequisite is always that these are reasonable or can be seriously considered.

Thus, not all conceivable alternatives have to be examined. However, it is no longer sufficient to identify, describe and assess only those alternatives that "seriously suggest themselves" or "even impose themselves". The duty to investigate thus extends to all alternatives that are "not obviously [...] remote" (Wulfhorst, NVwZ 2011, 1099 (1011) with further references). The examination of reasonable alternatives does not explicitly require the development and assessment of particularly environmentally friendly alternatives. Rather, the alternatives that are "reasonable" in the above sense are to be presented comparatively with regard to their environmental impacts, so that the consideration of environmental concerns becomes comprehensible when deciding on the alternative to be pursued further (Balla, S. et al, 2009, p.33).

At the same time, the effort required to identify and examine the alternatives under consideration must be reasonable. The following applies: The greater the expected environmental impacts and thus the need for conflict management in planning, the more extensive or detailed investigations are required.

In addition to the zero alternative, the environmental report will examine spatial and technical alternatives in particular. Alternatives already examined in the previous FEP procedures, for which no updating or deepening is required, will not be repeated.

6.5 Measures to prevent, reduce and offset significant negative impacts of the site development plan on the marine environment

Pursuant to Section 40 (2) UVPG, the environmental report shall contain a description of the measures planned to prevent, reduce and, as far as possible, offset significant adverse environmental effects resulting from the implementation of the plan. Avoidance and mitigation measures form an essential basis for preventing significant impacts on the marine environment.

In addition, the designations of the FEP are subject to a continuous optimisation process, as the insights gained on an ongoing basis during the SEA and consultation process are taken into account in the preparation of the plan.

While individual prevention, mitigation and compensation measures can already be applied at the planning level, others only come into play during concrete implementation and are regulated there in the individual approval procedure on a project- and site-specific basis. The best prevention and mitigation measure is

an appropriate siting/selection of areas and sites. With regard to planning prevention and mitigation measures, the FEP makes spatial and, by means of planning principles, textual stipulations that serve to prevent or reduce significant negative impacts of the implementation of the FEP on the marine environment in accordance with the environmental protection objectives set out.

These mitigation and prevention measures are specified and ordered by the competent licensing authority at project level for the planning, construction and operation phases and refer to the individual spatial determination types of § 5 para. 1 WindSeeG.

6.6 Measures planned to monitor the environmental impact of implementing the site development plan

Pursuant to Section 40 (2) No. 9 UVPG, the environmental report also contains a description of the planned monitoring measures pursuant to Section 45 UVPG. Monitoring is necessary, in particular, to identify unforeseen significant impacts at an early stage and to be able to take appropriate remedial measures. The monitoring measures shall be determined on the basis of the information in the environmental report.

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8 Annex

Data and knowledge bases

In addition to the overview of the data basis in Chapter 5.1, the following is a compilation of relevant documents that are to be used as a basis for the assessment of additional or other significant environmental effects as well as the necessary updates and deepening of the description and assessment of the environmental status in the study area and for the assessment of the likely significant environmental effects, the site and species protection assessment and the alternatives assessment. This overview is a draft; it is explicitly not complete and not conclusive.

- Data, expert opinions and reports from the operation of offshore wind farms
- Data, expert opinions and reports from approval procedures for offshore wind farms, connection lines and interconnectors
- Results from the preliminary land use study
- Environmental Report on the 2021 Spatial Development Plan for the German Exclusive Economic Zone in the North Sea
- Environmental Report on the Spatial Development Plan 2021 for the German Exclusive Economic Zone in the Baltic Sea
- BfN (2017): Die Meeresschutzgebiete in der deutschen ausschließlichen Wirtschaftszone der Nordsee - Beschreibung und Zustandsbewertung
- BfN (2017): Methodik der Managementplanung für die Schutzgebiete in der deutschen ausschließlichen Wirtschaftszone der Nord- und Ostsee
- Results from the monitoring of Natura 2000 sites
- Mapping instructions for §30 biotope types
- Status reports of the regional marine convention OSPAR
- Findings and results from R&D projects commissioned by BfN and/or BSH and from accompanying ecological research
- Results from EU cooperation projects, such as Pan Baltic Scope and SEANSE
- Project results FABENA
- Studies/ technical literature, expert opinions
- Current red lists
- Comments of the technical authorities
- Comments from the public

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