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SEESCHIFFFAHRT
UND
HYDROGRAPHIE

Suitability Assessment of sites N-3.5, N-3.6 and N-7.2*

Hamburg, February 2022

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List of abbreviations

AIS data	Data from the Automatic Identification System in shipping
BGBI	Federal Law Gazette
BNatSchG	Act on Nature Conservation and Landscape Management (Federal Nature Conservation Act)
BNetzA	Federal Network Agency for Electricity, Gas, Telecommunications, Post and Railway
BSH	Federal Maritime and Hydrographic Agency
EEG	Renewable Energy Sources Act
EEZ	Exclusive Economic Zone
GDWS	Directorate-General for Waterways and Shipping
GW	Gigawatt
MSFD	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)
MW	Megawatt
NfS	News for sailors
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic
ROG	Spatial plan
SeeAnIV	Ordinance on Installations on the seaward side of the German territorial sea (Offshore Installations Ordinance)
Sm	Nautical mile
UNCLOS	United Nations Convention on the Law of the Sea
SDP	Site Development Plan
SEA	Strategic Environmental Assessment
UVPG	Act on Assessment of Environmental Impact
VTG	Traffic Separation Area
VO-KVR	The International Regulations for Preventing Collisions at Sea 1972
VwVfG	Administrative Procedure Act
WindSeeG	Act on the development and promotion of offshore wind energy (Offshore Wind Energy Act)

1 Introduction

As of 2021, the Federal Network Agency (BNetzA in the following) will be determining the addressee and the subsidy level according to the Renewable Energies Act (EEG) pursuant to section 16 Offshore Wind Energy Act (WindSeeG) for offshore wind turbines that enter operation from 1 January 2026 onwards; this will be done by means of an invitation to tender based on a site that has been designated in the Site Development Plan dated 18 December 2020 (SDP 2020) and which has subsequently undergone a preliminary investigation of sites. As the basis for this invitation to tender, the suitability of the site and the capacity to be installed on it are approved by means of legislative decree pursuant to section 12(5)(1) WindSeeG. Pursuant to section 12(4) and (5), the suitability assessment forms the basis for determining suitability by means of legislative decree. Pursuant to section 10(2) WindSeeG, suitability is given if the construction and operation of offshore wind turbines at the site in question are not opposed by the criteria and concerns to be assessed in the context of preparing the SDP and planning approval for offshore wind turbines. Pursuant to section 12(4) in combination with section 10(3) WindSeeG, the basis for approving the capacity by means of a legislative decree is the prior determination of the capacity. Accordingly, this **suitability**

assessment and **capacity determination** serve as the basis for approving the suitability and capacity by means of legislative decree of the three sites that are regarding to FEP 2020 earmarked for the invitation to tender by the BNetzA in 2022 and 2023 according to the specifications of the SDP 2020.

This involves sites N-3.5, N-3.6 and N-7.2.

1.1 Site N-3.5

Site N-3.5 is in the German exclusive economic zone in the North Sea in the western section of the site N-3 specified in SDP 2020 (figure 1).

It is located between the traffic separation areas "German Bight Western Approach" and "Terschelling German Bight". The minimum water depth is 30 m (LAT).

To the south it is bordered by the existing wind farm "Nordsee One". Site N-3.6 is to the west. The operational transmission lines "BorWin1" and "BorWin2" run to the north-east of Site N-3.5, and along with the parallel running gas pipeline "Europipe 1".

The site is crossed by four unused submarine cables.

The nearest island, Norderney, to the south of the site is around 30-40 km away.

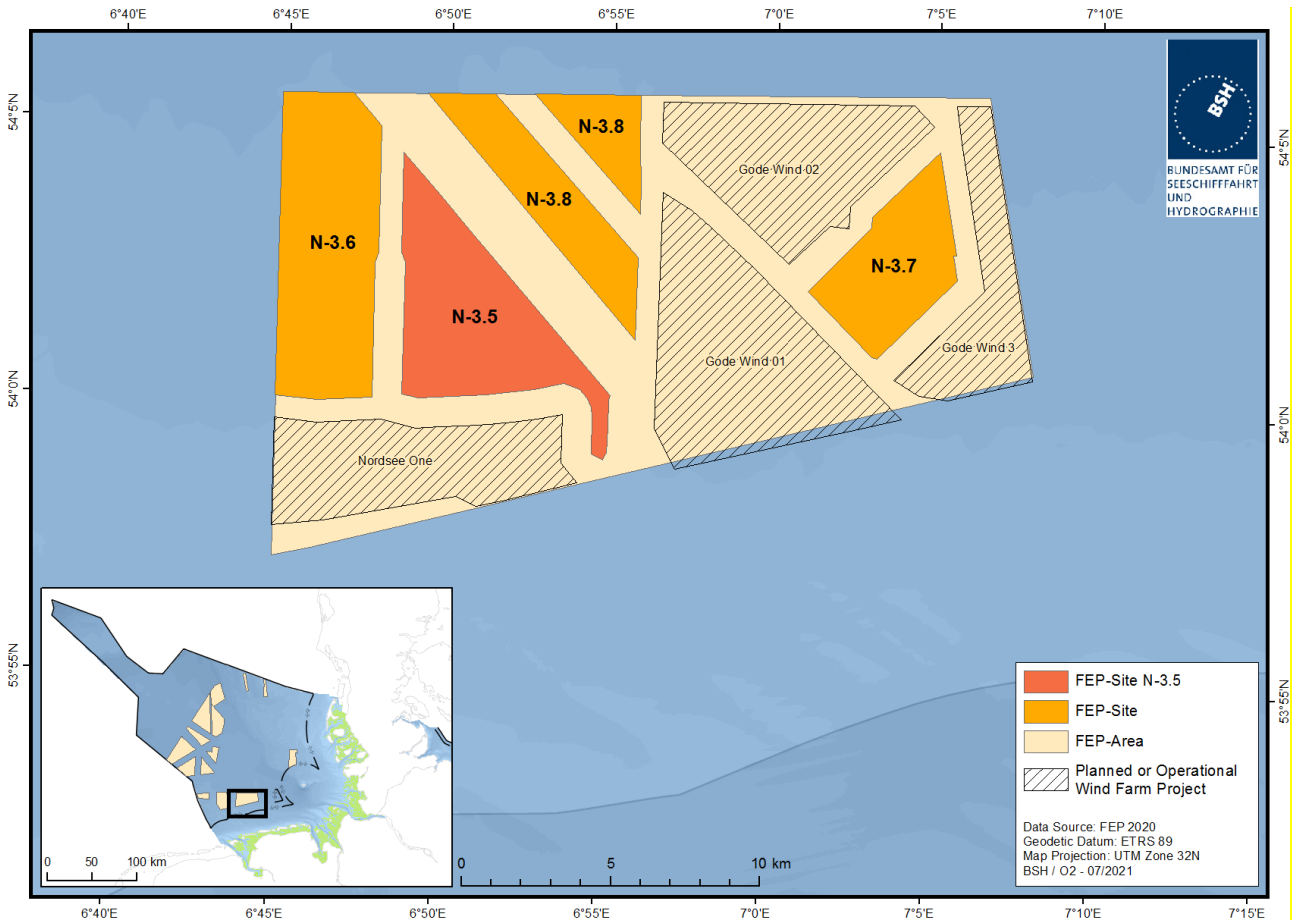


Figure 1: Overview of the location of Site N-3.5 (ETRS 89, UTM 32N) in the German EEZ in the North Sea. The coordinates are also available as additional information in the GeoSea-Portal (BSH geodata infrastructure); this is provided as information, the specification in SDP remains applicable to the definition of the site.

1.2 Site N-3.6

Site N-3.6 is in the German EEZ in the North Sea in the western section of the site N-3 specified in SDP 2020 (Figure 2).

It is located between the traffic separation areas "German Bight Western Approach" and "Terschelling German Bight". To the west of the site there is a reservation area for shipping according to the Spatial plans for the EEZ in the North Sea and Baltic Sea 2009 (Spatial plan 2009), and according to the Spatial plans for the EEZ in the North Sea and Baltic Sea 2021 (Spatial plan 2021), which entered into force on 1 September

2021, a priority area for shipping. The minimum water depth is 30 m (LAT).

To the south it is bordered by the existing wind farm "Nordsee One". Site N-3.5 is to the east. The operational transmission lines "BorWin1" and "BorWin2", as well as gas pipeline "Europipe 1", run to the north-east of the site.

The site is crossed by four unused submarine cables.

The nearest islands, Norderney and Juist, to the south of the site are around 30-40 km away.

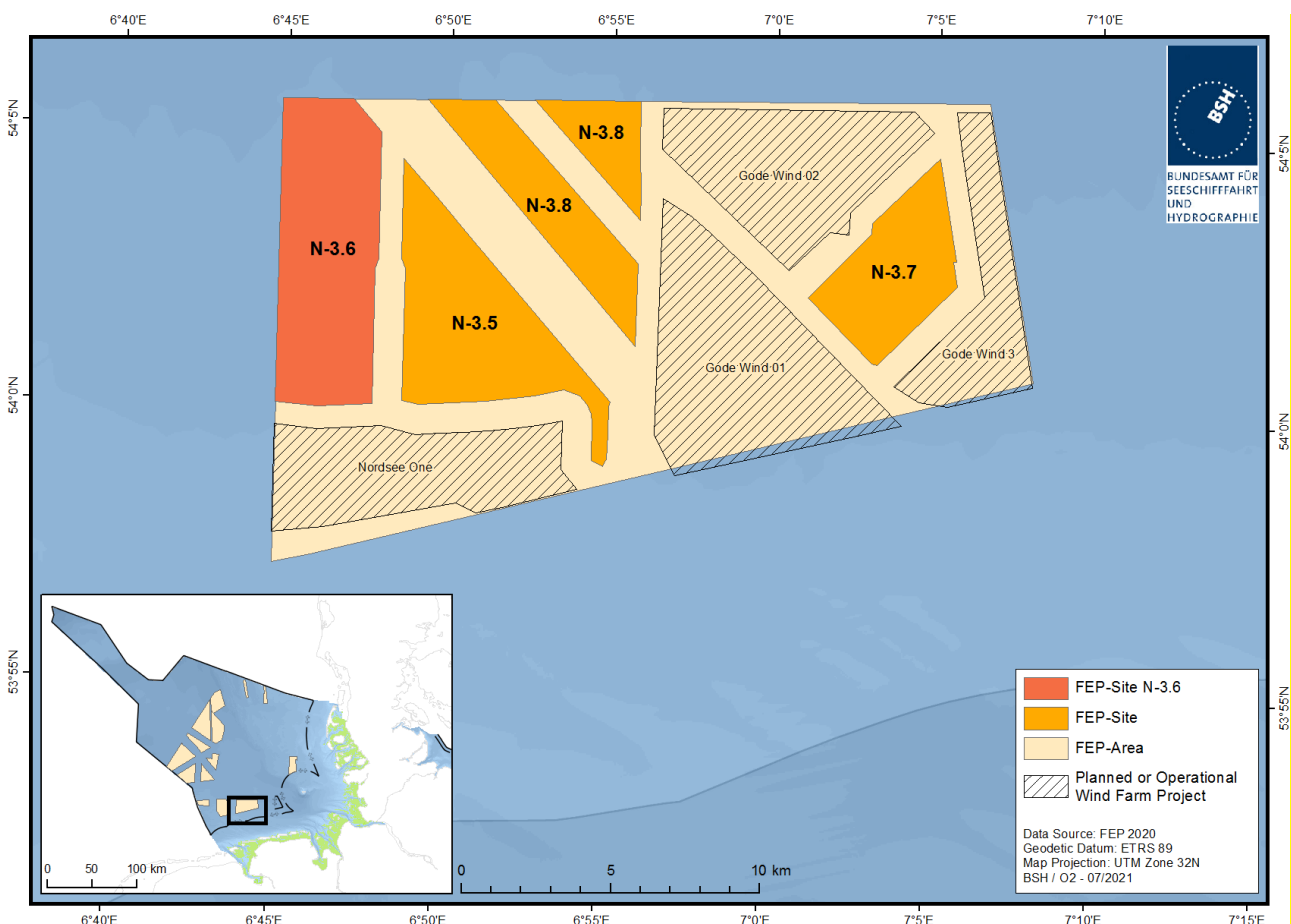


Figure 2: Overview of the location of Site N-3.6 (ETRS 89, UTM 32N) in the German EEZ in the North Sea. The coordinates are also available as additional information in the GeoSea-Portal (BSH geodata infrastructure); this is provided as information, the specification in SDP remains applicable to the definition of the site.

1.3 Site N-7.2

Site N-7.2 is in the German EEZ in the North Sea in the southern section of the site N-7 specified in SDP 2020.

The traffic separation area “German Bight Western Approach” lies to the south of the site. The reservation areas for shipping (Spatial plan 2009) and the Priority areas for Shipping (Spatial plan 2021) lie to the east and west of the site. The minimum water depth is 35 m (LAT).

The “EnBW He Dreih” wind farm is planned to the north. The active gas pipeline “Norpipe” runs along the north-eastern edge of the site.

The site comprises six sections. The site is crossed from west to east by the “NOR-6-3” transmission cable specified in the SDP 2020 as well as the operating transmission cables “BorWin 1” and “BorWin 2” in the northern and southern sites. In addition, the active data cable “Atlantic Crossing 2” cuts through the site from the south-west to the north-east. The eastern section of the site is crossed from north to south by the operating “NorNed” direct current submarine cable system.

The site is crossed by at least two unused submarine cables.

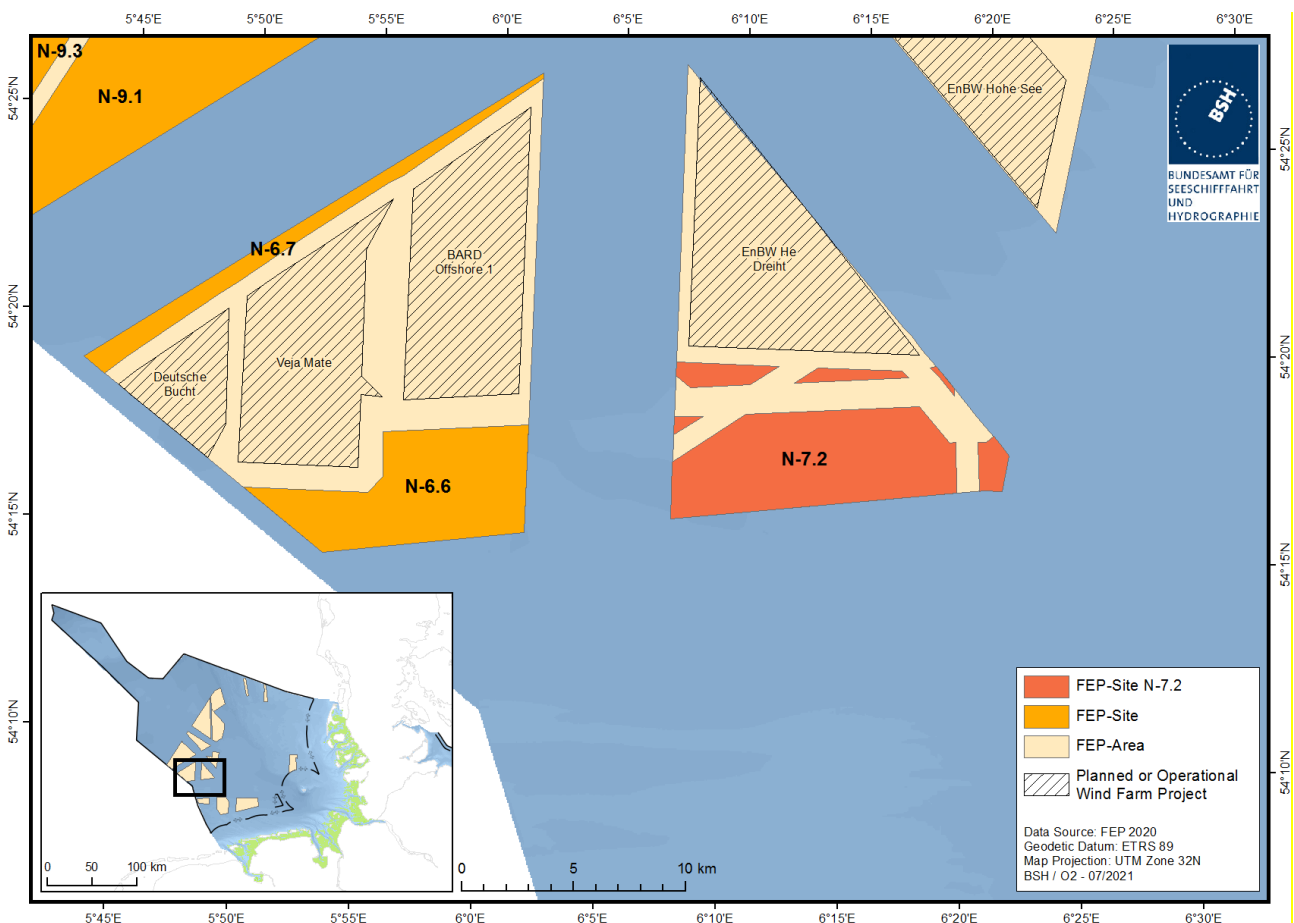


Figure 3: Overview of the location of Site N-7.2 (ETRS 89, UTM 32N) in the German EEZ in the North Sea. The coordinates are also available as additional information in the GeoSea-Portal (BSH geodata infrastructure); this is provided as information, the specification in SDP remains applicable to the definition of the site.

2 Competence and procedure

2.1 Competence

In accordance with s. 12 (4) WindSeeG, the agency responsible for the preliminary investigation examines the suitability according to s. 10 (2) WindSeeG.

The agency responsible for the **preliminary investigation** is the BNetzA. For sites in the EEZ, it can delegate the preliminary investigation to the BSH according to the criteria of an administrative agreement, s. 11 (1) No. 1 WindSeeG.

According to the administrative agreement between the Federal Ministry of Transport and Digital Infrastructure with the BNetzA and BSH regarding the completion of tasks by BSH in offshore wind energy of 2021, the BSH performs the tasks of the agency responsible for the preliminary investigation as defined in WindSeeG in respect of all the sites in question in the EEZ.

The BSH is therefore responsible for the preliminary investigation, including the **examination of suitability** of a site.

2.2 Procedure

The sites were specified in SDP 2020 on 18.12.2020.

The **introduction of the procedure** for the preliminary investigation of Sites N-3.5, N-3.6 and N-7.2 on the basis of the draft SDP of 26.10.2018 was published in accordance with s. 12 (1) WindSeeG on 01.02.2019 in the Nachrichten für Seefahrer (NfS), on the BSH website and on notices at the BSH locations in Hamburg and Rostock. In addition, the BSH published an accompanying document about the object and scope of the preliminary investigations.

A **hearing** was held on 20.03.2019 to discuss the object and scope of the preliminary investigations corresponding to the requirements of s. 12 (2) WindSeeG: The time, place and subject of

the hearing were stated in the announcement and the opportunity to respond to the accompanying document by 04.03.2019 was explained. The authorities, whose sites of responsibility are affected, public-interest bodies and the environmental organisations recognised under s. 3 Environmental Legal Assistance Act were sent the accompanying document in a letter of 01.02.2019 and were also informed of the opportunity to respond and were invited to the hearing. The hearing was also a discussion as defined in s. 39 (4) sent. 2 Environmental Impact Assessment Act (UVPG).

Based on the results of the hearing, in accordance with s. 12 (3) WindSeeG, on 30.08.2019 the **investigation framework** was specified for the preliminary investigation and Strategic Environmental Assessment (SEA) of the sites and was published on the BSH website. The safety and ease of transport was also specified as an additional object of the investigation, as they would not be suitable for erecting wind energy turbines if this matter were at risk as a result. Additionally, the expert opinion prepared as a result represents a document necessary for the planning and the provision as part of the preliminary investigation can expedite subsequent plan approval processes.

Within the framework of the suitability investigation, the BSH as competent agency for the suitability investigation has to carry out a **Strategic Environmental Assessment**.

In accordance with s. 35 (1) sent. 1 UVPG, a Strategic Environmental Assessment has to be conducted for the plans and programs listed in Annex 5 No. 1.

Annex 5 to UVPG No. 1.18 names “Determining the suitability of a site and the installed generation capacity in the site according to s. 12 A (5) WindSeeG” as requiring an SEA.

In accordance with s. 33 UVPG, the Strategic Environmental Assessment is a “dependent part

of the official procedure for creating or amending plans and programs”.

In accordance with s. 12 (5) WindSeeG, the result of the suitability investigation and the installed generation capacity are specified by ordinance if the suitability investigation finds that the site is suitable for tender according to Part 3 Paragraph 2.

The ordinance is therefore the formal act of specifying the plan. The actual process for preparation is the suitability investigation, part of which is a required check as to whether there is a risk to the marine environment. The Strategic Environmental Assessment forms the basis of this investigation.

In a letter of 17.03.2021 the drafts of the environmental reports for sites N-3.5, N-3.6 and N-7.2, the draft of the suitability determination, and the draft of the suitability assessment were sent to the authorities, whose environmental and health departments are affected by the plan or program, as well as to other authorities, with the opportunity to respond by 03.05.2021 and an invitation to a hearing to discuss these documents, s. 41 UVPG.

Additionally, the documents were publicly available from 15.03.2021 to 15.04.2021, i.e. for one month, at the BSH locations in Rostock and Hamburg. The draft plan, including the suitability assessment and environmental reports, was published on 12.03.2021 in accordance with the requirements of s. 73 WindSeeG in the NfS, on the BSH website and was displayed at BSH Rostock and Hamburg. The announcement referred to the hearing, to take place as an online conference, to the opportunity to respond within one month of the end of the display period, here 17.05.2021, and to the exclusion of responses after expiration of the deadline, s. 42 UVPG.

Publication of information relevant for the decision was announced on 12.03.2021 and 16.04.2021 and the opportunity to respond by 17.05.2021 was referred to.

The hearing was held on 08.06.2021.

The contents and the individual responses are examined under No. 3.

From 20.08.2021 to 16.12.2021, the department was involved according to s. 45 in conjunction with s. 62 (II) GGO and the States and associations were involved from 03.11.2021 to 15.11.2021 according to s. 62 (2) sent. 1 in conjunction with s. 47 (1) GGO. The result of these participations is shown in the grounds for 2.WindSeeV and is included in this suitability assessment. The suitability assessment was also included upon completion of the department participation on 16.12.2021.

2.3 Bases of the Assessment

Pursuant to section 12(4) WindSeeG, the body responsible for the preliminary investigation of site assesses suitability pursuant to section 10(2) WindSeeG.

To determine that the site is suitable for being put out to tender pursuant to Part 3 Section 2, an assessment is carried out pursuant to section 10(2) WindSeeG to determine that the construction and operation of offshore wind turbines at this site are not opposed (1) by the criteria for the impermissibility of designating a site in the Site Development Plan pursuant to section 5(3), and (2) by concerns of significance to planning approval pursuant to section 48(4)(1) WindSeeG in the case of sites in the Exclusive Economic Zone insofar as these can be assessed independently of the subsequent elaboration of the project.

Pursuant to section 5(3) WindSeeG, the designation of a site is impermissible if it is opposed by overriding public or private concerns. Pursuant to sentence 2, designations are particularly impermissible if

- they fail to comply with the requirements of Spatial planning pursuant to section 17(1) of the Spatial planning Act,
- they jeopardise the marine environment,

- they impair the safety and efficiency of traffic,
- they impair the security of territorial and alliance defence,
- the site lies in a designated protected site pursuant to section 57 of the Federal Nature Conservation Act or
- if they lie outside of clusters 1 to 8 in the North Sea and clusters 1 to 3 in the Baltic Sea as defined by the Spatial Offshore Grid Plan pursuant to section 17a of the Energy Act.
- Pursuant to section 48(4)(1) of the Offshore Wind Energy Act, a plan for the construction and operation of an offshore wind farm may only be approved if
- the marine environment is not jeopardised; in particular, that
 - pollution of the marine environment within the meaning of Art. 1(1)(4) of the United Nations Convention on the Law of the Sea dated 10 December 1982 (BGBl. 1994 II p. 1799) is not a concern and
 - bird migration is not jeopardised, and that
- the safety and efficiency of traffic are not impaired,
- the security of territorial and alliance defence is not impaired,
- it is compatible with priority activities under mining law,
- it is compatible with existing and planned cables, offshore connections, pipelines and other lines,
- it is compatible with existing and planned locations of converter platforms or transformer stations,
- other requirements pursuant to the Offshore Wind Energy Act and other regulations under public law are adhered to or
- the obligation pursuant to section 66(2) has been effectively declared if the plan refers to offshore wind turbines.

Whether the declaration is effective pursuant to section 66(2) WindSeeG can only be assessed

once the subsequent project sponsor is known and therefore remains reserved for the planning approval process.

In accordance with the intention of the regulation to bring forward partial aspects of planning approval, the suitability assessment refers prognostically to the **period of time** that would also be covered by the planning approval authority decision. The explanatory memorandum of section 10(2) WindSeeG states: 'Certain partial aspects that were previously assessed in the planning approval process are assessed and decided on in the suitability assessment. The early assessment of these aspects significantly increases the likelihood of successfully completing the planning approval process to be carried out following the invitation to tender. Generally speaking, this additionally ensures that offshore wind turbines may actually subsequently be built on the sites that are put out to tender. This reduces the risk for the bidders and therefore tends to lead to lower bids in the invitations to tender.'

The assessment cannot therefore be limited to the issue of whether the site would be suitable for the construction and operation of an offshore wind farm at the time of the invitation to tender, as the suitability assessment is intended to determine, according to the rationale for the invitation to tender, whether a planning approval process for the site is subsequently likely to prove successful and the site can be developed.

The period of time to be taken into consideration for a planning approval decision for wind turbines arises from the general nature of the planning approval pursuant to section 74 of the Administrative Procedure Act (VwVfG) and the general legal effects of the planning approval pursuant to section 75 VwVfG. Pursuant to section 74(1) VwVfG, the authority approves the plan and, in this context, decides on any necessary protective measures; section 74(2) VwVfG reserves the right to order these if a final decision is not possible. Pursuant to section 75(1) VwVfG 'plan-

ning approval [...] is used to ascertain the permissibility of the project including the necessary follow-on measures on other installations with regard to all public concerns affected by it'. The principle of problem-solving therefore applies to sovereign planning. The requirement of giving comprehensive consideration to the public or private concerns affected by a project includes the fact that significant problems caused in its spatial environment by the planned project have to be solved¹.

Accordingly, the basis of this consideration is a prognosis regarding the likely effects of the planned installation.² It follows from section 75(2)(2) VwVfG, which only permits the ordering of subsequent protective measures during the life of the project subject to additional conditions, that this prognosis must always refer to the entire planned period of time. Pursuant to section 45(1) in combination with section 44(1) WindSeeG, the construction and operation of offshore wind turbines including any required ancillary facilities necessitate planning approval. Pursuant to section 48(7) WindSeeG, the planning approval decision issued for offshore wind turbines is limited for 25 years, whereby this limitation should refer to the operation of the installation as per the explanatory memorandum. The following is stated in this regard in BT doc. 18/10668 dated 14.12.2016: 'The regulation gives consideration to the circumstance that offshore wind turbines are now routinely designed for an operating period of 25 years.'

In the context of a planning approval decision for wind turbines, the prognosis of the planning approval authority therefore always refers to the period of time from the construction of the installation to the expiry of the 25-year operating period.

At the same time, the positive completion of the suitability assessment provides no guarantee of the subsequent permissibility of the construction and operation of offshore wind turbines at this site; instead, the planning approval authority must always check, pursuant to section 48(5)(2) WindSeeG, whether updates, amendments or specifics are required.

The **content** of the assessment refers to the construction and operation of offshore wind turbines and the ancillary technical and structural facilities required to construct and operate the installations.

Here, the regulation of section 10(2) WindSeeG picks up on the distinction in the context of sections 44 et seq. WindSeeG in which additional provisions apply to the planning approval of offshore wind turbines and their ancillary facilities but not to the installations for transmitting electricity from offshore wind turbines, to which the planning approval regulations also apply. As these installations are also not the object of the preliminary investigation of site pursuant to section 13 WindSeeG, the suitability assessment was therefore limited to the offshore wind turbines including the required ancillary facilities and thus to the construction and operation of an offshore wind farm.

If, following the assessment, impairments of the criteria and concerns to be taken into consideration in the context of the preparation of the SDP and the planning approval procedure are to be feared, a further assessment must be performed to ascertain whether the possible impairment could be prevented or compensated by **specifications** pursuant to section 12(5)(2) WindSeeG:

¹ Judgements dated 23 January 1981 - Federal Administrative Court 4 C 68.78 - BVerwGE (Federal Administrative

Court Decisions) 61, p. 307 and dated 1 July 1999 - Federal Administrative Court 4 A 27.98 - BVerwGE 109, 192.

² Stelkens/Bonk/Sachs, VwVfG section 75, recital 70.

'The determination of suitability can include specifications for the subsequent project, particularly concerning the nature and scope of the site's development and its position on the site if impairments of the criteria and concerns pursuant to section 10(2) WindSeeG are otherwise to be feared due to the construction and operation of offshore wind turbines at this site.'

The mention of the 'nature and scope of the site's development and its position on the site' is intended to make it clear that regulations which can already be adopted without knowledge of the specific project parameters can be adopted as specifications. This does not involve any limitation of the content of the power

to issue instructions. Instead, it follows from section 48(4)(2) WindSeeG that all regulations which are already possible for avoiding impairments of the concerns of planning approval should already be put in place within the context of the suitability assessment. The concerns of relevance to the approval of the plan then only have to be assessed in the context of the subsequent planning approval procedure insofar as additional or other significant aspects are recognisable in comparison with the preliminary investigation of site of the site or the assessment conducted during the preliminary investigation of site has to be updated or detailed further, particularly due to the elaboration of the project at the site.

3 Suitability assessment

Pursuant to section 10(2) WindSeeG, the construction and operation of offshore wind turbines at the respective site may not be opposed by the criteria for the impermissibility of designating a site in the SDP pursuant to section 5(3) or by concerns of significance to planning approval pursuant to section 48(4)(1) WindSeeG in the case of sites in the Exclusive Economic Zone.

3.1 Compliance with Spatial planning requirements

An site is only suitable according to s. 10 (2) No. 1 in conjunction with s. 5 (3) No. 1 WindSeeG if the erection and operation of offshore wind energy turbines are compatible with the requirements of the Spatial planning.

According to s. 3 (1) No. 1 Federal Spatial planning Act (ROG), the requirements of Spatial planning represent the superordinate concept for Spatial planning objectives, principles and other requirements of Spatial planning. According to s. 4 (1) No. 1 Federal Spatial planning Act, the Spatial planning objectives must be observed in regionally significant planning operations and measures, and other requirements of Spatial planning must be taken into account in balancing or discretionary decisions. The Federal Ministry of the Interior and Community draws up a Spatial plan as ordinance for the German EEZ according to s. 17 (1) sent. 1 ROG.

There have been Spatial plans for the German EEZ in the North Sea and Baltic Sea since 2009.³ The Spatial plans are currently being up-

dated. The drafts of the Spatial plan and the environmental reports for the German EEZ in the North Sea and Baltic Sea have had national and international consultations. The updated plan entered into force on 01 September 2021 as ordinance and can be viewed on the BSH website.⁴

The Spatial plan specifies policies, goals and principles, notably the configuration of sites for uses and functions. It makes specifications in drawings or and/or text in order to guarantee the safety and ease of shipping traffic, on the further economic use (offshore wind energy, pipelines, raw material extraction, fisheries and marine aquaculture), on scientific marine research, on the protection and improvement of the marine environment, and on the national and alliance defence and other matters to be considered (aviation and leisure).

The specification of Sites N-3.5, N-3.6 and N-7.2 by the SDP 2020 has already been examined as to whether it observes the goals of the Spatial plan and takes the principles into account.

3.1.1 Site N-3.5

Site N-3.5 is in region N-3 of the SDP and in region EN3 of the spatial plan (as of June 2021), which is specified outside of priority and reservation areas for shipping (Spatial plan 2009) and priority areas for shipping (Spatial Plan 2021) surrounding it. The region is to the west of the priority areas for pipelines and of the reservation areas for pipelines of the Spatial plan 2021. There are some wind farms in the eastern and south-western section of the region, which are

³ Annexes to BGBl. I No. 61 of 25 September 2009, Annex to the Spatial Planning Ordinance for the German Exclusive Economic Zone in the North Sea; Annexes to BGBl. I No. 78 of 18 December 2009, Annex to the Spatial Planning Ordinance for the German exclusive economic zone in the Baltic Sea.

⁴ https://www.bsh.de/DE/THEMEN/Offshore/Meeresraumplanung/Raumordnungsplan_2021/raumordnungsplan-2021_node.html.

already in operation and are scheduled to enter operation in 2025.

The site is inside the eastern section of the priority area for wind energy “North of Borkum” specified by the Spatial plan 2009 and in the priority area for wind energy EN3 of the Spatial plan 2021, as a result of which priority is given in this site to wind energy generation ahead of other spatially-relevant uses.

Site N-3.5 is bordered to the north-east by the “Europipe 1” pipeline, which is secured by a corresponding priority area of pipelines and by the reservation areas for pipelines in the Spatial plan 2021). The interests of the priority area for pipelines have to be given priority over the priority area for wind energy for this overlaying specification in the Spatial plan 2009 (aim No. 3.3.1 (3) of Spatial plan 2009).

Provided the turbines to be erected in the site comply with the distances from the priority and reservation areas for pipelines required for the German EEZ of the North Sea according to the special plan, they comply with the spatial requirements of the Spatial plan in this respect.

The other requirements of the Spatial plans 2009 and 2021 must be observed, e.g. taking into account locations of cultural assets, avoiding negative impacts on the marina environment in the actual organisation of the erection and operation of turbines or their decommissioning.

3.1.2 Site N-3.6

Site N-3.6 is in region N-3 of the SDP and in region EN3 of the Spatial plan 2021, which is specified outside of priority and reservation areas for shipping (Spatial plan and priority sites for shipping in the Spatial plan 2021 surrounding it. The site is to the west of the priority area for pipelines and of the reservation areas of the Spatial plan 2021. There are some wind farms in the eastern and south-western section of the region, which are already in operation and are scheduled to enter operation in 2025.

The site is inside the eastern section of the priority site for wind energy “North of Borkum” specified by the Spatial plan and in the priority area for wind energy EN3 of the Spatial plan 2021, as a result of which priority is given in this site to wind energy generation ahead of other spatially-relevant uses.

North-east and next to site N-3.6 lies the “Europipe 1” pipeline, which is secured by the corresponding priority area of pipelines and by the reservation areas for pipelines in the Spatial plan 2021. The interests of the priority area for pipelines have to be given priority over the priority areas for wind energy for this overlaying specification in the Spatial plan 2009 (aim No. 3.3.1 (3) of SDP 2009).

Provided the turbines to be erected in the site comply with the distances from the priority and reservation areas for shipping and pipelines required for the German AWZ of the North Sea, they comply with the site requirements of the Spatial plan in this respect.

The other requirements of the Spatial plans 2009 and 2021 must be observed, e.g. taking into account locations of cultural assets, avoiding negative impacts on the marina environment in the actual organisation of the erection and operation of turbines or their decommissioning.

3.1.3 Site N-7.2

Site N-7.2 is in the southern site of region N-7 of the SDP. The site is bordered by a reservation areas for shipping (Spatial plan 2009) and by a priority area for shipping (Spatial plan). The site is bordered to the north-east by the “Norpipeline” pipeline, which is secured by a corresponding reservation area for pipelines and a reservation area for pipelines (Spatial plan 2021). The site is located in the priority area for wind energy EN7 of the Spatial plan 2021, as a result of which the use of wind energy in this site is granted priority over other spatially-relevant uses. North of the site, the wind farm “EnBW He Dreih” is expected

to be built, for which a planning approval procedure is currently being conducted.

Provided the turbines to be erected in the site comply with the distances from the priority and reservation areas for shipping and pipelines required by the Spatial plan for the German AWZ of the North Sea, they comply with the spatial requirements of the Spatial plan in this respect.

The other requirements of the Spatial plans 2009 and 2021 must be observed, e.g. taking into account locations of cultural assets, avoiding negative impacts on the marina environment in the actual organisation of the erection and operation of turbines or their decommissioning.

3.2 No risk to the marine environment

Pursuant to section 10(2) in combination with section 5(3)(2) and section 48(4)(1)(1) WindSeeG, a site is only suitable if the construction and operation of offshore wind turbines do not jeopardise the marine environment, particularly if there are no concerns regarding the pollution of the marine environment within the meaning of Art. 1(1)(4) UNCLOS dated 10 December 1982 and bird migration is not jeopardised.

Pursuant to section 35(1)(1) in combination with Annex 5 No. 1.18 UVPG, a Strategic Environmental Assessment must be performed as part of the procedure for determining the suitability of a site.

The likely material environmental impacts on implementing the plan for this site are determined, described and assessed in the context of the Strategic Environmental Assessment. The issue of materiality is closely linked to the issue of the subsequent influence on the decision regarding the acceptance of the plan or initiative pursuant

to section 44 UVPG.⁵ For the suitability assessment and the applicable section 10(2) in combination with sections 5(3), 48(4)(1) WindSeeG, the endangerment of the marine environment must be ruled out due to the designations of the plan or materiality would be given if the marine environment were to be jeopardised.

All protected objects are taken into consideration in the Strategic Environmental Assessment pursuant to section 2(1) UVPG:

- People, particularly human health
- Fauna, flora and biodiversity
- Land, soil, water, air, climate and landscape
- Cultural heritage and other material assets
- The interrelationships between the above mentioned protected objects

Adherence to the regulations of special species protection (section 44 Federal Nature Conservation Act, BNatSchG), of European habitat protection (section 34 BNatSchG) and statutory biotope protection (section 30 BNatSchG) is additionally assessed.

For each of the three sites, the Strategic Environmental Assessment has shown that the marine environment is not in danger subject to adherence to the specifications listed in the draft determination of suitability.

This arises from the environmental reports for sites N-3.5, N-3.6 and N-7.2. Reference is made to these documents in addition to the following explanations.

3.2.1 No concerns of pollution to the marine environment

Pursuant to section 48(4)(1)(1)(a) WindSeeG, the marine environment would particularly be in

⁵ Kment in Hoppe/Beckmann/Kment, UVPG - Gesetz über die Umweltverträglichkeitsprüfung Umwelt-Rechtsbehelfsgesetz, Kommentar, 5th edition, section 40, recital 54.

danger if the 'pollution of the marine environment' within the meaning of Art. 1(1)(4) of the United Nations Convention on the Law of the Sea (UNCLOS) were a concern. Pursuant to Art. 1(1)(4) UNCLOS, pollution of the marine environment means the 'introduction by man, directly or indirectly, of substances or energy into the marine environment, including estuaries, which results or is likely to result in such deleterious effects as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.'

The term energy can be widely interpreted according to the purpose of the regulation and encompasses all non-substance effects, i.e. due to heat, light, electrical and electromagnetic effects, sound and shocks, that are emitted into the water during the construction and operation of the installations.⁶

The term substances encompasses all objects.⁷ The installations themselves and the other constituents required for construction do not constitute substances within the meaning of Art. 1(4) UNCLOS during the period of their intended use.⁸

The yardstick for the point in time at which deleterious effects arise or can arise from the introduction of substances pursuant to UNCLOS depends directly on the measures to be implemented by the states pursuant to Art. 194 UNCLOS. It states here:

'(1) States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the

best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.'

Pursuant to Art. 194(3) UNCLOS, these measures 'shall deal with all sources of pollution of the marine environment. These measures shall include, *inter alia*, those designed to minimize to the fullest possible extent:

' a) the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping;

[...]

d) pollution from other installations and devices operating in the marine environment, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices.'

This regulation shows firstly that the precautionary principle is given high priority. This is aimed at preventing damage to the protected objects in the first place. This should primarily be undertaken by preventing the introduction/release of harmful substances and energy. If this is not possible, introduction should be minimised. Art. 194(1) UNCLOS additionally demands cooperation between states. Accordingly, the strategies/objectives agreed in the context of marine protection conventions must also be observed in the interpretation.

Pursuant to the Marine Strategy Framework Directive (MSFD), the EU Member States are obliged to achieve or maintain good environmental status in the marine environment by the year

⁶ Spieth in Offshore-Windenergierecht, section 48 Wind-SeeG, recital 66.

⁷ Brandt/Gaßner for the predecessor regulation in section 3 SeeAnIV, recital 49.

⁸ Spieth in Offshore-Windenergierecht, section 48 Wind-SeeG, recital 65.

2020 at the latest (Art. 1(1) MSFD) in order to maintain biodiversity and to create and maintain diverse and dynamic oceans and seas that are clean, healthy and productive.

The following environmental objectives have therefore been developed by applying an ecosystem approach to control human actions and according to the precautionary and polluter pays principles:

- Seas without impairments caused by anthropogenic eutrophication
- Seas without pollution caused by noxious substances
- Seas without impairments of marine species and habitats caused by the effects of human activities
- Seas with sustainably and ecologically used resources
- Seas without pollution caused by waste
- Seas without impairments caused by anthropogenic energy inputs
- Seas with natural hydromorphological characteristics (see Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) 2012).

One important aim of the OSPAR Strategy for Hazardous Materials is to achieve a concentration of hazardous materials in the marine environment, which is close to the background values for naturally occurring substances and close to zero for man-made substances. It strives for appropriate steps in order to achieve the end of discharges, emissions and losses of hazardous materials by 2020.

In order to counter concerns regarding marine pollution, therefore, harmful materials/energy should also be avoided as much as possible according to the MSRL and the OSPAR Strategy for Hazardous Materials. If avoiding this is not possible and a discharge is not unlawful, it should be limited to the minimum.

A limit is reasonable for the causer if it is actually possible according to the state of the art.

This also applies to the MARPOL Convention. The Convention for the Prevention of Pollution from Ships of 1973 developed by the leadership of the International Maritime Organization (International Convention for the Prevention of Pollution from Ships of 1973, 23 December 1981, BGBl 1982 II p. 2., MARPOL Convention) represents the legal basis for environmental protection in shipping. In it directed above all to ship owners in order to prevent operational discharges into the sea, but Art. 2 (4) MARPOL also applies to offshore platforms. The aims of the regulations in Annexes IV and V regarding avoiding and preventing discharges of wastewater and ship's waste are relevant above all for the suitability assessment. These aims relating to the admissibility or wastewater treatment plants and ship's waste are realised in the requirements for preventing and minimising harmful emissions.

The prevention and minimisation requirement deriving from the UNCLOS and from other multilateral conventions on the protection of the sea forms the basis of the Strategic Environmental Assessments of the sites.

As a result of the Strategic Environmental Assessment, concerns regarding pollution of the marine environment can be countered by the requirements specified in the suitability determination regarding the prevention and minimisation of emissions (sections 4 to 16) as defined above, and if these requirements are met there are no concerns according to the current state of knowledge regarding a danger to the marine environment as a result of marine pollution.

For a more detailed examination of the concerns regarding pollution of the marine environment and the necessary requirements, we refer to the examination in the environmental report.

3.2.2 No danger to bird migration

So that the construction and operation of the offshore wind farm do not jeopardise the marine environment, bird migration, in particular, may not be jeopardised pursuant to section 48(4)(1)(b) WindSeeG. The intention of this regulation, which was introduced in the Offshore Installations Ordinance in 2002 and subsequently adopted in the WindSeeG, is the improved protection of those bird species that use the EEZ as feeding, stop-off or transit sites.⁹ Endangerment is to be assumed if the migratory birds are hindered or impeded in their migration between their winter and summer quarters due to the offshore wind farm, e.g. because the wind farm alone or in combination with other projects has a barrier or barring effect with the result that the animals are exposed to increased risks during their passage, e.g. due to collisions with the installations.¹⁰ A danger to bird migration exists if sufficient findings justify the prognosis that the occurrence of such endangerment is likely.¹¹

The Strategic Environmental Assessment for sites N-3.5, N-3.6 and N-7.2 arrives at the conclusion that the endangerment of bird migration can be ruled out according to current knowledge.

3.2.3 No other dangers

There is no other endangerment of the marine environment. In the context of the fundamental fact of the endangerment of the marine environment, all of the effects of the installation and the effects on the protected objects of the marine environment that are related to the existence of the installation itself must be assessed insofar as they are not already covered with regard to pollution or concern bird migration.¹² This includes any more far-reaching regulations of national and international environmental law, particularly

the specifications of BNatSchG on species, habitat and biotope protection (sections 34, 44 and 30 et seq. BNatSchG). This additionally includes any effects on the landscape or the protected object of cultural heritage.

3.2.3.1 Protected cultural heritage

There may be archaeologically important cultural assets in the seabed, such as ground monuments, remains of settlements or historic shipwrecks. According to Article 149 UNCLOS, discovered archaeological or historical objects must be stored or used for the benefit of all humanity. Preserving cultural heritage, notably submarine archaeological heritage, is in the public interest as defined in s. 48 (4) sent. 1 No. 8 WindSeeG.

Cultural monuments therefore have to be considered when planning and carrying out the work. Before starting the planning and realising the turbines, existing cultural and material assets in the site have to be identified, documented and reported and any resulting protective measures taken (s. 38 (1) Suitability determination).

Upon request from the planning authorities, an assessment of the data acquired in the preliminary investigation regarding suspected cultural assets in the respective site must be submitted as the basis of the approval decision (s. 38 (3) Suitability determination). As part of the suitability assessment and suitability determination, the bathymetric surveys, side-scan sonar and magnetometers underlying the site investigations are compared and, if applicable, verified by ROV. These results are assessed in the preliminary investigation with regard to soil protection. Cultural assets identified in this assessment process, e.g. shipwrecks, are included in the suitability assessment. The preliminary investigation does not include a separate examination of the site for

⁹ Brandt/Gaßner, SeeAnIV, section 3, recital 49.

¹⁰ Spieth in Offshore-Windenergierecht, section 48 WindSeeG, recital 71

¹¹ Dahlke in NuR 2002, 472 (474).

¹² Brandt/Gaßner, SeeAnIV, section 3, recital 54.

cultural assets (cf. grounds to s. 38 (3) Suitability determination).

If any cultural and material assets are identified in the plan approval process, the authority regularly orders the project sponsor to take appropriate measures, with the involvement of the heritage management authorities, to ensure that scientific examinations and documentation of the assets can be performed before the start of construction measures and archaeological or historical objects can be preserved and retained either in situ, which is the priority, or can be salvaged (cf. grounds to s. 38 (1) Suitability determination). The procedure has to be agreed in detail with the planning authorities (with the involvement of the heritage management authorities).

One response received in the course of the public and public authority participation explains, stated that the project sponsor has to identify cultural and material assets, with participation from external archaeological experts and a submarine archaeologist, in the plan approval process. The response demand investigations to identify ground monuments on the basis of generally recognised testing methods (archaeological assessment of side-scan sonar data, bathymetric data and magnetometer data, if necessary an investigation of the anomalies by ROV or by archaeological divers), a cartographic representation of the ground features for all sites affected by and due to the construction, as well as a description of preventive measures and, if interference is unavoidable, salvage and documentation measures. All investigations must be carried out by qualified experts before the start of construction activities.

Aspects arising from the requirements of s. 38 (1) and (3) of the suitability determination and its grounds are largely covered. The details of the requirements should be checked based on the concrete project parameters and the specific case in the plan approval process and are subject to the discretion of the planning authorities.

3.2.3.1.1 Site N-3.5 and N-3.6

The existence of cultural assets is not known in sites N-3.5 and N-3.6. Nevertheless, the existence of cultural or material assets cannot be completely ruled out at this time. Based on the current knowledge from the preliminary investigations, and in accordance with the requirements of the suitability determination,

- before starting the planning and realising the turbines, existing cultural assets in the site have to be identified, reported and any resulting protective measures taken (s. 38 (1) Suitability determination), and
- Upon request, an assessment of the data obtained in the preliminary investigation regarding suspected cultural assets in the respective site has to be provided (s. 38 (3))

No considerable effects are expected in sites N-3.5 and N-3.6. Provided these requirements are met, there is no danger to the marine environment in the sites with regard to protected cultural heritage.

3.2.3.1.2 Site N-7.2

With regard to Site N-7.2, two shipwrecks are known.

There is a shipwreck with the centre 54°16.2354'N; 006°18.5607'E directly south of Site N-7.2; WGS84. The wreck is not in the site. Because of the close proximity to the site, however, it cannot be ruled out that the location may be affected during the construction and operation of the wind farm. According to the notification from the Mecklenburg Western Pommerania State Office for Culture and the Preservation of Monuments, the Lower Saxony Office for the Preservation of Monuments and the Schleswig-Holstein State Archaeology Office of 11 February 2021, the shipwreck dates from between the mid-19th century and 1945. According to the above departments, it is an archaeological ground monument. The location of the wreck

therefore has to be protected by means of an exclusion area.

In the largest section of Site N-7.2 there is a shipwreck with centre 54°16.9768'N; 006°15.8848'E; WGS84. According to the notification from the Mecklenburg Western Pommerania State Office for Culture and the Preservation of Monuments, the Lower Saxony Office for the Preservation of Monuments and the Schleswig-Holstein State Archaeology Office of 18 August 2021, the shipwreck probably can be dated from between the mid-19th century and 1945. However, no characteristic features can be identified, which allow a clear classification of the wreck. The location of the wreck should be protected by a precautionary exclusion area until a detailed classification of the wreck.

As the shipwreck cannot be conclusively classified, further investigations may still be needed. Whether and what protective measures are needed can be derived from the results of these investigations. The participation of the protection of monument and expert monument authorities is important for assessing the question as to whether this is cultural heritage and how it should be protected. In the plan approval process, the planning authorities can issue corresponding instructions to the project sponsor.

No further cultural assets are known in Site N-7.2. Nevertheless, the existence of cultural or material assets cannot be completely ruled out at this time. Based on the current knowledge from the preliminary investigations, and in accordance with the requirements of the suitability determination,

- before starting the planning and realising the turbines, existing cultural assets in the site have to be identified, reported and any resulting protective measures taken (s. 38 (1) Suitability determination),
- upon request, an assessment of the data obtained in the preliminary investigation re-

garding suspected cultural assets in the respective site has to be provided (s. 38 (3)), and

- to maintain an exclusion area around the known shipwrecks in and next to Site N-7.2 until a detailed classification of the wreck locations is possible (s. 39),

no considerable effects are expected in sites and N-7.2. Provided these requirements are met, there is no danger to the marine environment in the sites with regard to protected cultural heritage for Site N-7.2. For details of the investigation, please also refer to the environmental report.

3.2.3.2 Protection of species, habitat and biotope

The Strategic Environmental Assessment also arrives at the result that there is no endangerment of the marine environment in terms of species, habitat and biotope protection subject to adherence to the specifications listed in the draft determination of suitability, e.g.

- the specification of a limit value for the permissible pile-driving noise during construction (section 7),
- the specification for coordinating simultaneous pile-driving work (sections 8) and

Reference is made to the environmental reports for details of the assessment.

3.2.4 Location outside nature conservation areas

A site is unsuitable pursuant to section 10(2)(1) in combination with section 5(3)(5) WindSeeG if it is located within a designated protected site pursuant to section 57 BNatSchG, whereby this is also likely to lead to the endangerment of the marine environment. No new nature conservation areas have been designated in the vicinity of sites N-3.5, N-3.6 or N-7.2 since the assessment during the preparation of the SDP; updating the assessment that was positively concluded in the

context of preparing the SDP 2020 is therefore not necessary.¹³

3.3 Safety and efficiency of traffic

According to s. 10 (2) No. 1 and 2a WindSeeG in conjunction with s. 5 (3) No. 3 WindSeeG and s. 48 (4) sentence. 1 No. 2 WindSeeG, an site is only suitable if the construction and operation of offshore wind farms in this site does not affect the safety and ease of traffic.

A negative impact on the **safety of traffic** has to be assumed if the construction or operation of turbines can result in a danger, i.e. a situation which, with sufficient probability, will lead to damage to legally protected assets such as the physical integrity and property of a third party in the foreseeable future if the process continues unhindered.¹⁴

The **ease of traffic** refers to the traffic flow and thus to fluid, frictionless and unhindered traffic.¹⁵ The ease of traffic is not only affected by traffic accidents, but already if there is a possibility that normal traffic flow is more than only inconsiderably affected.¹⁶ The actual circumstances of the specific case, here notably the expansion of the site typical for the offshore site and thus the easier opportunity to deviate and go round / fly over barriers have to be considered.¹⁷

3.3.1 Shipping

The **safety of shipping** can be affected, in particular, as a result of the increase in the collision risk due to the erection of wind energy turbines in the shipping site, which as an actual obstacle increase the risk of collision between ship and turbine, and also between ship and ship.

A decision has to be made regarding when there is an actual danger as defined in the Standard as a result of the erection of wind energy turbines and, on the other hand, what level of risk can be classed as acceptable. To this end, the Federal Ministry for Transport, in a working group with participation from the Federal Ministry for the Environment, the BSH, Waterways and Shipping Directorates North and North-West (now: General Directorate Waterways and Shipping – GDWS) and the external experts Germanischer Lloyd and GAUSS developed generally applicable guidelines in 2004 regarding the maximum collision frequency rate, thereby defining a generally valid social acceptance threshold as the necessary (not: sufficient) requirement for an offshore wind farm to be approved. Accordingly, a collision frequency rate (between ship and turbine) in a range of between 100 and 150 years is generally an acceptable risk for the safety and ease of shipping traffic.¹⁸ If the collision frequency rate is less than 100 years but above 50 years, it is not regularly assumed that this is acceptable. However, there is no reason for suitability to be rejected if the fact that the guide value is not reached because of the features of the specific case is not important for shipping and the marine environment, or if this can be offset by conditions or requirements.

Compatibility with the interests of the safety and ease of shipping traffic and the marine environment is regularly achieved if the collision frequency rate is in the range between 100 and 150

¹³ FEP 2020, p. 132

¹⁴ Brandt/Gassner, SeeAnIV, s. 3, marginal note 14.

¹⁵ Brandt/Gassner, SeeAnIV, s. 3, marginal note 15.

¹⁶ BVerwGE 16, 116, 130 et seq.

¹⁷ Brandt/Gassner, SeeAnIV, s. 3, marginal note 15.

¹⁸ "Approval-relevant guide values for offshore wind farms – Working group report" No.3 i, Federal Ministry for Transport, Bonn 14.03.2005.

years as a result of additional measures to reduce the risk.¹⁹

A collision frequency rate of less than 50 years is not acceptable²⁰ and in principle would lead the site being unsuitable unless actual additional measures ensure that the collision frequency rate is above 50 years and the failure to reach the guide value of 100 years is due to the features of the specific case for shipping and the marine environment is classed as immaterial and provided that additional measures lead to the guide value of 100 years being complied with.

With regard to the **efficiency of shipping**, whether and to what extent traffic participants are hindered or prevented from using an existing shipping lane. The extent of the traffic volume in the actual site and the extent of the forecast effect of the planned project on the specific traffic-related situations on site are critical.²¹

Regarding the question as to whether there is a considerable impact in this sense on the safety and ease of shipping traffic, the BSH ordered an opinion in respect of the suitability under river and shipping police regulations of sites in the EEZ in the North Sea and Baltic Sea²² as part of the preliminary investigation. As part of the analysis, possible effects of the construction in the examined sites with offshore wind energy turbines on the safety and efficiency of shipping traffic, including the related risks, were examined and assessed. The risk here has been considered both qualitative and quantitative terms.

According to a description of the relevant traffic site, the current shipping traffic and that forecast

for the future were analysed in the qualitative consideration for each site. The next step was a qualitative estimate of the effects of closing the site both for the construction phase and for the phase after completion of the respective wind farm. Various traffic situations, such as encounters, overtaking or crossing courses were then considered and also assessed qualitatively in respect of the possible effects. Recommendations were then derived for the risk-reduction measures.

A cumulative consideration with all wind farm sites in the same traffic site was then undertaken for the quantitative assessment of the effects of the additional development on the respective site. The chronology of the development of all considered sites was then applied corresponding to SDP 2019. The decisive factor for assessing the suitability of an site here is the statistically expected time between two collisions. The basis for calculating the expected time between two collisions is formed by the harmonised results reached by the two working groups of the Federal Ministry for Transport, Building and Urban Development (today: Federal Ministry of Transport and Digital Infrastructure) in 2004/ 05 and 2008 regarding the parameters and fundamental assumptions for creating technical risk analyses for offshore wind farms²³.

The results are considered with and without taking into account additional measures to reduce the collision risk. The following risk-reduction measures are considered in the quantitative investigation section:

¹⁹ "Approval-relevant guide values for offshore wind farms – Working group report" No.3 iii, Federal Ministry for Transport, Bonn 14.03.2005.

²⁰ "Approval-relevant guide values for offshore wind farms – Working group report" No.3 vi, Federal Ministry for Transport, Bonn 14.03.2005.

²¹ Brandt/Gassner, SeeAnIV, s. 3, marginal note 16.

²² "Expert opinion according to s. 12 (3) WindSeeG - Preliminary investigation on the suitability under river and shipping police regulations of areas in the EEZ in the North Sea and Baltic Sea", DNV-GL for the Federal Maritime and Hydrographic Agency, 06.12.2019.

²³ "Offshore wind farms - Parameters for risk analyses in approval processes and effectiveness of measures to reduce collisions - Report", Germanischer Lloyd for the Federal Maritime and Hydrographic Agency, 29.07.2010.

- Equipment for ships with AIS (Automatic Identification System)
- Traffic monitoring and sea room observation
- Emergency towing capacities

Traffic monitoring and sea room observation can affect both on disabled and manoeuvrable ships. Disabled ships can be detected, identified and directly addressed by traffic monitoring. Additionally, necessary salvage and rescue measures can be instigated. For manoeuvrable ships, three variants of traffic monitoring / sea room observation have been defined:

- Variant 1:
Full traffic monitoring / sea room observation. This includes all measures of maritime traffic safety, it includes a permanent (manual) observation of maritime traffic by trained navigators using AIS and radar. With a factor of 4.0, this method has the comparably highest effectiveness.
- Variant 2:
Automatic monitoring/observation with manual option. This involves a constant automatic assessment of AIS data with regular manual assessments. The effectiveness of this variant is given a factor of 3.0.
- Variant 3:
Automatic assessment. This involves checking the results and, if applicable, triggering measures according to signals automatically generated as a result of specified threshold parameters being undercut. The effectiveness has a factor of 2.5.

The emergency towing capacities only impact on manoeuvrable ships. The relevant performance data of emergency towing capacities are standby position, speed and bollard pull.

The effectiveness of the respective considered collision-preventing measures are based on the results of a study by Germanischer Lloyd in 2008.

The quantitative investigation is based on the model deployment pattern of the sites being developed in the future and the deployment pattern of the existing wind farms. The considered sites each represent the cumulative situation at the time of the completion erection in a radius of 20 nautical miles (nm).

The assessment showed for all considered sites that the guide value of 100 years is not undercut or that where undercut, it can be compensated for and therefore as a result there is no danger to the safety of shipping, which would not be equalised through conditions and requirements. The erection and operation of wind energy turbines in the sites do not cause any considerable impact on the efficiency of shipping. Specifically²⁴:

3.3.1.1 Site N-7.2

Site N-7.2 is to the north of the traffic separation site "German Bight Western Approach" at a distance of 7038.80m (incl. deduction of the safety area of 500m) and has a minimum water depth based on LAT of 35 m.

The "Norpipe" gas pipeline runs to the north-east of this site in the north-west / south-east direction.

To the east and west of site N-7.2 there are reservation areas for shipping (Spatial plan 2009) and priority areas for shipping (Spatial plan 2021), of which the eastern site in particular is used by the north-south traffic from and to the Ems. North of the site, the wind farm "EnBW He

²⁴ The following findings are taken largely directly from the document "Expert opinion according to s. 12 (3) WindSeeG - Preliminary investigation on the suitability under river and shipping police regulations of areas in the EEZ in the North

Sea and Baltic Sea", DNV-GL for the Federal Maritime and Hydrographic Agency, 06.12.2019.

Dreih" is expected to be built, for which a planning approval procedure is currently being conducted.

Through-traffic travelling east and west passes through the traffic separation site German Bight Western Approach to the south (focused there on two opposite and separated one-way routes).

In addition, at the eastern boundary of site N-7.2 there is a north-south route for shipping from and to the Ems. According to traffic statistics, on average there are three vehicles per day.

Assuming that, based on 2018, shipping traffic in the North Sea will increase by a total of approx. 8 % by 2022 and a total of approx. 19 % by 2027, significant growth would not be expected for the direct location of site N-7.2 itself. Through-traffic in relation to German Bight - English Channel will continue to use inter alia the traffic separation site German Bight Western Approach.

With regard to the north-south traffic, no significant changes are expected, an average of four vehicles a day pass through site N-7.2.

Quantitative risk analysis

As part of the quantitative risk analysis, the collision frequency rate for a collision between ship and a turbine is calculated for the considered site. All wind farms erected before 2026 in the examined traffic site are included in the traffic site.

Without risk-reduction measures, the collision frequency rate is 30 years. This repetition rate would not represent an acceptable risk according to the working group's guide values relevant for approval unless this could be compensated for with reduction measures. The collision frequency for manoeuvrable and disabled ships, taking into account AIS, traffic monitoring / sea room observation according to variant 1 and the available public emergency towing capacities gives a repetition frequency of 93 years. The "Nordic" in its current standby and storm position has been taken into account as the available

public emergency towing capacity. This means that, taking into account the named assumptions and reduction measures, the guide value of 100 years is slightly undercut, so that additional risk-reduction measures have to be applied corresponding to the working group guide values relevant for approval.

To minimise the risk further, the use of an emergency tug with appropriate performance data, to be provided by the operator, is necessary according to the above opinion. According to the opinion, for example a presumed tug with a speed of 14.0 kn and bollard pull of 70 t in a standby position close to the project Trianel Wind Farm Borkum II would be suitable for increasing the collision frequency rate to 109 years.

In its opinion of 12.04.2021, the Central Command for Maritime Emergencies states that the bollard pull of 70 t assumed in the opinion, taking into account the current and future shipping and vessel sizes, would not be enough for the effectiveness of an emergency tug provided by the operator.

The GDWS states in its opinion of 23.04.2021 that the requirements of the Central Command for Maritime Emergencies have to be taken into account with regard to the necessary provision of towing capacity.

Qualitative risk analysis

Within the framework of the qualitative risk analysis, no features in respect of site N-7.2 were identified, which would prevent the suitability.

No significant effects on the surrounding shipping are expected as a result of setting up the construction site to erect a wind farm in site N-7.2 – taking into account the necessary traffic safety measures – according to the expert opinion, which could not be compensated for by conditions and requirements. According to the opinion, a displacement of the north-south shipping to the east should be expected. This displacement of traffic is already indicated as a result of

the existing OWF development and in addition it is classed as very low, so that, according to information in the opinion, although this represents a significant impact on the safety and efficiency of shipping traffic, but this is seen as manageable as a result of using mobile traffic safety locally.

According to information in the opinion, an increase in feeder and works traffic required for the construction site should be assumed as well during the construction phase. In particular, this traffic will cross the traffic separation site “German Bight Western Approach” in order to then sail to site N-7.2. However, the opinion does not see this as an unacceptable risk, as on one hand effective traffic regulations such as the collision prevention regulations (KVR) apply, and after completion of the construction work a reduction in traffic associated with the wind farm can be assumed so that the quantity of traffic crossing the traffic separation site “German Bight Western Approach” will reduce. After completion of the construction work, the north-south shipping traffic will have arranged itself with the site closed to it so that a reduction in the risk can be assumed from this time at the latest. Nevertheless, some construction site traffic can be expected because of the starting realisation of sites N-9 and N-6.

Taking into account maritime traffic safety and the WSV, and if public emergency tugs are available, the suitability under river and shipping police regulations of the site is assumed to be the result of the qualitative risk analysis, with the following conditions and requirements:

For the construction phase

- Establishment of a safety area around the construction field,
- Shipping ban in the safety area during the construction phase,
- Cardinal buoyage of the construction field,
- Collision-friendly construction of the turbines,
- Temporary marking of the turbines in the construction phase,
- Mobile traffic safety on site through traffic safety vehicle.

For the operational phase

- Maintenance of the safety area,
- General specification of traffic regulations by the GDWS, if applicable access ban for vehicles with a maximum fuselage length of 24 m,
- Equipping the wind farm with AIS,
- Marking of the turbines as shipping obstacles,
- Sea room observation by wind farm operators,
- Availability of public emergency tugs.

In addition, the provision of additional towing capacity is necessary according to the results of the quantitative risk analysis according to the assessment of the responsible GDWS.

Result

The collision frequency rate calculated for site N-7.2, taking into account the risk-reduction measures to be taken, is 93 years, and thus is above the relevant guide value specified by the working group “Approval-relevant guide values” of the Federal Ministry of Transport of at least 100 years. As the value of 7 years is only slightly below the guide value of 100 years and changes to the traffic volume can so easily lead to changes in the results of the quantitative risk analysis, the sponsor of the project is required in the planning approval process to submit an updated risk analysis so that the information provided on the basis of the traffic situation at the time of the suitability assessment can be reviewed as part of the planning approval process and, if necessary, further reduction measures can be ordered, notably the provision of an addi-

tional private emergency tug. Apart from providing separate towing capacity, the participation by the project sponsor in other sufficient towing capacity is also generally possible.

The examination as part of the qualitative risk analysis did not find any features of the specific case, which argue against the suitability of the site in respect of river and shipping police regulations. The respective measures identified as necessary have been included in the suitability determination as requirements (sections 18 to 22), insofar as this is possible without knowing the actual project parameters. To this extent, the grounds for the individual requirements regarding the safety and efficiency of shipping traffic are referred to.

3.3.1.2 Site N-3.5

Site N-3.5 is situated between the traffic separation sites "Terschelling – German Bight" and "German Bight Western Approach", at a distance from the traffic separation site "Terschelling – German Bight Western Approach" of 4358.87m (including deduction of the safety area of 500m) and at a distance from the traffic separation site "German Bight Western Approach" of 5772.05m (including deduction of the safety area of 500m). Site N-3.5 has a minimum water depth based on LAT of 30 m.

The "Europipe 1" gas pipeline runs to the north-east of site N-3.5 in the north-west / south-east direction.

Site N-3.5 is bordered to the south by the wind farm "Nordsee One".

The main through traffic travels in the traffic separation sites to the north and south, focused there on separate one-way lanes with opposite main directions, so that there is only limited shipping traffic within and in direct proximity to site N-3.5.

The technical shipping opinion concludes that, assuming shipping traffic in the North Sea based on 2018 will increase by a total of around 10.1 %

by 2023 and a total of around 21.3 % by 2028, significant growth would not be expected for the direct site of site N-3.5 itself. Through traffic will continue to use the traffic separation sites.

Quantitative risk analysis

As part of the quantitative risk analysis, the collision frequency rate for a collision between ship and a turbine is calculated for the considered site. All wind farms erected before 2028 in the examined traffic site are included in the traffic site.

Without risk-reduction measures, the collision frequency rate is 30 years. This repetition rate would not represent an acceptable risk according to the guide values relevant for approval if it cannot be compensated for with reduction measures. The collision frequency for the cumulative deployment of manoeuvrable and disabled ships, taking into account AIS, traffic monitoring / sea room observation according to variant 1 and the available public emergency towing capacities gives a repetition frequency of 92 years. The "Nordic" has been taken into account as the available public emergency towing capacity. This means that, taking into account the named assumptions and reduction measures, the guide value of 100 years is undercut, so that additional risk-reduction measures have to be applied corresponding to the legal presumption of the guide values relevant for approval.

To minimise the risk further, the use of an emergency tug with appropriate performance data, to be operated by the operator, is necessary according to the opinion. According to the opinion, for example a presumed tug with a speed of 14.0 kn and bollard pull of 70 t in a standby position close to the project Trianel Wind Farm Borkum II would be suitable for increasing the collision frequency rate to 107 years.

In its opinion of 12.04.2021, the Central Command for Maritime Emergencies states that the bollard pull of 70 t assumed in the opinion, taking into account the current and future shipping and

vessel sizes, would not be enough for the effectiveness of an emergency tug provided by the operator.

The GDWS states in its opinion of 23.04.2021 that the requirements of the Central Command for Maritime Emergencies have to be taken into account with regard to the necessary provision of towing capacity.

Qualitative risk analysis

Within the framework of the qualitative risk analysis, no features in respect of site N-3.5 were identified, which would prevent the suitability.

According to the opinion, no significant effects on the surrounding shipping are expected as a result of setting up the construction site, which cannot be compensated for by conditions and requirements. An increase in feeder and works traffic necessary for the construction site can be expected. In particular, it will cross the traffic separation site “Terschelling – German Bight” in order to sail to sites N-3.8 and N-3.5. A reduction in construction traffic can be expected after completion of the construction work. Only the vehicles required for the operation and maintenance of the wind farm will sail to the site. Accordingly, the quantity of traffic crossing the traffic separation site “Terschelling – German Bight” will reduce after the end of the construction phase.

However, the opinion does not see this as an unacceptable risk:

The distance from the traffic separation sites to the north and south, after deducting the safety area of 500m, is at least 2 nm²⁵. Therefore, in principle an impairment to the safety and ease of shipping traffic is not assumed for the traffic in the traffic separation site (TSS) as a result of the development in site N-3.5.

For the construction phase, an overall slight impairment to the safety and ease of shipping traffic. This relates notably to the TSS “Terschelling – German Bight” and the TSS “Jade Approach”, which the construction traffic will be forced to cross. In view of the responsibility of the respective ship management for correct conduct in connection with the requirements of the KVR and the maritime traffic safety measures established by the WSV, this induced increased risk as a result of crossing the one-way lanes of the traffic separation site can be seen as manageable without requiring further risk-reduction measures.

As a result of the development and the associated newly created shipping obstacles, a high collision probability between ship and offshore wind energy turbines can be expected, which can be compensated for with conditions and requirements.

Taking into account maritime traffic safety and the WSV, and if public emergency tugs are available, the suitability under river and shipping police regulations of the site is assumed to be the result of the qualitative risk analysis, with the following conditions:

For the construction phase

- Establishment of a safety area around the construction field
- Shipping ban in the safety area during the construction phase
- Cardinal buoyage of the construction field
- Collision-friendly construction of the turbines
- Temporary marking of the turbines in the construction phase
- Mobile traffic safety on site through traffic safety vehicle

²⁵ 1 nm \triangleq 1,852 m.

For the operational phase

- Maintenance of the safety area
- General specification of traffic regulations by the GDWS, if applicable access ban for vehicles with a maximum fuselage length of 24 m
- Equipping the wind farm with AIS
- Marking of the turbines as shipping obstacles
- Sea room observation by wind farm operators

In addition, the provision of additional towing capacity is necessary according to the results of the quantitative risk analysis according to the assessment of the responsible GDWS.

Result

The collision frequency rate calculated for site N-3.5, taking into account the risk-reduction measures, is 92 years, and thus is below the relevant social acceptance threshold specified by the working group “Approval-relevant guide values” of the Federal Ministry of Transport of at least 100 years. As the value of 7 years is only slightly below the guide value of 100 years and changes to the traffic volume can so easily lead to changes in the results of the quantitative risk analysis, the sponsor of the project is required in the planning approval process to submit an updated risk analysis so that the information provided on the basis of the traffic situation at the time of the suitability assessment can be reviewed as part of the planning approval process and, if necessary, further reduction measures can be ordered, notably the provision of an additional private emergency tug. Apart from providing separate towing capacity, the participation by the project sponsor in other sufficient towing capacity is also generally possible.

The examination as part of the qualitative risk analysis and the classification of the scenarios in the risk matrix according to Standard Design did

not find any features of the specific case, which argue against the suitability of the site in respect of river and shipping police regulations.

The further measures identified as necessary according to the opinion have also been included in the suitability determination as requirements (sections 18 to 22), insofar as this is possible without knowing the actual project parameters. To this extent, the grounds for these requirements are referred to.

3.3.1.3 Site N-3.6

Site N-3.6 is situated between the traffic separation sites “Terschelling – German Bight” and “German Bight Western Approach”, at a distance from the traffic separation site “Terschelling – German Bight Western Approach” of 8022.32m (including deduction of the safety area of 500m) and at a distance from the traffic separation site “German Bight Western Approach” of 3799.71m (including deduction of the safety area of 500m). The site has a minimum water depth based on LAT of 30 m.

The “Europipe 1” gas pipeline runs to the north-east of site N-3.6 in the north-west / south-east direction. The “Norpipe” gas pipeline runs south-west of this site.

Site N-3.6 is bordered to the south by the wind farm “Nordsee One”.

The main through traffic travels in the traffic separation sites to the north and south, focused there on separate one-way lanes with opposite main directions, so that there is only limited shipping traffic within and in direct proximity to site N-3.6. The supply traffic sails parallel to the west side of this site in a north-south direction (and vice versa) for the wind farms located further north.

The technical shipping opinion comes to the conclusion that, assuming shipping traffic in the North Sea based on 2018 will increase by a total of around 10.1 % by 2023 and a total of around 21.3 % by 2028, significant growth would not be

expected for the direct site of site N-3.6 itself. Through traffic will continue to use the traffic separation sites.

Quantitative risk analysis

As part of the quantitative risk analysis, the collision frequency rate for a collision between ship and a turbine is calculated for the considered site. All wind farms erected before 2028 in the examined traffic site are included in the traffic site.

Without risk-reduction measures, the collision frequency rate is 27 years. This repetition frequency would not represent an acceptable risk according to the social acceptance thresholds of the working group's "guide values relevant for approval" unless this could be compensated for with reduction measures. The collision frequency for the cumulative deployment of manoeuvrable and disabled ships, taking into account AIS, traffic monitoring / sea room observation according to variant 1 and the available public emergency towing capacities gives a repetition frequency of 84 years. The "Nordic" has been taken into account as the available public emergency towing capacity. This means that, taking into account the named assumptions and reduction measures, the guide value of 100 years is undercut, so that additional risk-reduction measures have to be applied corresponding to the legal presumption of the working group's guide values relevant for approval.

To minimise the risk further, the use of an emergency tug with appropriate performance data, to be operated by the operator, is necessary according to the opinion. According to the opinion, for example a presumed tug with a speed of 14.0 kn and bollard pull of 70 t in a standby position close to the project Trianel Wind Farm Borkum II would be suitable for increasing the collision frequency rate to 97 years. Consequently, however, this would still be slightly below the guide value of 100 years.

In its opinion of 12.04.2021, the Central Command for Maritime Emergencies states that the bollard pull of 70 t assumed in the opinion, taking into account the current and future shipping and vessel sizes, would not be enough for the effectiveness of an emergency tug provided by the operator.

In its response of 12.04.2021, the Central Command for Maritime Emergencies also refers to the analysis results of the opinion regarding site N-3.6, according to which inter alia the Dutch emergency tug "Guardian" has to be taken into account for a collision frequency rate of 100 years. In this context, the Central Command for Maritime Emergencies points out that the emergency tug "Guardian" is not included in the German emergency tug concept. Normally, the Central Command for Maritime Emergencies does not have any influence over the location or tasks of this emergency tug. There is an emergency towing agreement, according to which Germany and the Netherlands support each other in the event of capacity bottlenecks in the border site but there is no direct international command structure.

The GDWS states in its opinion of 23.04.2021 that the requirements of the Central Command for Maritime Emergencies have to be taken into account with regard to the necessary provision of towing capacity.

Qualitative risk analysis

Within the framework of the qualitative risk analysis, no features in respect of site N-3.6 were identified, which would prevent the suitability.

According to the opinion, no significant effects on the surrounding shipping are expected as a result of setting up the construction site, which cannot be compensated for by conditions and requirements. An increase in feeder and works traffic necessary for the construction site can be expected. In particular, it will cross the traffic separation site "Terschelling – German Bight" in order to sail to sites and N-3.6. A reduction in

construction traffic can be expected after completion of the construction work. Only the vehicles required for the operation and maintenance of the wind farm will sail to the site. Accordingly, the quantity of traffic crossing the traffic separation site “Terschelling – German Bight” will reduce after the end of the construction phase.

However, the opinion does not see this as an unacceptable risk:

The distance from the traffic separation sites to the north and south, after deducting the safety area of 500m, is at least 2 nm. Therefore, in principle an impairment to the safety and ease of shipping traffic is not assumed for the traffic in the traffic separation site (TSS) as a result of the development in site N-3.6.

For the construction phase, an overall slight impairment to the safety and ease of shipping traffic. This relates notably to the TSS “Terschelling – German Bight” and the TSS “Jade Approach”, which the construction traffic will be forced to cross. In view of the responsibility of the respective ship management for correct conduct in connection with the requirements of the KVR and the maritime traffic safety measures established by the WSV, this induced increased risk as a result of crossing the one-way lanes of the traffic separation site can be seen as manageable without requiring further risk-reduction measures.

A reduction in construction traffic can be expected after completion of the construction work. Only the vehicles required for the operation and maintenance of the wind farm will sail to the site. Accordingly, the quantity of traffic crossing the above traffic separation sites will decrease and therefore only represents a slight impairment of the safety and ease of shipping traffic for the operating phase compared to the status quo, which can be compensated for, however, with the measures already explained above.

As a result of the development and the associated newly created shipping obstacles, a high collision probability between ship and offshore

wind energy turbines can be expected, which can be compensated for with conditions and requirements.

Taking into account maritime traffic safety and the WSV, and if public emergency tugs are available, the suitability under river and shipping police regulations of the site is assumed to be the result of the qualitative risk analysis, with the following conditions:

For the construction phase

- Establishment of a safety area around the construction field
- Shipping ban in the safety area during the construction phase
- Cardinal buoyage of the construction field
- Collision-friendly construction of the turbines
- Temporary marking of the turbines in the construction phase
- Mobile traffic safety on site through traffic safety vehicle

For the operational phase

- Maintenance of the safety area
- General specification of traffic regulations by the GDWS, if applicable access ban for vehicles with a maximum fuselage length of 24 m
- Equipping the wind farm with AIS
- Marking of the turbines as shipping obstacles
- Sea room observation by wind farm operators

In addition, the provision of additional towing capacity is necessary according to the results of the quantitative risk analysis according to the assessment of the responsible GDWS.

Result

The collision frequency rate calculated for site N-3.6, taking into account the risk-reduction measures, is 84 years, and thus is below the relevant guide value specified by the working group “Approval-relevant guide values” of the Federal Ministry of Transport of at least 100 years. As the value of 16 years is only slightly below the guide value of 100 years and changes to the traffic volume can so easily lead to changes in the results of the quantitative risk analysis, the sponsor of the project is required in the planning approval process to submit an updated risk analysis so that the information provided on the basis of the traffic situation at the time of the suitability assessment can be reviewed as part of the planning approval process and, if necessary, further reduction measures can be ordered, notably the provision of an additional private emergency tug. Apart from providing separate towing capacity, the participation by the project sponsor in other sufficient towing capacity is also generally possible.

The examination as part of the qualitative risk analysis and the classification of the scenarios in the risk matrix according to Standard Design did not find any features of the specific case, which argue against the suitability of the site in respect of river and shipping police regulations.

The further measures identified as necessary according to the opinion have also been included in the suitability determination as requirements (sections 18 to 22), insofar as this is possible without knowing the actual project parameters. To this extent, the grounds for these requirements are referred to.

3.3.2 Air traffic

The construction and operation of offshore wind farms at the sites to be assessed do not lead to any impairment of the safety and efficiency of air traffic that cannot be compensated by means of specifications.

The construction and operation of offshore wind farms can affect air traffic in various sites. The wind turbines and other high-rise buildings represent obstacles to crossing traffic but also to air traffic from and to the wind farm installations and to the wind farm's own helicopter landing deck. An improperly equipped landing deck or an improperly designed and marked winch operating site can also pose a hazard to air traffic associated with the wind farm.

3.3.2.1 Wind energy turbines and other facilities as obstacles to aviation

According to Article 58 (1) in conjunction with Art. 87 UNCLOS, some of the Freedoms of the Seas apply in principle in the EEZ. According to Art. 58 (1) in conjunction with Art. 87 (1) lit. b UNCLOS, this also includes the Freedom of Overflight. The Convention on International Civil Aviation of 07 December 1944 (BGBl. 1956 II p. 412), last amended by the protocols of 06 October 2016 (BGBl. 2018 II p. 306, 307) (Chicago Convention), differs from the applicable law in Art. 12 between national territory and High Seas. According to Art. 12 sentence 3 Chicago Convention, the regulations issued on the basis of the Chicago Convention cover the High Seas.

According to Chapter 4.6 lit. b of Annex 2 to the Chicago Convention, generally a minimum flight altitude of 150 metres above water applies to flights, depending on the visual flight rules on the day. Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation (EU IR 923/2012), Annex, SERA.5005 lit. f No.2 specifies this, namely that flights according to the visual flight rules on the day – “except when necessary for take-off or landing, or except by permission from the competent authority” – shall not be at an altitude below “150 m (500 ft) above the highest obstacle within a radius of 150 m (500 ft) from the aircraft.” At the same time, Chapter 3.2 Annex 2 to the Chicago Convention rules that the responsible

pilot is not released by the requirements of the Convention from the responsibility to take all appropriate measures to avoid collisions.

According to Chapter 4.3 of Annex 2 to the Chicago Convention, for flights according to visual flight rules at night, the same rules of the responsible air traffic control organisation apply in this respect.

3.3.2.1.1 Sites N-3.5 and N-3.6

In terms of air traffic control, sites N-3.5 and N-3.6 come within the competence of the state-certified company DFS Deutsche Flugsicherung GmbH (DFS). According to ENR 1.2 of the German Aeronautical Information Publication in conjunction with s. 36 (1) Air Traffic Ordinance (LuftVO), the regulations according to EU IR 923/2012, Annex, SERA.5005 lit. c have to be applied there. According to EU IR 923/2012, Annex, SERA.5005 lit. c No. 5 sublit. ii, a minimum flight altitude – “except when necessary for take-off or landing” – which corresponds to a “flight level which is at least 300 m (1,000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.”

For flights according to instrument flight rules, Chapter 5.1.2 lit. b of Annex 2 to the Chicago Convention, the above minimum flight altitudes for flights according to visual flight rules at night also apply.

This means that minimum flight altitudes of 150 metres above obstacles for flights according to visual flight rules at day (VFR) and minimum flight altitudes of 300 metres above the highest obstacle within eight kilometres of the estimated position of the aircraft for flights according to visual flight rules at night (NVFR) and instrument flight rules (IFR) represent suitable measures for preventing collisions.

The simple erection of wind energy turbines does not represent a concrete risk to the **safety of air traffic**. This is justified on one hand by the

specification of the above minimum flight altitudes, which merely represent the lowest flight altitudes and thus do not have to be statically maintained. Indeed, according to the ICAO pilots are required to be responsible for avoiding collisions with obstacles by taking appropriate measures such as adjusting flight altitudes.

At the same time, the wind farm and its turbines must be identifiable to pilots as an obstacle. Otherwise, there would be a sufficient probability that a pilot chooses the minimum flight altitude of 150 metres (VFR) or 300 metres (NVFR, IFR) above water and consequently there could a collision between aircraft and turbine.

This danger can be with appropriate aviation marking of the turbines and the wind farm will become visible the pilot so that they can take the necessary measures. Corresponding marking of the turbines is therefore necessary for the suitability (requirement of s. 27 Suitability determination). The marking specifically for the site of the German EEZ is prescribed in the “Standard Offshore Aviation” (SOLF) Part 5. According to the implementation decree of 17.08.2020, this Part 5 of SOLF has to be applied by the planning authorities to all future projects. Initially, however, it only binds the administration, which is why compliance with Part 5 SOLF is required in the suitability determination. The grounds for the actual requirements (s. 27 suitability determination) is also referred to.

Sites N-3.5 and N-3.6 are located under the German Danger for Aviation “ED-D100 (Borkum)”, but do not touch or enter it. Because the danger site starts at a relatively large height (flight level 55 or 5,500 ft MSL), an impact on the ease of flight traffic inside it as a result of the future offshore wind farm is unlikely. However, in reverse, the danger to shipping connected with the project, as well as the personnel and the infrastructure of the offshore wind farm as a result of any activities in the danger site can also be classed as low.

The helicopter route network in the DFS site of responsibility was cancelled on 19.03.2019 until further notice so that at present in site 3 and thus in sites N-3.5 and N-3.6 there is not official connection to the other helicopter route networks in the German EEZ of the North Sea. An impact on the ease of the air traffic on these routes as a result of the construction and operation of offshore wind farms is therefore not expected.

An impact on the **ease of air traffic**, i.e. the flow of traffic in the sense of a more than negligible disruption to the fluid, frictionless and unhindered progress of the traffic, is not currently connected with the erection of offshore wind farms in the examined sites N-3.5 and N-3.6 because there are enough options for evasion for air traffic, notably outside the air space above the sites, but also by flying at a sufficient distance over these sites.

3.3.2.1.2 Site N-7.2

Site N-7.2 is located in the responsibility site of Dutch air traffic control. According to ENR 1.2 of the Dutch Aeronautical Information Publication, EU IR 923/2012, Annex, SERA.5005 lit. c No. 5 sublit. ii applies. Therefore it states – “except when necessary for take-off or landing” – a minimum flight altitude is necessary which corresponds to a “level which is at least 300 m (1,000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.”

For flights according to instrument flight rules, Chapter 5.1.2 lit. b of Annex 2 to the Chicago Convention, the above minimum flight altitudes for flights according to visual flight rules at night also apply.

This means that minimum flight altitudes of 150 metres above obstacles for flights according to visual flight rules at day (VFR) and minimum flight altitudes of 300 metres above the highest obstacle within eight kilometres of the estimated position of the aircraft for flights according to visual flight rules at night (NVFR) and instrument

flight rules (IFR) represent suitable measures for preventing collisions.

The simple erection of wind energy turbines does not represent a concrete risk to the **safety of air traffic**. This is justified on one hand by the specification of the above minimum flight altitudes, which merely represent the lowest flight altitudes and thus do not have to be statically maintained. Indeed, according to the ICAO pilots are required to be responsible for avoiding collisions with obstacles by taking appropriate measures such as adjusting flight altitudes.

At the same time, the wind farm and its turbines must be identifiable to pilots as an obstacle. Otherwise, there would be a sufficient probability that a pilot chooses the minimum flight altitude of 150 metres (VFR) or 300 metres (NVFR, IFR) above water and consequently there could a collision between aircraft and turbine.

This danger can be with appropriate aviation marking of the turbines and the wind farm will become visible the pilot so that they can take the necessary measures. Corresponding marking of the turbines is therefore necessary for the suitability (requirement according to s. 27 Suitability determination). The marking specifically for the site of the German EEZ is prescribed in the “Standard Offshore Aviation” (SOLF) Part 5. According to the implementation decree of 17.08.2020, this Part 5 of SOLF has to be applied by the planning authorities to all future projects. Initially, however, it only binds the administration, which is why compliance with Part 5 SOLF is required in the suitability determination. The grounds for the actual requirements (s. 27 Suitability determination) is also referred to.

The project site is fully superimposed by the Dutch danger site for aviation “EH-D05”, but it is not touched or penetrated. Because the danger site starts at a relatively large height (flight level 55 or 5,500 ft MSL), an impact on the ease of flight traffic inside it as a result of the future offshore wind farm is unlikely. However, in reverse,

the danger to shipping connected with the project, as well as the personnel and the infrastructure of the offshore wind farm as a result of any activities in the danger site can also be classed as low.

Site 7, in which site N-7.2 is located, is connected to the Dutch helicopter route network. Parts of the following routes run along the outer edge of site 7: “KY 683”, “KY 680”, “KY 673” and “KY 675”. Except for “KY 680”, the distances between the periphery of site N-7.2 and the other routes are fully or partly less than eight kilometres. The permitted minimum flight altitude in each of the routes according to the Dutch Aeronautical Information Publication is 600 metres AMSL. Generally they can be used all day. Based on the current available turbine heights, an impact on the ease of the air traffic on these routes as a result of the construction and operation of offshore wind farms is not currently expected. If larger total heights are realised in the future (above 300 metres SKN), a single case consideration would have to be conducted at the level of the planning approval process, taking into account the necessary vertical distances for flights according to visual flight rules at night and for those according to instrument flight rules.

An impact on the **ease of air traffic**, i.e. the flow of traffic in the sense of a more than negligible disruption to the fluid, frictionless and unhindered progress of the traffic, is not currently connected with the erection of offshore wind farms in the examined site N-7.2 because of the heights of turbines currently available, as there are enough options for evasion for air traffic by flying over these sites.

3.3.2.2 Helicopter landing deck

Helicopter landing decks are regularly needed so that the wind farms can be reached at short notice for repair and maintenance work, as well as for rescue measures, and therefore represent an integral component of offshore wind farms.

The safe arrival and departure at the own or adjacent helicopter landing deck must be guaranteed despite the construction so that the suitability of the site for a wind farm to be erected can be determined without restriction. The landing decks are regularly located on the offshore platforms of the offshore wind farm or on converter platforms, which for reasons of efficiency, shipping safety and environmental protection, are frequently in the middle of the site, and these are positioned between the turbines. So that a helicopter landing deck on an offshore platform, for which the horizontal expansion of the obstacle-free sector cannot be fully guaranteed, can still fly to it safely, there must be sufficiently sized and marked arrival and departure flight corridors in the appropriate flight direction, which are kept free from development. The creation of such flight corridors in the site and, if necessary, keeping the flight corridors clear for helicopter landing decks of adjacent projects and converter platforms are prerequisites for determining the suitability of the respective site and therefore have been included in the 2nd WindSeeV, sections 24, 25 Suitability determination.

The arrival and departure corridor of the converter platform NOR-3-2 located between sites N-3.5 and N-3.6 is expected to run between these sites because of the other corridors in site N-3. According to the current status, for site N-3.5, the future arrival and departure corridor for the N-3.8 transformer platform and flight corridors for the platform of the existing wind farm Nordsee One must be taken into account as well.

According to the current status, when planning site N-7.2 the arrival and departure corridors for platform NOR-6-3 and converter platform NOR-7-2 located in the largest site must be taken into account.

Safer flying operations to the helicopter landing deck also requires proper marking of the helicopter landing deck itself, and at night also the flight paths (tower illumination). The latter is also re-

quired (s. 26 Suitability determination). In addition, the information in the grounds of the actual requirements is referred to.

3.3.2.3 **Winch operation sites**

Similarly to offshore platforms frequently equipped with a helicopter landing deck, winch operation sites are installed on wind energy turbines in order to be able to reach them for repair and maintenance work or in emergencies. At the same time, winch operation sites on wind energy turbines are necessary in order to guarantee a second escape route and this also to avoid danger to the physical integrity of the people working there.

Helicopter winch operation regularly represents a challenging flight manoeuvre that is associated with some risks. Because, in contrast to wind energy turbines, it is possible to build a helicopter landing deck on offshore platforms as well as the option to transfer to a ship, erecting winch operating sites on these for the purposes of regular access is not permitted (s. 23 (3) Suitability determination). If the sponsor of the project would also like to create a winch operations site to protect against dangers to life and limb (rescue site), this must also have appropriate markings in order to minimise the risk both for the winch passenger and for the aircraft crew. Corresponding requirements have therefore been included in s. 23 (4) Suitability determination.

Appropriate marking and design of the winch operation site are also required for safe helicopter winch operation, which is prescribed by including the “General Principles of the Federation and the

Länder on Winch Operation Sites on Wind Energy Turbines” and after its entry into force the conditions of the “Offshore Aviation Standard for the German Exclusive Economic Zone” (s. 23 (5) Suitability determination).

In its response of 12.04.2021, the Central Command for Maritime Emergencies refers to the minimum distance between helicopter rotor and the rotor of the wind energy turbine points out in respect of Rule 2.3 of the “General Principles of the Federation and the Länder on Winch Operation Sites on Wind Energy Turbines”²⁶ that for complex damage situations it plans to use a so-called Super Puma (AS332-L1) helicopter, which has a rotor diameter of 15.60 m. In view of this, the Central Command for Maritime Emergencies recommends supplementing the rule so that there must be an early agreement between the project sponsor and Central Command for Maritime Emergencies.

The supplement to s. 23 Suitability determination is omitted in order to avoid duplication of provisions. Duplication of provisions can lead to contradictions that run counter to the aims pursued by the two provisions, especially with regard to safety-relevant subjects. Therefore, the references to s. 23 (5) Suitability determination remain. According to No. 2.2 of the General Principles of the Federation and the Länder, it is still “recommended that a reference helicopter is specified for the design of a winch operation site, which has the highest claims for the size of the helicopter, for which the winch operation site is designed to be used, including rescuing injured people.” The SOLF should apply extensive reg-

²⁶ 2.3 of the General Principles of the Federation and the Länder on Winch Operation Areas on Wind Energy Turbines of 18 January 2012 (BANz. Number 16, p. 338): “A minimum distance of 5.0 m must be maintained between the helicopter rotor circuit and the rear of the rotor circuit area of the wind energy turbine (see Fig. 1). It is recommended, if possible, to increase this minimum distance to 0.5 times the rotor diameter (RD) of the helicopter. When

measuring the distance between helicopter rotor and the rotor of the wind energy turbine, it is assumed that the winch passenger is above the winch transfer point. If obstacles penetrate the obstacle free zone according to number 2.10.2, the obstacle nearest the winch operation area is used as the basis for measuring the distance instead of the rotor circuit area of the wind energy turbine.”

ulations for offshore aviation (aviation infrastructure) and its safety. The SOLF should be developed taking into account helicopter winch operations in emergencies and the helicopters used for this, as well as with an extensive consideration of all relevant matters. As a result, all the matters in this subject area that may be relevant for the suitability of the site are sufficiently regulated conclusively. Therefore, suitability can be determined subject to the condition that initially the General Principles of the Federation and the Länder on Winch Operation Areas on Wind Energy Turbines and from entry into force also the SOLF are complied with. Corresponding requirements have therefore been included in s. 23 Suitability determination.

On the other hand, concrete agreements regarding the project are a matter for the planning approval and are taken into account there by the BSH. Within this framework, and as part of the completion, the Central Command for Maritime Emergencies is also regularly involved. An instruction in the suitability determination for the sponsor of the project to consult with the Central Command for Maritime Emergencies outside or alongside the planning approval process could lead to contradictions.

In addition, the information in the grounds of the requirements is referred to.

3.3.2.4 Result

The construction of offshore wind farms at sites N-3.5, N-3.6 and N-7.2 will not significantly impair the safety and efficiency of traffic in such a way that one of the sites is unsuitable as a result. Instead, the impairments caused due to the construction of installations can be prevented or compensated through specifications.

3.4 Safety of the territorial and alliance defence

A site is only suitable according to s. 10 (2) in conjunction with s. 5 (3) No. 4 and s. 48 (4) sentence 1 no. 3 WindSeeG if the erection and operation of offshore wind energy turbines are compatible with the safety of the national and alliance defence.

In addition, the safeguarding of alliance tasks within the framework of the collective security systems and maintaining the functioning of the armed forces occupies a constitutional level. Critical for this is, in particular, the integrity of the military training areas in the North Sea and Baltic Sea.²⁷ Whether the effect on boundary areas of these training areas already represents a considerable effect on the interests of the national and alliance defence depends on the circumstances of the respective individual case.

In addition national and alliance defence training is not restricted to military training areas, but instead take place anywhere. For submarines in particular, the structural facilities represent a possible source of collisions. To prevent this danger, structural facilities must be marked with sonar transponders.

During the construction and operation of the turbines, various submarine measuring equipment is used, above all in order to implement requirements to examine the associated environmental effects. As a result of this, information sometimes classed as secret may be recorded. In order to prevent this in the sense of the safety of the national and alliance defence, the use of such equipment must be restricted to what is necessary and the navy central command informed promptly.

²⁷ Schmälder in Theobald/Kühling, a. 5 SeeAnIV, marginal note 38.

The measures required for the safety and ease of shipping and air traffic also serve military traffic.

3.4.1 Site N-3.5

The site is completed under the German danger site ED-D100 (Borkum) and the international, connected danger site EUC SEA 1. This training site is used from a relatively great height (5,500 ft. MSL) above sea level, the interests of the national and alliance defence as therefore not affected despite the overlap.

When complying with the requirements, there is not a considerable impact on military training sites as a result of the construction and operation of wind energy turbines in site N-3.5.

The suitability of site N-3.5 in respect of national and alliance defence can therefore be assumed, provided that

- The turbines erected in the site are marked with sonar transponders at appropriate locations, and
- The use of acoustic, optical, optronic, magnetic, electrical, electronic, electromagnetic or seismic submarine measuring equipment is reported to the navy central command in advance (s. 28 Suitability determination).

3.4.2 Site N-3.6

The site is completed under the German danger site ED-D100 (Borkum) and the international, connected danger site EUC SEA 1. This training site is used from a relatively great height (5,500 ft. MSL) above sea level, the interests of the national and alliance defence as therefore not affected despite the overlap.

There is not a considerable impact on military training areas as a result of the construction and operation of wind energy turbines in the site, if:

- The turbines erected in the site are marked with sonar transponders at appropriate locations, and

- The use of acoustic, optical, optronic, magnetic, electrical, electronic, electromagnetic or seismic submarine measuring equipment is reported to the navy central command in advance (s. 28 Suitability determination).

The suitability of site N-3.5 in respect of national and alliance defence can therefore be assumed, provided that these requirements are met.

3.4.3 Site N-7.2

For site N-7.2, the interests of national and alliance defence do not appear to be affected.

The site is completed under the Dutch danger area EH-D05 and the international, connected danger area EUC SEA 1. As the first area is under Dutch control, the examination under 3.8.5 (International military matters) is referred to in this respect.

The suitability of site N-7.2 in respect of national and alliance defence can therefore be assumed, provided that

- The turbines erected in the site are marked with sonar transponders at appropriate locations, and
- The use of acoustic, optical, optronic, magnetic, electrical, electronic, electromagnetic or seismic submarine measuring equipment is reported to the navy central command in advance (s. 28 Suitability determination).

3.5 Compatibility with priority mining activities

Pursuant to section 10(2)(2a) in combination with section 48(4)(1)(4) WindSeeG, a site is only suitable if the construction and operation of offshore wind turbines are compatible with priority activities under mining law.

According to the legal rationale for section 48(4)(1)(4) WindSeeG, activities under mining law usually only exist if a licence to extract raw materials in a specific location is actually in

use. Conversely, the mere existence of extensive exploration permits or authorisations does not usually constitute a priority activity under mining law.²⁸

According to the BSH's knowledge, no licences to extract raw materials exist in the area of the sites to be assessed, sites N-3.5, N-3.6 and N-7.2. In this respect, the sites to be assessed are compatible with priority activities under mining law.

3.6 Compatibility with existing and planned cables, offshore connections, pipeline and other lines

An site is only suitable according to s. 10 (2) No. 2a in conjunction with s. 48 (4) sent. 1 No. 5 WindSeeG if the erection and operation of offshore wind energy turbines in this site are compatible with existing and planned cables, offshore connections, pipeline and other lines.

In the site of the German continental shelf there are numerous submarine cables and pipelines, the locations of which can be seen in the newest official BSH nautical charts. The actual cable lengths may differ from the information in the charts.

Routes or route corridors for offshore connections (s. 5 (1) No. 7 WindSeeG) and international electricity transmission lines (s. 5 (1) No. 9 WindSeeG) are specified in the SDP. There is no higher-level planning for other lines. The framework of these plans is formed by the specifications in the Spatial plans for the German EEZ of the North Sea and Baltic.

Both the SDP and the Spatial plans contain specifications, which are designed to ensure the compatibility of plans with existing and planned lines. These are, in particular, requirements for minimum distances from existing and planned

lines, for preventing crossings and for realising unavoidable crossings.

In order to guarantee the compatibility of the sites being examined, requirements are necessary when planning and erecting the turbines in the sites (s. 34 (1) to (3) Suitability determination):

- Safety has to be taken into account in the area around existing submarine cables and pipelines of third parties.
- If possible, crossing cables or pipelines of third parties with internal wind farm cables should be avoided. In principle, there should be no impact on the sea floor within a safety area of 500 m both sides of cables or pipelines belonging to third parties. This can be agreed otherwise with the respective owner if necessary.
- The routes specified in the SDP for connecting converter platforms, and 500 metres on both sides of these routes, should be kept free of construction. No internal wind farm submarine cables may be laid within 500 metres of both sides of these routes. The project sponsor must ensure that the internal submarine cable systems do not cross the routes of the transmission lines of the transmission network operator, which connect the respective site.

Additionally, the grounds for these requirements in the suitability determination are referred to.

3.6.1 Site N-3.5

Parallel to the southern and partly to the western boundary of the site, SDP 2020 specifies the route for the NOR-3-2 direct current submarine cable system connecting the converter platform located between sites N-3.6 and N-3.5. In the north-east, the site is bordered by the "BorWin1" and "BorWin2" direct current submarine cable

²⁸ German Bundestag, document 17/8860, p. 311

systems. To the east, the SDP 2020 specifies the route for the three-phase current submarine cable system connecting the transformer platform for site N-3.8 to the converter platform parallel to the southern extension of the site. The three-phase current network connection system “Innogy Nordsee 3” has been approved within the site. According to current knowledge, the “Innogy Nordsee 3” connection is not expected to be used.

Provided the measures initially explained are realised, the erection and operation of offshore wind energy turbines in site N-3.5 appear to be compatible with existing and planned cables, offshore connections, pipelines and other lines.

3.6.2 Site N-3.6

Parallel to the eastern edge of site N-3.6, the SDP 2020 specifies the route for the “NOR-3-2” transmission line. The operational “BorWin1” and “BorWin2” run parallel to the north-eastern edge of the site.

Provided the measures initially explained are realised, the erection and operation of offshore wind energy turbines in site N-3.6 appear to be compatible with existing and planned cables, offshore connections, pipelines and other lines.

3.6.3 Site N-7.2

Site N-7.2 is crossed from west to east by the route for the direct current submarine cable system specified in the SDP 2020 as well as by the operating transmission cables “BorWin 1” and “BorWin 2” in the northern and southern sites. In addition, the active data cable “Atlantic Crossing 2” cuts through the site from the south-west to the north-east. The eastern section of the site is crossed from north to south by the operating “NorNed” direct current submarine cable system. Within the largest southern part of site N-7.2, the SDP 2020 specifies a route for the “NOR-7-2” direct current submarine cable system connecting

the converter platform located in the site. The active gas pipeline “Norpipe” runs largely parallel to the north-eastern edge of the site.

Hard substrate is added to the seabed when building submarine cable crossings. Based on the aspects of minimum intervention in the marine environment, crossings should be avoided as much as possible. To connect the three northern parts of the site to the location specified by SDP 2020 of the converter platform for the transmission line “NOR-7-2” in the largest, southern part of the site, however, the internal wind farm cabling will have to cross the operational transmission lines “BorWin 1” and “BorWin 2” as well as the route specified in SDP 2020 for the “NOR-6-3” direct current submarine cable system. The active data cable “Atlantic Crossing 2” will also have to be crossed in order to connect the north-western and south-western parts of the site. Further, the connection for the south-eastern part of the site will require a crossing of the operational “NorNed” direct current submarine cable system. The number of crossings must be restricted here to the minimum technically required.

Based on the authorisation of s. 12 (5) sent. 2 WindSeeG, it cannot be ordered within the framework of the suitability determination that the owner of the respective cable has to tolerate the crossing. The project sponsor therefore has to contractually agree the crossing with the respective owner of the affected cable.

Crossing structures are regularly constructed as part of offshore projects. For crossings, planning principle 4.4.4.5 of SDP 2020 is referred to. Recommendations for the manufacture of crossing structures are also laid out, for example, in the recommendations by the European Subsea Cable Association (ESCA) and the International Cable Protection Committee (ICPC). With regard to environmental protection requirements, the requirement of s. 16 Suitability determination is referred to in particular. To this extent, therefore, a restriction of the suitability of the relevant sections is not assumed.

With regard to the "NOR-7-2" route specified by SDP 2020 within the largest part of the site for connecting the converter platform, the safe laying and, if applicable, repair of the cable systems must be guaranteed. This also serves the reliable network connection of the offshore wind farm to the site. The erection and operation of wind energy turbines in the site must be compatible with the existing or planned offshore transmission lines of the transmission network operator. Therefore, no internal wind farm cabling may be laid in the route site and crossing route "NOR-7-2" with internal wind farm cabling is prohibited. The latter prohibition also includes intervening in the marine environment by adding hard substrate in order to create a cable crossing.

Provided these and the measures initially explained are realised, the erection and operation of offshore wind energy turbines in site N-7.2 appear to be compatible with existing and planned cables, offshore connections, pipelines and other lines.

3.7 Compatibility with existing and planned locations of converter platforms or transformer stations

An site is only suitable according to s. 10 (2) No. 2a in conjunction with s. 48 (4) sentence 1 No. 6 WindSeeG if the erection and operation of offshore wind energy turbines in this site are compatible with existing and planned locations of converter platforms or transformers. According to Section 5, paragraph 1, No. 6 WindSeeG, the SDP shall designate the locations of converter platforms and, as far as possible, transformer stations.

In order to guarantee the compatibility of the sites being examined, a requirement is necessary when planning and erecting the turbines in the sites (s. 34 (4) Suitability determination). In principle, no wind energy turbines may be erected in a safety site of 1,000 metres around

the location of the responsible transmission network operator's converter platform specified in the SDP. Exceptions from this are possible in consultation with the network operator in an site between 500 and 1,000 metres around the location. Work within the entire safety site of 1,000 metres may only be undertaken with consent in consultation with the responsible transmission network operator.

3.7.1 Sites N-3.5 and N-3.6

SDP 2020 specifies a location between sites N-3.5 and N-3.6 for a converter platform with 66 kV connection concept for the transmission line "NOR-3-2".

According to planning principle 4.4.1.6 of SDP 2020 ("Consideration of all existing, approved and specified uses"), a minimum distance of 500 metres must be maintained between offshore platforms and the nearest wind energy turbines, unless the ground conditions require greater distances. In the site of transformer and converter platforms, it must be ensured because of the collection of a large number of cable systems that there is enough room for guiding the submarine cable systems of the transmission network operator. Keeping this distance around the platform location clear guarantees that there is enough space next to the platform for jack-up or other construction ships during erection or repair and that the internal wind farm cabling can be laid around the platform. The distance required from converter platforms with the 66 kV direct transmission concept is more than the minimum distance of 500 metres stated in the planning principle 4.4.1.6 of SDP 2020 (cf. Planning principle 4.4.3.2 of SDP 2020). In general it is 1,000 m. These platforms are larger than platforms with the 155 kV transmission concept. A greater distance is also necessary here because a larger number of cables collect here compared to other platforms. The greater distance ensures, in particular, that repairs to the cables and the platform are possible.

In individual cases, the distance from wind energy turbines to the converter platform can be less than 1,000 m provided a minimum distance of 500 m is maintained. This reduction in the distance is only possible in consultation with the responsible transmission network operator. Because of the small distance between wind farm, transmission lines and platforms, there is a large need for consultation between project sponsor of the wind farm and the responsible transmission network operator.

If these measures are implemented, there are not fundamental concerns regarding the compatibility of the erection and operation of wind energy turbines in sites N-3.5 and N-3.6 with this location for the converter platform as specified in SDP 2020.

3.7.2 Site N-7.2

SDP 2020 specifies a location in site N-7.2 for a converter platform with 66 kV connection concept for the transmission line "NOR-7-2". This location is roughly in the middle of the largest, southern part of the site.

According to planning principle 4.4.1.6 of SDP 2020 ("Consideration of all existing, approved and specified uses"), a minimum distance of 500 metres must be maintained between offshore platforms and the nearest wind energy turbines, unless the ground conditions require greater distances. In the site of transformer and converter platforms, it must be ensured because of the collection of a large number of cable systems that there is enough room for guiding the submarine cable systems of the responsible transmission network operator. Keeping this distance around the platform location clear guarantees that there is enough space next to the platform for jack-up or other construction ships during erection or repair and that the internal wind farm cabling can be laid around the platform. The distance required from converter platforms with the 66 kV transmission concept is more than the minimum distance of 500 metres stated in the planning

principle 4.4.1.6 of SDP 2020 (cf. Planning principle 4.4.3.2 of SDP 2020). In general it is 1,000 m. These platforms are larger than platforms with the 155 kV transmission concept. A greater distance is also necessary here because a larger number of cables collect here compared to other platforms. The greater distance ensures, in particular, that repairs to the cables and the platform are possible.

In individual cases, the distance from wind energy turbines to the converter platform can be less than 1,000 m provided a minimum distance of 500 m is maintained. This reduction in the distance is only possible in consultation with the responsible transmission network operator. Because of the small distance between wind farm, transmission lines and platforms, there is a large need for consultation between project sponsor of the wind farm and the responsible transmission network operator.

If these measures are implemented, there are not fundamental concerns regarding the compatibility of the erection and operation of wind energy turbines in site N-7.2 with this planned location for the converter platform.

3.8 No opposition from other requirements according to this law and other public-law conditions or other overwhelming public or private matters

Finally, there appear to be no regulations under public law, overriding public or private concerns or other requirements pursuant to WindSeeG that oppose the suitability of the sites.

Pursuant to the specification from section 10(2)(2a) in combination with section 48(4)(1)(8) WindSeeG and 10(2)(1) in combination with section 5(3)(1) WindSeeG, the balancing of interests with other public and private concerns must be undertaken in this context.

Other material concerns to be considered in this case are:

- Fishing and marine aquaculture;
- Nature conservation and species protection as well as cultural heritage insofar as these have not already been taken into consideration in the context of assessing the endangerment of the marine environment;
- Military concerns, unless these have been taken into consideration in the context of assessing the security of territorial and alliance defence;
- Concerns of private third parties with regard to other uses (mining, cables, pipelines or other lines, neighbouring wind turbines, tourism), unless these have been taken into consideration in the context of assessing the exclusion criteria.

The specifications of the SDP 2020, the safety and health protection regulations and the civil protection regulations are also taken into consideration as other requirements pursuant to WindSeeG or other regulations under public law.

3.8.1 Site Development Plan

The Site Development Plan was first published on 28.06.2019 (SDP 2019). As a result of the change to the WindSeeG of 10.12.2020, with which the trajectory for offshore wind energy up to 20 GW by 2030 was increased, it was necessary to update and amend the SDP 2019. The first update of the SDP was published on 18.12.2020 (SDP 2020). The SDP is binding for the planning approval and approval process, including for the approval of the erection and operation of offshore wind energy turbines in the sites examined here.

On one hand, the SDP 2020 specifies a region with sites and the chronology, in which the specified sites are to come to tender, including the naming the respective calendar years and the quarter in the respective calendar year, s. 5 (1) No. 1 to 4 WindSeeG. These specifications form the framework of this examination.

Additionally, the installed generation capacity for the specified sites is determined in the SDP, s. 5 (1) No 5 WindSeeG. This estimated installed generation capacity has to be detailed as part of the preliminary investigation and specified as a result of the suitability determination. With regard to examining the installed generation capacity, chapter 1 is referred to. With regard to the installed general capacity, the WindSeeG requires an examination of the explicitly provisional specifications in the SDP as part of the suitability assessment.

Further specifications in the SDP relate to routes for cable systems and locations for platforms, s. 5 (1) No. 6 to 10 WindSeeG, as well as standardised technology principles and planning principles. The customisation of the sites in SDP 2020 already takes into account a large part of the spatial specifications and planning principles. For example, the distances specified in the planning principles between routes or locations and turbines of the wind farms being erected in the site have already been taken into account in their customisation. However, this is not possible every case or, because of the planning criterion of SDP 2020 of 1:400,000, inaccuracies arise that can only be clarified as part of the precise plan at the level of the respective planning process.

In order to ensure to this extent that the requirements of SDP 2020 do not prevent the suitability of the site, the following measures, which relate to the planning principles of the SDP, are necessary and prescribed:

- Keeping flight corridors free;
- Taking into account a safety site around cables or pipelines belonging to third parties of regularly 500 m;
- Avoiding crossings with cables or pipelines belonging to third parties;

- Distance from wind energy turbines of adjacent sites of at least five times the respective larger rotor diameter.

3.8.2 Protection of health and safety / disaster protection

The protection of health and safety of all persons working in the subsequent offshore wind farm is another overwhelming public matter as defined in s. 10 (2) no. 1 in conjunction of s. 5 (3) sent. 1 WindSeeG, the health and safety at work provisions and other public-law conditions as defined in s. 10 (2) No. 2a in conjunction with s. 48 (4) sentence 1 No. 8 WindSeeG. Suitability of the site for the erection and operation of an offshore wind farm therefore only exists if compliance with the protection of health and safety requirements is guaranteed.

For employers, the Working Conditions Act (ArbSchG) also has to be applied in the EEZ, see s. 1 (1) sentence 2 ArbSchG. The project sponsor is not always the same as the employer. Therefore, separate duties are established for the project sponsor; with regard to its duties as employer, see s. 3 ArbSchG.

Apart from the Working Conditions Act and the directives based on it, the provisions regarding the protection of health and safety include the accident prevention provisions of the accident insurance providers and the law on turbines requiring supervision. Technical and occupational medicine regulations concretise the health and safety directives. DGUV information includes instructions and recommendations, which are designed to simplify the practical application the health and safety legislation.

In view of the specific environmental conditions of the offshore turbines in the planning, erection, operation and dismantling, the following points of the German health and safety provisions in particular have to be taken into account during the work in order to protect the people employed there:

1. Fire and explosion protection,
2. Emergency communication and evacuation,
3. Primary first aid,
4. Technical rescuing of injured or ill people from all sites of the wind farm, and
5. Immediate emergency medical care during the rescue and further treatment.

Corresponding requirements have been included in the suitability determination (sections 29 to 33). Additionally, the grounds for these requirements in the suitability determination are referred to.

3.8.3 Fishing industry and marine aquaculture

There is no overwhelming finishing industry interest that prevents the suitability of sites N-3.5, N-3.6 and N-7.2.

As specified in the environmental reports, the sites N-3.5, N-3.6 and N-7.2 are currently for fishing. With the erection and operation of turbines in the sites, both of wind energy turbines and platforms as well as because of the farm's internal cabling, for certain types of fishing, restrictions to the site of activity are connected with just protecting the integrity of the installations.

For wind farm sites, the planning authorities regularly set up a safety area at the start of the construction phase in accordance with s. 53 Wind-SeeG. In accordance with sections 53 Wind-SeeG in conjunction with s. 7 (2) VO-KVR, safety areas must not be entered in principle. According to Spatial Plan 2021, fishing vessels should be able to pass through wind farms on their way to their fishing grounds. Passive fishing with fish traps and baskets shall be possible in the safety areas of the wind farms; however, this shall not apply to the site enclosed by the outer installations of the wind farm nor to the immediate vicinity

of the outer installations. The above applies insofar as the construction, operation and maintenance of the wind farm are affected as little as possible and subject to contrary technical regulations (cf. No. 2.2.2 (4) Spatial Plan 2021)

The GDWS regularly issues access regulations for the safety areas in accordance with s. 53 WindSeeG in conjunction with s. 7 (2) and (3) VO-KVR. During the construction phase, this excludes entering the safety area for vehicles other than construction vehicles. For the operating phase, among other things the GDWS checks and regulates whether and to what extent access by vehicles with a maximum fuselage length of 24 m can be permitted. Previously, for safety reasons there has regularly been a ban on fishing or the use of certain fishing equipment (such as rods, ground nets, trawl and drift nets or similar equipment) and anchoring. Some passive fishing with fish traps and baskets in the safety area is permitted outside the developed wind farm sites, provided the passive fishing equipment is on the sea floor.

Because of this restriction fishing as a private matter is regularly affected.

In the past, fishing industry organisations have pointed out that there has been an impact on their economic and thus private interest as a result of the restrictions for the fishing industry caused by the offshore wind energy turbines. In view of the large-scale use of other sites for energy generation, the Federal Ministry responsible for the Spatial plan will carry out a research project with the Federal Ministries responsible for fishing and shipping. In this, it is scientifically investigated and examined on the basis of concrete case constellations whether and to what extent a joint use of sites by offshore wind energy and fishing can be made possible with regard to safety concerns in terms of both passive and active fishing (cf. grounds to (4) ROP 2021).

Based on the general legal conditions explained and current practice, it can be expected that the intensity of fishing will decrease in sites N-7.2, N-3.5 and N-3.6. The extent to which the fishing industry will be specifically restricted cannot currently be determined. According to the results of the suitability assessment, a safety area has to be established and maintained around an offshore wind farm in order to protect shipping for the sites (see chapter 3.3.1), however, this does not necessarily lead to the exclusion of all fishing. The actual project parameters are examined in the planning approval process. The form and extent of fishing industry use depend, in particular, on the future access regulations of the GDWS. In particular, passive fishing with trap and baskets might be possible outside the site of the safety area, in which the turbines themselves are located.

One response received in the course of the public and public authority participation explains, that the fishing industry in the North Sea has been considerably affected in previous years by various site designations. These cumulative effects should be considered in the suitability assessment. The project should not be considered in isolation.

Another response referred to the impact on the fishing industry as a result of the increasing competing pressures in the North Sea and Baltic, including in the sites affected here. This is potentially an existential risk for many fishing businesses. The only sensible possibility to balance wind energy and fishing is co-use of the sites. The regulations and practice in Denmark and Great Britain show that multiple use of sites is possible. As part of the suitability assessment, a site is only suitable if there is the possibility of co-use. The response asks for a requirement to be added to the suitability determination, according to which the construction must facilitate subsequent co-use.

In contrast to the levels of the Spatial plan and the SDP, which also consider conflicts of use at

a large-scale and comprehensively, the focus of the suitability assessment is to consider the actual site. Even taking into account the existing or approved wind farms in the respective surrounding sites (N-3 and N-7) it is not clear, and within the framework of the process of the Strategic Environmental Assessment it is not suggested that the fishing industry relies on the sites N-3.5 and N-3.6 or on site N-7.2. This fishing currently taking place in sites N-7.2, N-3.5 and N-3.6 is not tied to a location and in principle can also operate outside the named sites. A large-scale multi-site and region consideration is object of the aforementioned levels of the Spatial plan and SDP.

Even if fishing were to be comprehensively excluded from the sites, in view of the consideration relevant within the framework of the suitability assessment it is not clear that this would bring the suitability of the sites into question and requirements would already be necessary in the suitability determination.

A further response explains that exclusion and safety areas should be minimised or abolished. Active and passive fishing and fishing above line routes should be possible in principle. Necessary new infrastructure measures should run along existing routes and must not lead to further restrictions. Ending access prohibitions should also be examined. Aquaculture and mariculture should be facilitated in the wind farm. Further, the ecological fundamentals of important commercial fishing species, i.e. spawning and nursery sites, should be secured. In summary, the response lists these and other aspects, which should be examined in the planning approval process for sites N-3.5, N-3.6 and N-7.2. In addition to the above aspects, the response named examination of covering marine cables and the need for related exclusion areas, as well as lifting safety distances for fishing vehicles.

At the level of the suitability determination, no requirements were made in respect of sites N-3.5, N-3.6 and N-7.2 either with regard to a restriction

or facilitation of fishing. As stated above, even with the complete exclusion of fishing in the sites it is not clear that this would bring the suitability into question. Therefore, no requirements are included in the suitability determination. Some of the named aspects are also regulated in advance at different levels.

The routes for the transmission lines from offshore wind farms are not object of the regulations of the suitability assessment, but instead are already specified by the SDP according to its principles. A bundled laying of cables is also envisaged in the SDP. At the level of the suitability assessment and determination, some overlapping of the farm's internal cabling is already envisaged in order to protect the marine environment (s. 5 Suitability determination).

The actual examination as to whether and in what form fishing is possible within the sites, taking into account the various interests, can only be performed when the concrete project parameters are known, i.e. not earlier than in the planning approval process. A safety area is also only established at the start of the construction phase. The access regulations application are the responsibility of the GDWS.

As explained in chapter 4.5 of the environmental reports for the sites N-3.5, N-3.6 and N-7.2, all three sites can serve as spawning and nursery sites. However, construction and operation do not have a considerable negative on fish and their spawning and nursery sites. If evidence to the contrary is identified in future, this shall be taken into account in the planning approval process.

3.8.4 Nature / species conservation and cultural heritage and tourism

The interests of nature and species conservation, the interests of cultural heritage, and the interests of tourism (inter alia in respect of the landscape) have already been examined as part of the Strategic Environmental Assessment.

Considerable effects on these interests have already been rejected – partly subject to the inclusion of requirements.

For example, there are no indications of wrecks or other cultural assets in respect of the cultural heritage in sites N-3.5 and N-3.6. There is a shipwreck in and next to site N-7.2. Requirements regarding cultural assets have been included.

For tourism, it has been found that because of their distance from the coast and islands, and because of the preloads as a result of existing wind farms, the sites do not have any outstanding importance, and the use is not significantly restricted due to the installations.

Requirements have been included, however, regarding the protection of porpoises.

The information in the environmental reports, in the chapter 3.2 and in the grounds to the requirements for protected assets is referred to.

3.8.5 International military matters

3.8.5.1 Sites N-3.5 and N-3.6

International military matters do not seem to be affected for sites N-3.5 and N-3.6. With regard to the international, connected danger site EUC SEA 1, the information in chapters 3.4.1 and 3.4.2 is referred to.

3.8.5.2 Site N-7.2

The site is completed under the Dutch danger site EH-D05 and the international, connected danger site EUC SEA 1. This training site is used from flight level 055²⁹, therefore international military matters are not affected despite the overlap. There is not a considerable impact on this military training site as a result of the construction and operation of wind energy turbines in the site.

²⁹ Flight level 055 corresponds to a barometric height 5500 feet (1676.40 metres) at 1013.25 hPa.

The suitability of site N-7.2 in respect of international military matters can therefore be assumed, provided that

- The turbines erected in the site are marked with sonar transponders at appropriate locations, and
- The use of acoustic, optical, optronic, magnetic, electrical, electronic, electromagnetic or seismic submarine measuring equipment is reported to the navy central command in advance (s. 28 Suitability determination).

3.8.6 No opposition from overwhelming private interests

No overriding private concerns that oppose the suitability of sites N-3.5, N 3.6 or N-7.2 are apparent.

Private rights that can generally be impaired by the construction and operation of wind turbines include the private ownership of the installed and routed installations or the right to the established and practised business operation.³⁰ Suitability would not have to be rejected in this case even if the concerns of private third parties were at all affected. Instead, the concerns must outweigh the interest of determining suitability, and therefore of the construction and operation of an offshore wind farm at the site.

3.8.6.1 Other mining activities

While only a licence to extract raw materials in a specific location that is actually in use is to be evaluated as a 'priority activity under mining law' according to Chapter 3.5, other activities ahead of this actual extraction can also be planned or permitted at a site, e.g. exploration permits or authorisations from the responsible authority. If

³⁰ Schmälder in Danner/Theobald, section 5 SeeAnIV, recital 62.

corresponding activities or their planning exist, these must be assessed as private concerns according to section 10(2)(1) in combination with section 5(3)(1) WindSeeG to determine whether they oppose the suitability of the site.

No information concerning non-priority activities under mining law is available at present for site N-3.5, N-3.6 and site N-7.2.

3.8.6.2 Neighbouring offshore wind farm projects

Overriding concerns of the respective neighbouring offshore wind farms that oppose suitability are not apparent.

Any impairments of stability (which is more of a public concern) are prevented by specifying minimum distances from neighbouring projects (section 35 of the assessment).

Nor are relevant reductions in revenue due to follow-on effects to be anticipated for the sites to be assessed; in addition, they would not constitute an infringement of the right to the established and practised business operation. The operation reference required for this only encompasses direct infringements aimed at the operation as such and which do not only affect rights or legal interests that can be easily divorced from the operation.³¹ Pure financial losses would not be covered.

³¹ Federal Court of Justice rulings in civil matters 29, 65, 74.

4 Determination of the installed generation capacity

For each site whose suitability assessment reveals that it is suitable for being put out to tender, the capacity to be installed at the site must be specified by legislative decree pursuant to section 12(5)(1) WindSeeG for the subsequent invitation to tender by the BNetzA.

To do this, an overall picture must be prepared and the capacity likely to be installed that is defined in the SDP must be specified as part of the assessment of the suitability of sites.³² In particular, the determination of the capacity to be installed must give consideration to the capacity likely to be installed at the site according to the SDP as an essential element of expansion control. In addition, the interaction between the offshore connecting cable intended for connecting the site, the capacity to be installed or already installed at other sites (particularly those to be connected using the same joint grid connection) and the uniform expansion of the use of offshore wind energy must also be taken into consideration. The scientific and technical state of the art concerning the possible scope of the capacity installed at sites must be taken into consideration, whereby the construction projects actually implemented at the time of determining suitability are an essential indicator. At the same time, however, possible extensions due to the technical progress anticipated up to the time of construction must also be taken into account.

4.1 Site N-3.5

Within the framework of updating the SDP 2020, a potential generation capacity of around 420

Megawatt (MW) has been calculated for site N-3.5.

As part of the suitability assessment, no changes arose for site N-3.5 compared to SDP 2020, which facilitate or require an adjustment to the installed generation capacity. An installed generation capacity of 420 MW is specified for site N-3.5.

4.2 Site N-3.6

Within the framework of updating the SDP 2020, a potential generation capacity of around 480 MW has been calculated for site N-3.6.

As part of the suitability assessment, no changes arose for site N-3.6 compared to SDP 2020, which require an adjustment to the installed generation capacity. An installed generation capacity of 480 MW is specified for site N-3.6.

4.3 Site N-7.2

In SDP 2020, the estimated installed generation capacity in site N-7.2 was reduced from around 1,050 MW to 930 MW compared to the potential generation capacity for the site.

According to the grounds of SDP 2020, the transmission capacity of the direct current transmission line NOR-7-2 and the currently available connection capacity at the Büttel grid connection point have to be considered as limiting factors.

According to a response from the ÜNB to SDP 2020 of 20.07.2020, an increase in the transmission capacity of the corresponding grid connection system NOR-7-2 should be guaranteed technically if possible, however the required adjustments would possibly threaten the scheduled completion of the grid transmission system 2027.

³² BT doc. 18/8860 dated 21 June 2016, draft legislation of the CDU/CSU and SPD fractions; draft of legislation to introduce invitations to tender for electricity from renewable

energies and for further amendments to the renewable energies legislation, p. 283

The tender by the transmission network operator to the transmission system, which was ongoing at the time of drafting the suitability assessment, showed a 50 MW higher transmission capacity than anticipated in SDP 2020. With the current information from the transmission network operator, no danger has been identified for the scheduled completion and network connection if there were an increase of 50 MW.

After carrying out the participation procedure as part of the SEA, the specification of the installed generation capacity has been increased correspondingly by this higher transmission capacity to 980 MW. As already found in SDP 2020, the site allows this capacity.

The transmission capacity of the NOR-7-2 direct current transmission line and the currently available connection capacity at the Büttel grid connection point remain limiting factors here.

In addition, in a response to the SDP 2020 of 20.07.2020, the ÜNB submitted that, as a result of an increase in the total generation capacity connected to the Büttel grid connection point of more than 3 GW, the so-called UCTE criterion (ENTSO-E policy 1 regulations) would potentially be breached. Structural measures would be necessary for a connection of more than 3 GW generation capacity in order to separate the grid connections, which do not appear feasible at the Büttel location because of the existing space situation.

With regard to the reduction in estimated installed generation capacity included in SDP 2020 a response were made in the context of the public and public authority participation to the effect that stating that the reduction in installed generation capacity would not utilise the offshore route optimally compared to the capacity potential. The technical reasons stated by the ÜNB are neither sufficient nor relevant. With regard to the stated limit of 3 GW for the Büttel grid connection point, the real facts had not been taken into ac-

count. From a technical perspective, wind energy turbines and wind farms could be removed from the grid if capacity limits were exceeded. This is onshore state of the art and happens as part of the infeed management. From a physical perspective, the response explained the background to the grid design is that the simultaneity factors of the power stations are taken into account. In total, these are less than 1. All the offshore wind energy turbines of a farm almost never deliver the maximum infeed capacity; repairs and faults also lead to a reduction. A factor of 0.85 can be calculated from the ÜNB's offshore report for 2016. In legal terms, electricity grids should create the basis for the safest, user-friendliest, cheapest, most environmentally friendly and efficient supply as possible. Expanding the grid for the "last kWh" is not desired. The expansion of the offshore transmission lines is subject to peak capping. The factor of 0.85 should therefore be reduced further, certainly a 3% cap of the onshore infeed should be planned for an efficient capacity utilisation. After all, because of high simultaneity, offshore wind power in the North German Bight is frequently limited. As generation capacities should be used optimally as much as possible and aligned corresponding to long-term plans, the route capacity should also be optimised at the time of actual implementation. The response suggests using a flexibility clause to allow a subsequent adjustment in the installed generation capacity in order to facilitate an efficient capacity utilisation of the offshore grid transmission systems as defined in EnWG.

According to current information, it is not feared that the total generation capacity connected to the grid connection point Büttel will exceed 3 GW as a result of an increase in the installed generation capacity for site N-7.2 to 980 MW, and therefore that the so-called UCTE criterion (Entso-E policy 1) would be breached. This increase has also been applied, therefore, for a more efficient use of the connection lines. Certainly, according to the response from ÜNB to the SDP

2020 and according to current information from the suitability assessment, a further increase in the installed generation capacity beyond 980 MW would potentially breach the total generation capacity of more than 3 GW connected to the Büttel grid connection point, the so-called UCTE criterion (Entso-E policy 1 regulations).

In addition, the goal of expanding the onshore grid is fundamentally different from that of expanding the grid in order to connect offshore wind energy turbines. In contrast to onshore measures, which serve a safe, needs-based and reliable grid, planning offshore transmission systems solely serves the expansion of group connections in order to develop generation installation in the form of offshore wind farms (BNetzA, "Demand assessment 2019-2030 – Confirmation of the grid development plan, electricity", p. 73). The information about the simultaneity factors also refers to a grid (site). The factor of 0.85 cannot be comprehended for the point-to-point transmission line, to which a single offshore wind farm is connected. With regard to capping generation peaks as well, other criteria apply to the connection of offshore wind energy turbines compared with the "onshore" grid expansion. Additionally, the technical design of offshore transmission capacities regularly takes into account reference load profiles and not, for example, a permanent infeed of the nominal capacity as verification of the expected maximum sediment warming. In order to prevent potential impacts on the marine environment as a result of cable-induced sediment warming, this should amount to a maximum of 2 K.

In view of s. 10 (3) WindSeeG, especially with regard to the tender of the site, an initial formulation is not possible. According to s. 10 (3) WindSeeG, the installed generation capacity in the respective site is calculated in order to determine the proportion of the site in the tender volume. The grounds of the law speak of concretising the expected installed generation capacity specified in the Site Development plan.

But even without a corresponding opening, the most efficient capacity utilisation possible of the grid transmission system is generally possible through "overplanting": According to the official grounds to s. 24 (1) No. 2 WindSeeG and the planning principle (4.4.2.4) on the deviation of the actual installed generation capacity of SDP 2020, it is possible for the project sponsor to install additional turbines exceeding the allocated grid transmission capacity, provided the planning approval decision allows this. As a result, an efficient capacity utilisation of the transmission line and a compensation for repair cases is possible. The number of wind energy turbines to be installed in the site and, if applicable, a generation capacity exceeding the assigned grid transmission capacity, is calculated within the framework of the planning approval process.

The wreck located in site N-7.2 does not require a further reduction in the installed generation capacity. As a result of the required distances between the individual wind energy turbines and the reduction in installed generation capacity to 980 MW because of the limited capacity of the grid transmission, there is sufficient space for the installation of the wind energy turbines, so that a further reduction in the installed generation capacity is not necessary.

For site N-7.2 therefore, an installed generation capacity of 50 MW higher than the generation capacity expected to be installed according to SDP 2020 has been calculated within the framework of the suitability assessment. At the same time, the determination of the installed generation capacity corresponds to the capacity of site N-7.2 stated for information purposes in the SDP of up to 1050 MW.

Consequently, there have not been any changes within the framework of the suitability assessment compared to SDP 2020 for site N-7.2 in the overall view of the increase from 930 MW to 980 MW. An installed generation capacity of 980 MW is specified for site N-7.2.

5 Overall result

If the requirements stated in the suitability determination are fulfilled and complied with, sites N-3.5, N-3.6 and N-7.2 are suitable for the erection and operation

of offshore wind energy turbines and thus for tender by the BNetzA in 2022 and 2023 with the installed generation capacity specified in chapter 4.

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