RWE Renewables Sweden AB

Södra Victoria Wind Farm
Consultation document

Gothenburg, 1 July 2022

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Contents

1. Introduction

This document constitutes RWE Renewables Sweden AB's basis for the delimitation consultation ahead of the forthcoming application for a permit under the Swedish Economic Zone Act (1992:1140) and the Continental Shelf Act (1966:314) for the Södra Victoria offshore wind farm in the south-eastern Baltic Sea, and the associated internal cable network.

The consultation document describes the proposed scope and format of the environmental impact assessment (EIA) that will be attached to the company's future applications for permits under the Swedish Economic Zone Act for the planned wind farm, as well as permits under the Continental Shelf Act for the internal cable network within the wind farm.

1.1 Administrative details

Applicant	RWE Renewables Sweden AB
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1.2 Background

RWE Renewables Sweden AB, formerly E.ON Wind Sweden AB ("RWE" or "the company") started exploring the possibilities for the establishment of a major offshore wind farm in southern Sweden in 2006.

The company initially identified Södra Midsjöbanken, Norra Midsjöbanken and Hoburgs Bank in the Baltic Sea as potential areas for offshore wind power. After investigations, the company concluded that the possibilities for coexistence between environmental assets and wind power were greatest at Södra Midsjöbanken.

In 2007, the company applied for and received permission to investigate seabed conditions at Södra Midsjöbanken and within a cable corridor to the shore under the Continental Shelf Act (1966:314).

Following surveys, in 2012 the company applied for a permit under the Swedish Economic Zone Act (1992:1140) to construct and operate a wind farm at Södra Midsjöbanken, and under the Continental Shelf Act (1966:314) to lay and maintain submarine cables for heavy current. The permit application also covered additional seabed surveys.

In 2016, during the ongoing processing of the company's permit applications, the authorities designated a maritime area of more than 10,500 km^2 in the Baltic Sea as a Special Protection Area (SPA) under the Birds Directive. In 2017, the same

area was designated as a Site of Community Importance under the Habitats Directive (SCI). The Natura 2000 area was named Hoburgs bank och Midsjöbankarna (SE 0330308). The company's proposed area of operation for the wind farm was located entirely outside the designated Natura 2000 area.

The Government, through the Ministry of the Environment, announced in a letter dated 14 March 2019 that RWE's application for a permit under the Swedish Economic Zone Act (1992:1140) had to be supplemented with a permit under Chapter 7, Section 28a of the Environmental Code (i.e. a Natura 2000 permit).

In consultation responses concerning the company's application for a permit under the Swedish Economic Zone Act (1992:1140) and the Continental Shelf Act (1966:314), objections were raised by authorities and experts against locating the facility at the Södra Midsjöbanken offshore reef.

The company has subsequently carried out further studies of the conditions in the area with a view to enabling an optimal location for the Södra Victoria wind farm. Taking into account the conservation assets of the Natura 2000 area, including birds, the Södra Victoria wind farm has been located to the west of the Södra Midsjöbanken offshore bank instead of in the shallows, as in the application for a permit in 2012.

On 10 June 2022, RWE submitted an application under Chapter 7, Section 28 of the Environmental Code for the Södra Victoria wind farm and associated internal cable network to the County Administrative Board of Kalmar, and is initiating further permit processes with this consultation document.

1.3 Consultation document and consultation process

The planned activities are expected to have a significant impact on the environment. This means that a delimitation consultation must be carried out for the specific environmental assessment process in accordance with Chapter 6, Sections 29 to 34 of the Environmental Code.

The project area is located in the south-eastern Baltic Sea and transboundary impacts cannot be excluded. The company is of the opinion that a notification under the Convention on Environmental Impact Assessment in a Transboundary Context (the Espoo Convention) is relevant. An Espoo consultation is administered by the Swedish Environmental Protection Agency in a separate exercise.

The application for a Natura 2000 permit has been preceded by consultations and an Espoo consultation. Some of the comments received from the Espoo consultation were referred by the company to the upcoming review processes under the Swedish Economic Zone Act and Continental Shelf Act. These comments will be included in the forthcoming environmental impact assessment.

This document constitutes a basis for the delimitation consultation and contains information on the location, scope and design of the planned wind farm, identified interests and assets in the area, projected environmental impact and proposals for

the content and format of the EIA. The consultation concerns the examination of permits under the Swedish Economic Zone Act for the construction of the wind farm in the Swedish Economic Zone and the Continental Shelf Act for the laying of internal submarine cables within the wind farm. The consultation document has been prepared in accordance with Section 8 of the Environmental Assessment Ordinance.

The consultation is advertised in local newspapers and in Post- och inrikes tidning. A list of the proposed parties to be consulted can be found in section 13.2. Consultation with Kalmar County Administrative Board, Gotland County Administrative Board and the Geological Survey of Sweden, SGU, is planned to be carried out through a meeting in August 2022. Consultation with other authorities, municipalities and individuals particularly concerned is planned to take place in writing in July and August 2022.

Comments on the formulation of the EIA and information on other matters should be sent to sodravictoria@rwe.com or to RWE Renewables Sweden AB, Box 388, SE-201 23 Malmö.

The comments, facts and questions received during the consultation are an important basis for RWE's work on the project and, together with the results of in-depth studies and inventories, will form the basis for the further design of the project. The forthcoming permit application and associated EIA will be designed and delimited on the basis of what emerges from the consultation.

The consultation will be described in a consultation report attached to the permit application. The consultation report describes how the consultation was carried out, what comments were received and an overview of how the comments were taken into account in the design of the project or what is addressed in the EIA.

2. Legislation and permit processes

2.1 Applicable provisions and delimitation

The whole of the wind power area is located outside Sweden's maritime territory in the Swedish Economic Zone, and permits for the construction and operation of facilities are therefore examined under the Swedish Economic Zone Act (1992:1140). Permits are issued by the Government (Ministry of the Environment).

The submarine cables connecting the wind turbines and transformer substations within the wind farm require permits under the Continental Shelf Act (1966:314). Permits under the Continental Shelf Act are issued by the Government (Ministry of Enterprise). This consultation does not include seabed analyses by means of geophysical or geotechnical surveys of the seabed, which require permits under the Continental Shelf Act.

The laying and operation of export cables which transmit electricity from the wind farm to land require a permit under the Continental Shelf Act, Chapter 11 of the Environmental Code and the Electricity Act (concession). The location of the export cables can only be determined at a later stage of the project. These permits will therefore be examined in separate processes and are not covered by the current consultation. However, a general description of alternative cable routes and connection points is presented in this consultation document in order to provide an overall picture of the project.

The wind farm is located partly within the Natura 2000 area Hoburgs bank och Midsjöbankarna, which means that a special Natura 2000 assessment under Chapter 7, Section 28a of the Environmental Code is required for the construction and operation of the wind farm and the internal cable network. This assessment is taking place in a separate process where consultation has been carried out and the application with the associated EIA has been submitted, ref. no. 5317-2022. The assessment is being carried out by Kalmar County Administrative Board.

2.2 Environmental Impact Assessment

According to the Swedish Economic Zone Act (1992:1140) and the Continental Shelf Act (1966:314), an EIA must be prepared in accordance with the provisions of the Environmental Code for applications for permits under the legislation. A specific environmental assessment must be carried out in order to obtain the right knowledge about the project, to narrow down the investigation and impact assessment to what is essential and to investigate various alternative locations and designs for the planned activity. The specific environmental assessment also aims to obtain information on the conditions for the planned activity, and the effects of these. This information will be used as a basis for decision-making in the planning and EIA process. Delimitation consultations are carried out as part of the specific environmental assessment: see section 1.2.

This delimitation consultation sets out the changes to the environment that are likely to occur and the assets that these changes may affect. By analysing the assets and aspects that may be affected at an early stage, the relevant supporting material in the form of inventories and studies can be performed at the right level. Early analysis of the anticipated environmental impact also provides an overall picture of the project's potential impacts, and adjustments in respect of wind farm design, cable routing and protection measures may be implemented.

An overall assessment of the impact of the wind farm and its internal cable network is appropriate, even if the assessment is carried out under different legislation (Swedish Economic Zone Act and Continental Shelf Act). Therefore, a design will be sought such that permit applications under different parts of the legislation can relate to specific parts of the EIA.

2.3 Review

When the application with the EIA and technical description has been submitted to the Government, a update and consultation procedure will be initiated, during

which it will also be possible to submit comments and observations on the planned activities.

3. Activity description

3.1 Location

The planned Södra Victoria wind farm is located in the south-eastern Baltic Sea, about 70 km south-east of the southern tip of Öland, about 90 km north-west of the northernmost coast of Poland and about 130 km east of Bornholm. The wind farm is located outside Sweden's territorial boundary and within the Swedish Economic Zone. Figure 1 shows the location of the Södra Victoria wind farm.

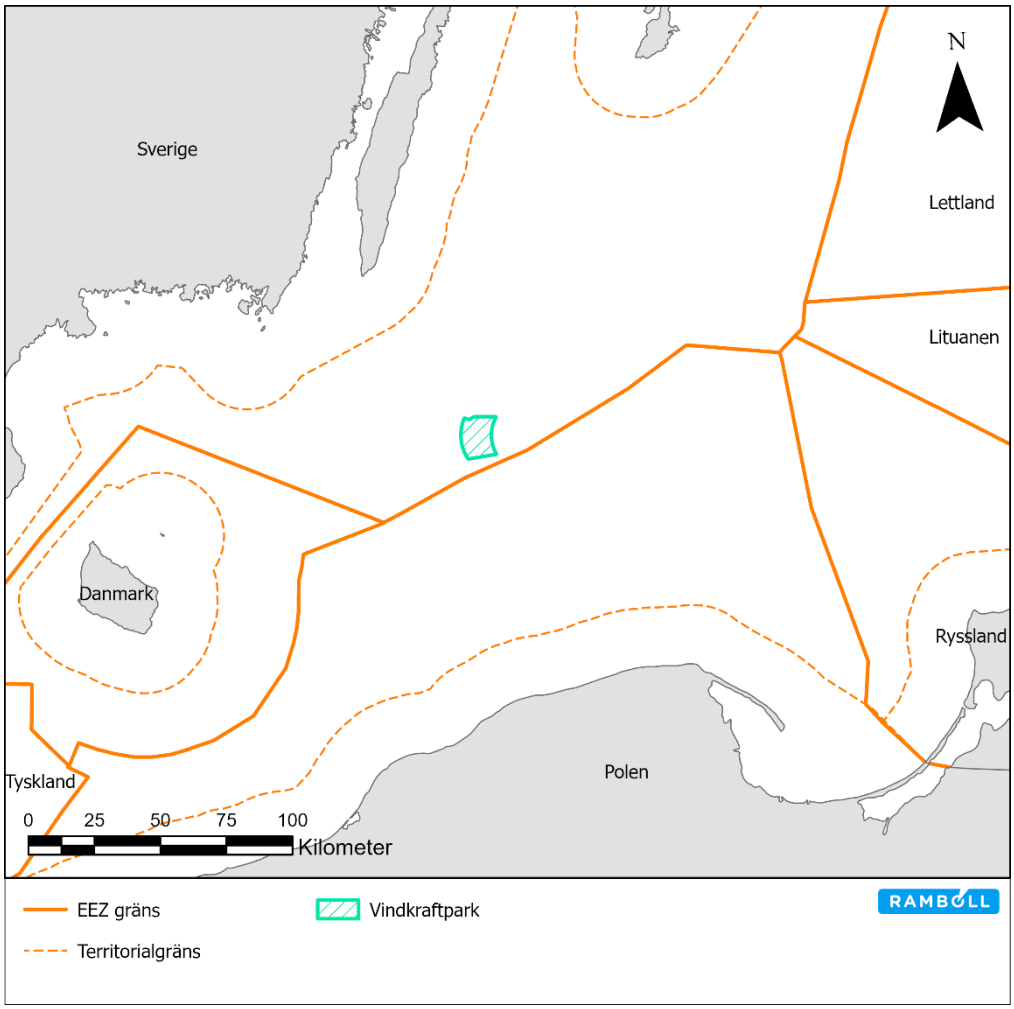

Figure 1. Location of the planned Södra Victoria wind farm.

The area of the planned wind farm is 174 km^2. The depth varies between about 25 and 36 m. In the eastern part of the wind farm, there are small areas at a depth of about 23 m. Figure 2 shows the approximate depth and coordinates of the outer boundary of the planned wind farm.

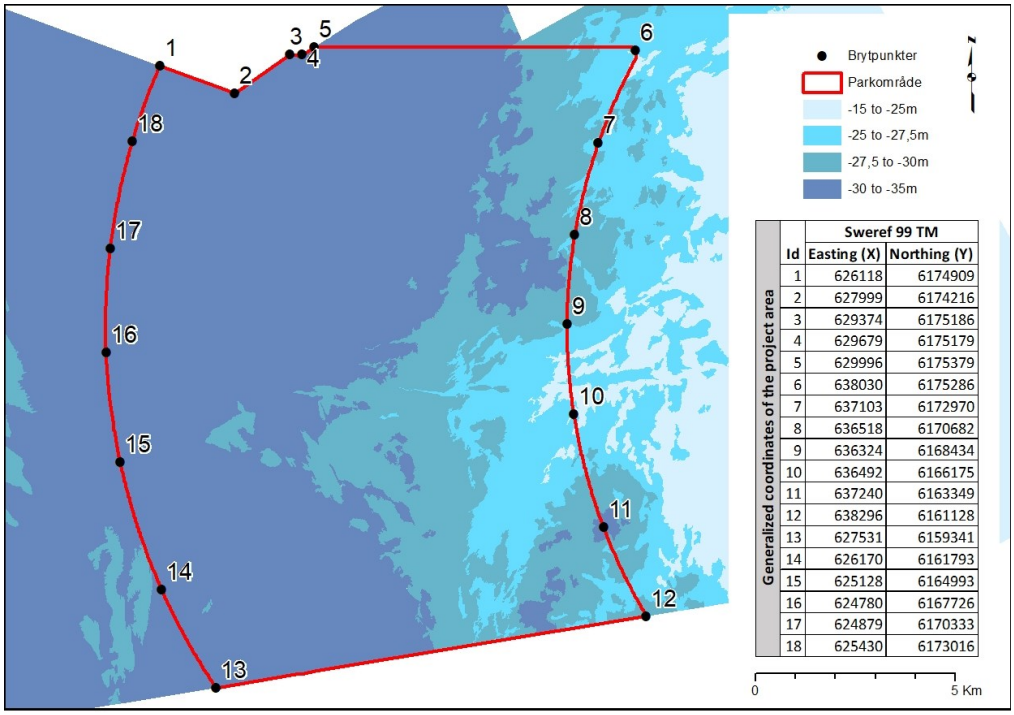

Figure 2. The approximate depth and coordinates of the outer boundary of the planned Södra Victoria wind farm.

3.2 Design

The final choice of wind turbine and its design has not yet been determined due to the rapid technological development in offshore wind power. However, Table 1 shows a worst case scenario (WCS) design for the parameters that are planned to form the basis of the forthcoming EIA.

Table 1. Summary technical parameters for the Södra Victoria wind farm.

Parameters	
Nameplate capacity	1500–2000 MW
Area	174 km^2
Number of wind turbines, max.	100
Height of wind turbines (including rotor blades), max.	295 m
Rotor diameter, max.	270 m
Rotor height above sea level	20 m
Shortest distance between wind turbines:	Approx. 1000 m
Internal cable network	Approx. 150 km
Transformer substations	1-2

The final location of individual turbines within the wind farm area will be determined in connection with the detailed design of the wind farm and cannot be specified at this stage. The location of individual wind turbines is influenced by

parameters such as wind conditions, water depth, geology, environmental assets, optimisation of the route of the internal cable network and the size of the wind turbines. Figure 3 shows an example layout involving 100 wind turbines, a transformer substation and the internal cable network.

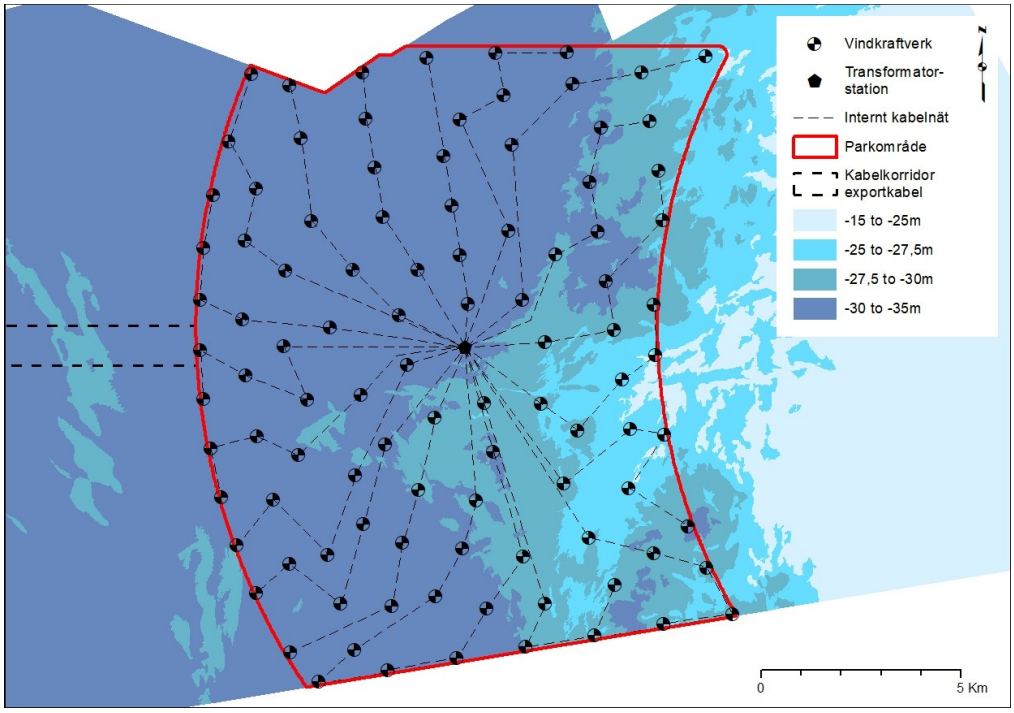

Figure 3. Example layout of the planned wind farm with 100 wind turbines, a centrally located transformer substation and internal cable network.

3.3 Technical description

3.3.1 Design and technology

3.3.1.1 Wind turbines

A wind turbine consists of four main components; a foundation, a tower, a nacelle and three rotor blades: see Figure 4. The tower is made of steel and is mounted on a foundation anchored to the seabed. Foundations are described in section 3.3.1.3. The rotor blades are mounted on a hub located on the nacelle. The nacelle, which is located at the top of the tower, houses the generator, among other things. The generator supplies power to the transformer via the internal cable network. After the transformer, the electrical energy is transferred to the export cables.

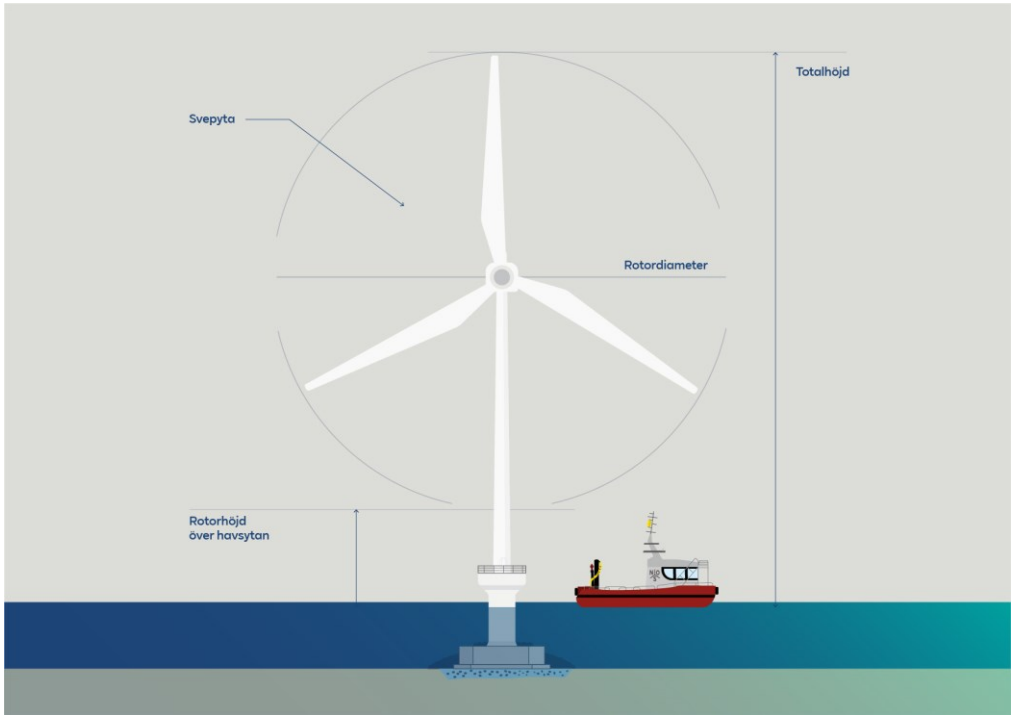

Figure 4. Outline drawing of a wind turbine. (Source: RWE)

The wind turbines are planned to be a maximum of 295 m high, with a maximum rotor diameter of 270 m and a minimum rotor height above sea level of 20 m at high tide ("Highest Astronomical Tide" – HAT).

3.3.1.2 Transformer substation

The transformer substations are the nodes between the wind turbines and the main grid. At the transformer substations, the electricity generated in the wind turbines is transformed to a higher voltage level, from about 66-130 kV AC to about 220 kV AC or 500 kV DC, depending on the choice of technology. The number of export cables can be reduced and energy losses reduced by converting to a higher voltage level.

Transformer substations typically consist of two parts; a foundation and the station itself. The station houses switchgear and transformers, as well as an auxiliary power unit. The auxiliary power unit consists of diesel-powered generators that supply 400 V power to the low-voltage installation on the platform in the event of loss of the primary power supply. There are mooring spaces for boats on the platform. The platform may be equipped with a helicopter pad and an accommodation module for personnel.

The size of the platforms, depending on whether they handle AC or DC power, is shown in Table 2. The final design and size of the transformer substations may differ slightly from these typical examples in Table 2.

Table 2. Size of transformer substations (example) depending on whether they handle AC or DC power.

Transformer substation	Length x width x height:
Direct current	80 x 35 x 35 m
Alternating current	45 x 30 x 15 m

The transformer substations are equipped with collection systems for any oil spills and leaks.

3.3.1.3 *Foundations*

Wind turbines and transformer substations are mounted on foundations that are anchored to the seabed. The most suitable foundations depend on factors such as foundation conditions, which may vary within the planned wind farm area. This will be clarified during detailed design.

Possible options for the foundation of wind turbines are gravity foundations and the piled foundation types: monopile foundations and truss foundations; see Figure 5. Possible foundation options for the transformer substations are truss foundations and gravity foundations. Monopile foundations are not considered a relevant option for transformer substations.

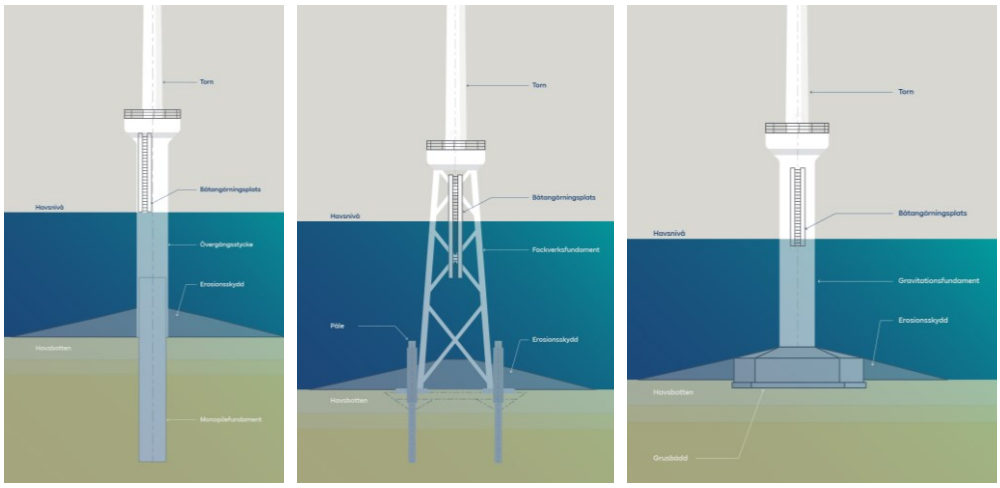

Figure 5. Types of foundations that may be used for the planned wind farm. From left to right; monopile foundations, truss foundations and gravity foundations. (Source: RWE)

Monopile foundations

The monopile foundation is a steel structure that is anchored to the seabed by means of piling. Steel monopile foundation is a tried and tested technology that is traditionally preferred for offshore wind farms as it is well established in the market and is economically advantageous. The monopile foundation consists of two parts; a steel cylinder that is driven into the seabed, and a transition piece that is mounted on top of the cylinder. The tower is attached to the foundation by means of the transition piece. Monopile foundations are generally considered to be suitable for water depths up to about 40 m.

Truss foundations
A truss foundation for a wind turbine consists of a prefabricated network structure made up of steel tubing with three to four legs anchored by three or four piles that are driven into the seabed. Truss foundations with four legs, as opposed to three legs, are the most likely to be used within the planned wind farm. In stormy conditions, the force on each individual pile can be very high. Ballast can be installed in the piles to counteract this force. Truss structures are commonly used in the oil and gas industry. The foundations are generally considered suitable for water depths up to 60 m.

Truss foundations for a transformer substation typically consist of a steel structure with up to eight supporting legs, with a diameter of about 2.5-3.5 m per leg. Cable ducts for electricity and fibre cables run between the seabed and the switchgear and are designed to protect the cables from external influences.

Gravity foundations
Gravity foundations consist of very large concrete structures that hold wind turbines and transformer substations in place with their large size and weight. Gravity foundations are used, for example, at RWE's existing Kårehamn wind farm off Öland, and are generally considered suitable for water depths up to about 40 m.

The construction of gravity foundations does not require deep countersinking in the seabed and, after possible preparatory preparation of the seabed, may be suitable for rocky beds and boulder-rich terrain, as well as for stable (well-packed) sediments. Gravity foundations, on the other hand, are less suitable on beds consisting of continuous loose sediment such as clay.

There are two possible concepts if the transformer substations are established on gravity foundations: see Figure 6. Either gravity foundations are supplied to the site complete with ballast installed in the bottom part, Or gravity foundations are supplied without ballast, but in the form of a bottom part with a "balcony", see Figure 6. The balcony is filled with ballast when the foundation is in place.

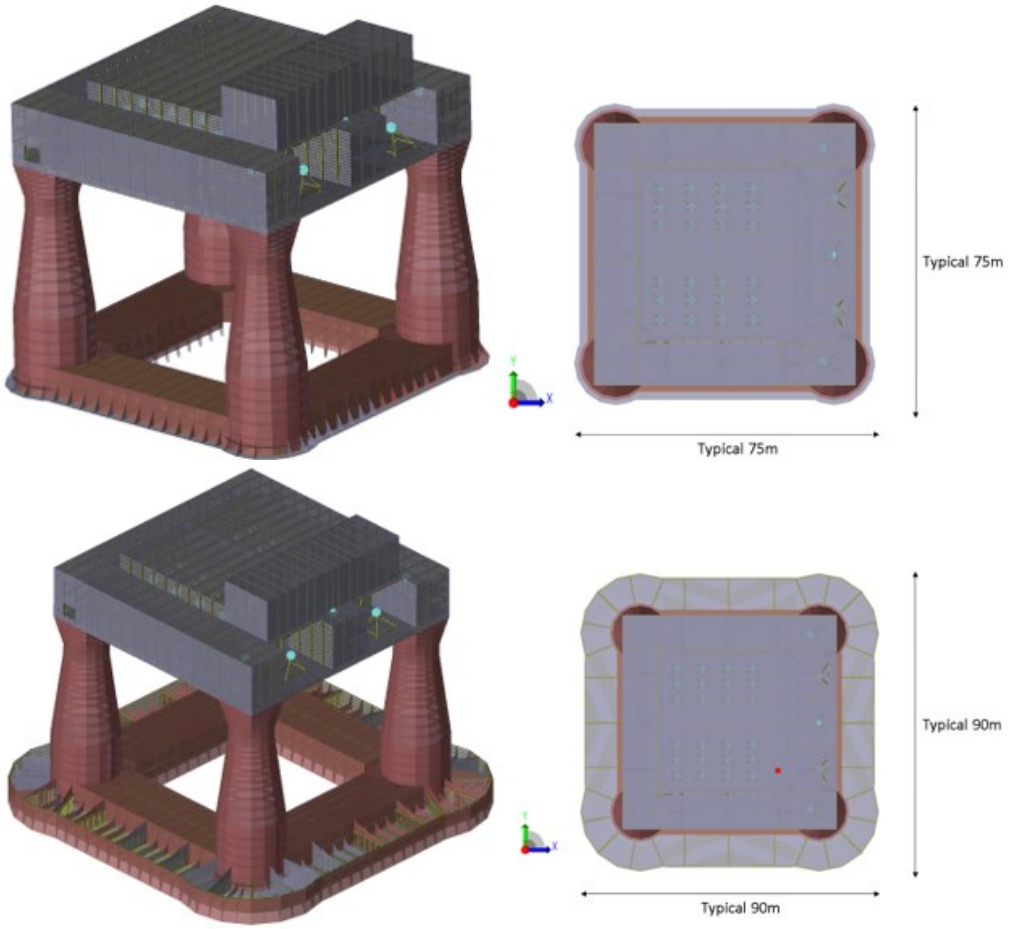

Figure 6. There are two possible concepts for the gravity foundation; supplied complete with ballast placed in the bottom part (top picture) or supplied without ballast in the form of a bottom part with a "balcony" (bottom picture). The foundation is put in place and then the "balcony" is filled with ballast. (Source: RWE)

3.3.1.4 Erosion protection

Depending on the nature of the seabed, there is a risk of erosion around installed foundations due to sea currents. Erosion can result in undermining of foundations, which causes them to lose their anchorage to the substrate material, which in a worst case scenario can lead to failure. Erosion of the seabed can be prevented by installing erosion protection around the foundations.

Erosion protection usually consists of a gravel or stone layer and boulders placed around the foundation. Alternative erosion protection measures include gabions or nets filled with material excavated from the seabed during construction works, which are placed around the foundations.

Gravity foundations almost always require erosion protection. Monopile and truss foundations may also require erosion protection, but to a lesser extent than gravity foundations. Truss foundations require greater amounts of erosion protection than monopile foundations due to the many legs in the truss structure.

The need for and extent of erosion protection for foundations in the planned Södra Victoria wind farm depends not only on the foundation technology, but also on the susceptibility of the seabed to erosion, which can vary within the wind farm area. The detailed design of the wind farm will determine whether erosion protection is needed around all or just some of the foundations and how extensive the erosion protection needs to be. As a starting point for the environmental assessment, it is assumed that erosion protection will be installed around all foundations.

Wind turbines
Erosion protection with a maximum outer radius equivalent to five times the diameter of the foundation may need to be installed for monopile foundations and truss foundations for wind turbines. Erosion protection is placed about 15 m from the gravity foundations in the case of gravity foundations for wind turbines. If the surface for the gravity foundation needs to be dredged in order to level the seabed, it will be placed 10-20 m outside the edge of the erosion protection.

Transformer substation
Depending on the nature of the seabed, erosion protection for the truss foundations belonging to the transformer substations may require construction of erosion protection in the form of a rock bed on which the foundations and power cables can rest. The thickness of the bed is estimated to be 1-2 m and extends at most about 15 m beyond the foundation. Depending on the nature of the seabed, it may also be necessary to construct erosion protection for the gravity foundations belonging to the transformer substations. The bed may extend a maximum of about 15 m beyond the foundation. If dredging is required, the dredged material will be placed around the foundation, outside the erosion protection. Dredged material may extend about 20 metres beyond the erosion protection.

3.3.1.5 Internal cable network
The internal cable network will probably consist of high-voltage AC cables for approx. 66 – 130kV. Higher voltage levels could also be used. The total length of the cable network is estimated to be about 150 km. This length depends on factors such as the final number of wind turbines and transformer substations, the voltage level of the cable and the layout of the wind farm.

3.3.1.6 Export cables
The export cables are not included in this consultation, but are presented in summary to provide a better overall picture of the project.

Power will be transferred from the transformer substations at the planned wind farm to the main grid via export cables. Three different connection options are being examined for the Södra Victoria wind farm:

- The export cables will be laid between the transformer substations and a connection point on the Swedish mainland.
- The export cables will be laid between the transformer substations and a future offshore connection point.

- The export cables from the transformer substations will be connected to the existing NordBalt power cable, which is adjacent to the planned wind farm.

Regardless of the connection option, the cables will be laid within the cable corridor shown in Figure 7. The exact routing of the cables within the corridor as well as their landfall will be examined in detail at a later design stage. When connecting to the NordBalt cable, the existing cables will be respliced in a suitable location and installed within the export cable corridor to the transformer for the planned wind farm.

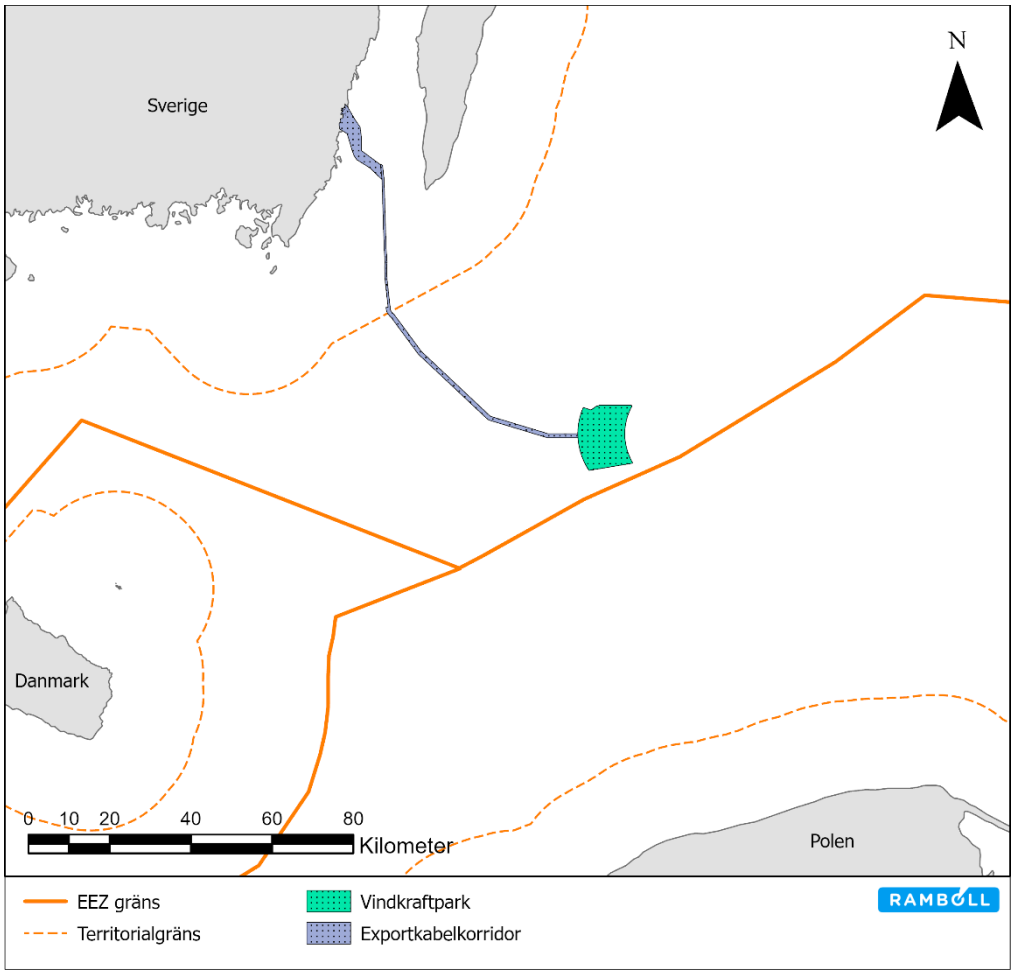

Figure 7. The planned wind farm including the cable corridor for the export cable to land.

The power transmission from the wind farm is either by high-voltage alternating current (HVAC) cables or high-voltage direct current (HVDC) cables. The number and design of the cables will depend on the selected technology (HVAC or HVDC) and the voltage level of the cables. A decision on the choice of technology will be made at a later stage following coordination with Svenska Kraftnät, so both technologies are possible alternatives.

3.3.2 Planned work

3.3.2.1 Construction

The construction of the planned wind farm is planned to take about 2-4 years.

Foundation

The project includes the construction and installation of foundations, wind turbines, transformer substation and internal cable network.

Monopile and truss foundations do not usually require any ground preparation or other preparatory work apart from the clearing of any boulders and suchlike. The foundations are towed to the site and set out using a crane from a construction vessel. The installation work can be roughly divided into the following activities:

- Docking of vessels and placement of foundations in an upright position for piling
- Installation of soundproofing measures
- Piling work by means of pile driving, supplemented by drilling if necessary (giving rise to drill cuttings)
- Removal of soundproofing measures
- Transfer to a new position

After piling, the transition piece is mounted on the monopile or truss foundation, after which any erosion protection is constructed.

Gravity foundations are constructed in several steps. If necessary, the seabed at the foundation site will be prepared by means of dredging to remove any loose sediment and level the surface of the seabed. Excavated sediments will be deposited on the seabed adjacent to the dredged area or used to cover the internal cable network. A bed with a base course made up of crushed rock is usually laid on the dredged surface. The gravity foundations, in the form of concrete caissons, can be transported to the wind farm area by barge. Alternatively, the foundations may be designed as floating/semi-floating and towed to the wind farm area. Erosion protection is built around the foundations after the gravity foundations have been installed.

Internal cable network

The internal cable network is constructed when the foundations have been installed. Installation is carried out using a cable-laying vessel from which the cable is laid on the seabed. The cable is then anchored and stabilised on the seabed using rocks, concrete mattresses or similar at regular intervals. The installation may need to be preceded by potential clearing of boulders and suchlike on the seabed within the corridor where the internal cable is to be placed. The internal cable network is planned to avoid laying it on reefs. If this is not possible on shorter sections, the reef will be raised to one side and repositioned with the same orientation after the cable is laid down.

Wind turbines and transformer substation

There are several alternative procedures for the installation of wind turbines:

- The rotor is assembled on land and transported to the construction site and mounted on the erected tower and nacelle
- The blades are mounted, one by one, on the erected nacelle on site

The parts are transported by ship to the planned wind farm. Towers and nacelles can be installed on the foundations by various barge solutions, or by vessels using support legs to allow safe lifting. The installation work is mainly carried out above the surface of the water.

The transformer substations are constructed in a similar way to the wind turbines. The transformer substation is lifted into place after a foundation is installed.

Export cable
A number of different methods may be used to lay the export cables from the transformer substations to a connection point on land or at sea. The choice of method (subsea ploughing/excavation and milling) will depend on local seabed conditions, and different methods may be used for different parts of the cable network if seabed conditions so require. The company believes that any milling will only need to be carried out in exceptional cases on certain sections, if conditions so require.

The export cables are installed at a depth of about 1-2 m into the seabed to protect them from external influences and from damage caused by fishing gear and anchors, for example. The minimum depth is one metre. If this cannot be achieved, or if there are locations where excavation may be difficult, the cable may be placed on the seabed and anchored using crushed rock.

3.3.2.2 Operation
Regular inspection and maintenance of the various parts of the planned wind farm will take place during the operational phase.

The transformer substations are unlikely to be staffed 24 hours a day, but will be visited regularly by staff for inspection and maintenance. Transportation of personnel to and from the wind farm area be by ship, and possibly by helicopter. Personnel responsible for inspection and maintenance may stay in an accommodation area on the transformer platform or on vessels. Site conditions such as wind are monitored by means of survey buoys.

The large number of wind turbines and other equipment means that there will be constant inspection of the wind farm throughout its lifetime, which is estimated to be at least around 35 years.

3.3.2.3 Decommissioning
The decommissioning phase is further into the future and methods may be different when decommissioning is to be implemented. The decommissioning phase and its effects will be described based on current practices, techniques and methodologies, but these may be subject to change when decommissioning is imminent.

Decommissioning and its possible consequences will be outlined in the EIA

4. Options

An EIA must include a statement of options. Alternatives to a wind farm as large as the planned Södra Victoria wind farm are hard to find on land, which is why only offshore options are being investigated. Furthermore, RWE intends to connect the electricity produced to electricity area 4, which means that only sites at a reasonable distance from connection points in these areas are considered.

4.1 Main option

The main option involves locating and designing the wind farm in general conformity with the description in chapter 3. The fully developed wind farm will have a total nameplate capacity of about 1500-2000 MW. The construction work is expected to take about 2-4 years.

Impacts, effects and consequences will be assessed during construction and operation and for decommissioning. A preliminary assessment has been carried out for each aspect under chapter 6.

4.2 The zero option

The zero option means that no wind farm will be built in the area and thus no renewable energy will be produced from this area. As a result, the national interest in wind energy is not taken into account and electricity generation needs to be relocated.

The zero option is generally taken to mean that there will be no impact on natural assets and other interests in the area. However, similar impacts may occur in another location where energy production is constructed. The zero option will be described in the EIA.

4.3 Alternative location

RWE has commissioned a localisation survey, identifying and comparing alternative locations for an offshore wind farm in the southern Baltic Sea (Sweco, 2022c). The alternatives have been evaluated in terms of technical conditions, impact on protected areas and natural assets, and impact on other interests. Parameters taken into account include the size of the project area, sea depth, wind speed, electricity connection and coexistence with nature conservation and other interests, such as shipping, defence and the fishing industry. Alternative locations will be described in the EIA.

4.4 Alternative design

Alternative designs could, for example, include different ways of laying the foundations for the turbines or different cable installation methods. Foundations could be monopile foundations, truss foundations or gravity foundations, for example.

An alternative design for the wind farm will be presented in the EIA.

5. Plan conditions

The Swedish Government established Sweden's marine plans for the Gulf of Bothnia, the Baltic Sea and the North Sea in February 2022 (Havs- och vattenmyndigheten, 2022b). The purpose of the marine plans is to define clear goals for the future that Sweden wishes to achieve with regard to the sea and contribute to sustainable development. The plans show the Government's overall view of how the sea should be used, and are intended to guide authorities, municipalities and courts when they make decisions, plan or grant permits for activities at sea.

The area of the Södra Victoria wind farm coincides with areas Ö248 and Ö245 in the marine plan: see Figure 8. Area Ö248 (Södra Midsjöbanken) is a survey area for energy extraction where special consideration must be given to the interests of total defence and the area's high conservation values. Area Ö245, the Natura 2000 area Hoburgs bank och Midsjöbankarna, has "nature" use. The planned Södra Victoria wind farm, which is located in its entirety within an area of national interest for wind energy – see Figure 8 – is mainly located outside and west of area Ö248.

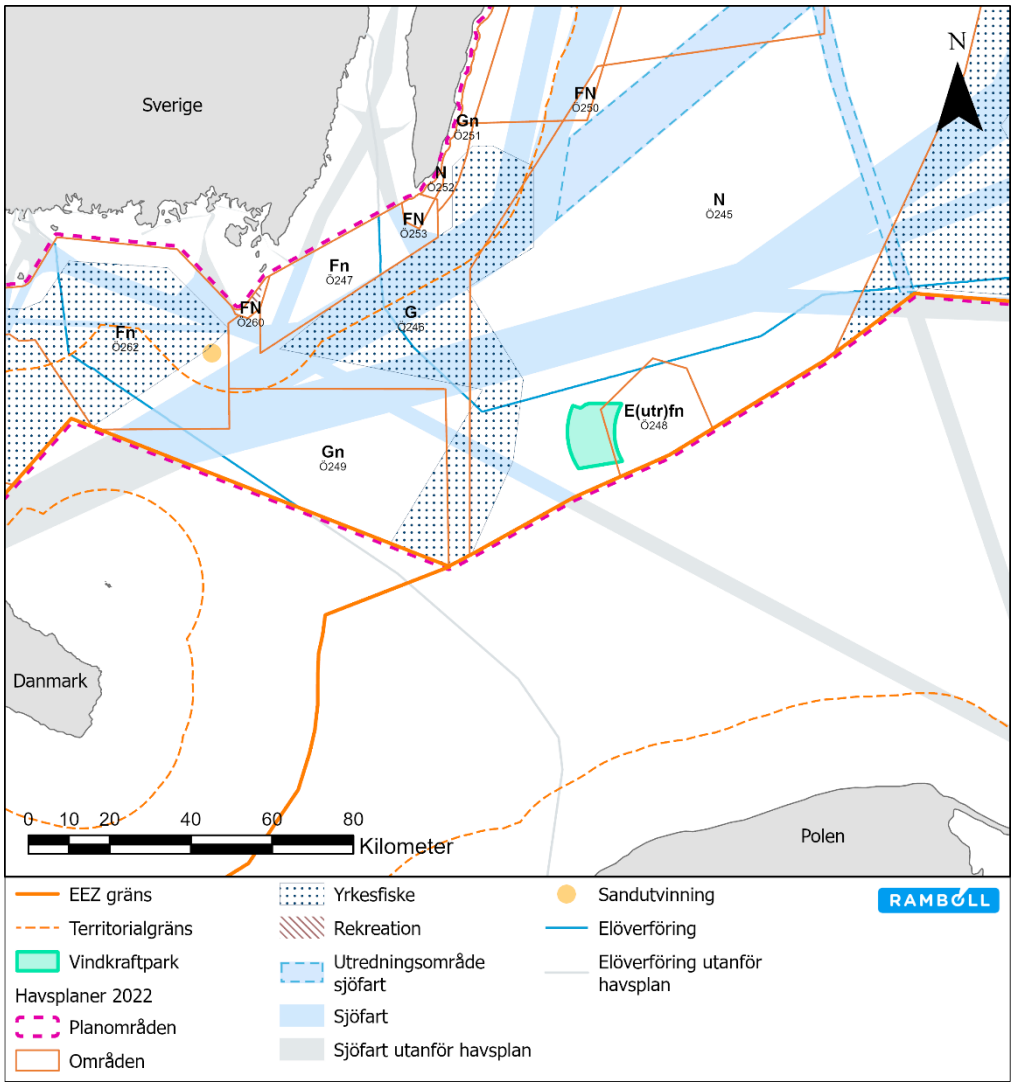

Figure 8. Plan map showing south-eastern and southern Baltic Sea areas (Havs- och vattenmyndigheten, 2022d).

The part of Södra Midsjöbanken located within the Polish Economic Zone, and the immediate surrounding sea area, are areas for exploration and extraction of minerals and production of renewable energy according to the Polish maritime plan. Fairways designated for transport pass to the south and south-west of Södra Midsjöbanken.

6. Wind farm – environmental conditions and boundaries

6.1 National interests and area protection

6.1.1 National interest: wind energy

The Swedish Energy Agency has been tasked with identifying areas on land and at sea with particularly good wind conditions that are of national interest for wind

energy in accordance with Chapter 3, Section 8 of the Environmental Code. The national interest claims specified have been devised with security of supply and an energy system perspective in mind (Energimyndigheten, 2022).

6.1.1.1 *Baseline description*

The planned wind farm in its entirety is located within an area of national interest for wind energy in accordance with Chapter 3, Section 8 of the Environmental Code Figure 9.

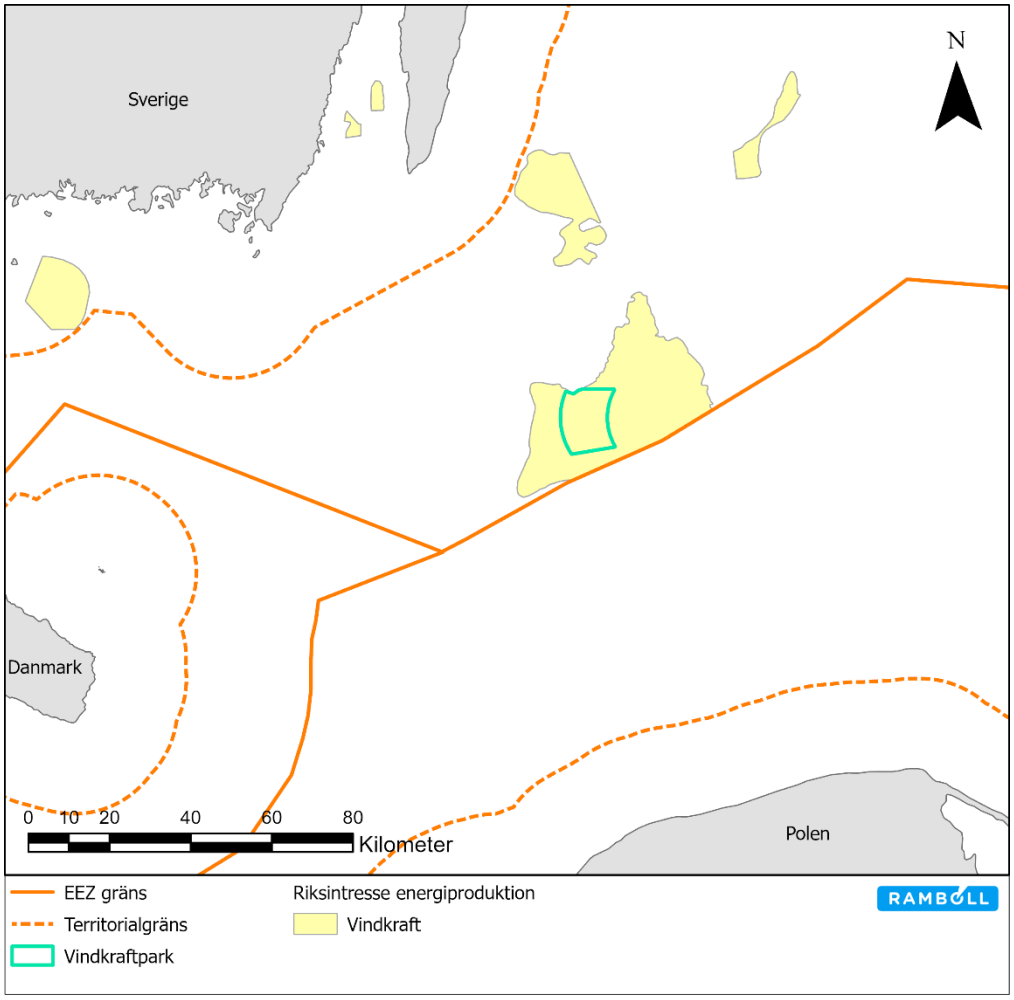

Figure 9. National interest for wind energy (Energimyndigheten, 2022).

6.1.1.2 *Possible impacts*

Establishment of a wind farm within the designated national interest means that the purpose of the national interest is fulfilled.

6.1.1.3 *Delimitation*

Impacts on designated national interests for wind energy will be investigated and assessed further in the forthcoming EIA.

6.1.2 National interest: nature conservation and nature reserves

Areas of national interest for nature conservation represent the main features of Swedish nature and are the most valuable areas from a national perspective. The Swedish Environmental Protection Agency is responsible for identifying areas that are deemed to be of national interest for nature conservation in accordance with Chapter 3, Section 6 of the Environmental Code (Naturvårdsverket, 2005).

County administrative boards and municipalities can establish nature reserves. Nature reserves are created in order to preserve biodiversity, maintain and conserve valuable natural environments and provide areas for outdoor recreation. An area that is needed in order to protect, restore or recreate valuable natural habitats or biotopes for species worthy of protection may also be declared a nature reserve (Naturvårdsverket, 2022).

6.1.2.1 Baseline description

The nearest designated national interest is located about 65 km north-west of the wind farm and includes the southern cape of Öland.

6.1.2.2 Possible impacts

No impacts on the designated national interest for nature conservation are expected because of the large distance from the planned wind farm.

6.1.2.3 Delimitation

Designated national interests for nature conservation will be reported in the forthcoming EIA, but no assessment is proposed as no impacts are foreseen.

6.1.3 National interest: cultural environment

The Swedish National Heritage Board is responsible for the national coordination of national interests for cultural conservation in accordance with Chapter 3, Section 6 of the Environmental Code. Farming environments, town centres, older farming landscapes and post-war buildings are examples of national interests for cultural conservation. The national interest areas should collectively reflect the history of the whole country by means of clear examples of different historical activities and processes (Riksantikvarieämbetet, 2021).

6.1.3.1 Baseline description

The nearest designated national interest is located approximately 65 km north-west of the wind farm and includes the southern cape of Öland.

6.1.3.2 Possible impacts

No impacts on the designated national interest for cultural conservation are expected because of the large distance from the planned wind farm.

6.1.3.3 Delimitation

Designated national interests for cultural conservation will be reported in the forthcoming EIA, but no assessment is proposed as no impacts are foreseen.

6.1.4 National interest: outdoor recreation

For an area to be of national interest for outdoor recreation, it must have high outdoor recreational values from a national perspective based on specific natural

and cultural qualities, variations in the landscape and ease of access for the general public. The Swedish Environmental Protection Agency is responsible for identifying areas that are deemed to be of national interest for outdoor recreation in accordance with Chapter 3, Section 6 of the Environmental Code (Naturvårdsverket, 2005).

6.1.4.1 Baseline description

The nearest designated national interest is located approximately 65 km north-west of the wind farm and includes the southern cape of Öland.

6.1.4.2 Possible impacts

No impacts on the designated national interest for outdoor recreation are expected because of the large distance from the planned wind farm.

6.1.4.3 Delimitation

Designated national interests for outdoor recreation will be reported in the forthcoming EIA, but no assessment is proposed as no impacts are foreseen.

6.1.5 National interest: total defence

National interests for the military component of total defence include national interests that can be disclosed openly and national interests that cannot be disclosed openly for reasons of defence secrecy. The national interests of the Swedish Armed Forces include firing and training ranges, airports, naval training areas, technical systems and facilities. Areas that constitute national interests in accordance with Chapter 3, Section 9 of the Environmental Code for the military component of total defence are areas that are deemed to have nationally important values and qualities for the protection of Sweden (Försvarsmakten, 2020).

6.1.5.1 Baseline description

The wind farm is not adjacent to any known Swedish defence area. The TM0306 naval training area is situated closer to land, about 63 km north-west of the wind farm.

6.1.5.2 Possible impacts

No possible impacts can be foreseen for designated national interests for total defence that are not disclosed openly. RWE intends to consult and maintain dialogue with the Swedish Armed Forces.

6.1.5.3 Delimitation

Delimitation for national interests for total defence will need to take place in consultation with the Swedish Armed Forces so the necessary investigations can be carried out. If effects are deemed to be capable of occurring on designated national interests for total defence, these will be reported in the forthcoming EIA. No possible impacts are expected for designated national interests for total defence that are disclosed openly.

6.1.6 National interest: commercial fishing

Areas of national interest for commercial fishing are designated in the marine area, lakes and watercourses, and for fishing ports. The Swedish Agency for

Marine and Water Management provides information on areas of national interest for commercial fishing in accordance with Chapter 3, Section 5 of the Environmental Code.

6.1.6.1 Baseline description

About 12 km west of the wind farm, there is a fishing area of national interest for commercial fishing known as "Södra Öland/Utklippan", with the designation RI YF 8 (Havs- och vattenmyndigheten, 2020): see Figure 10.

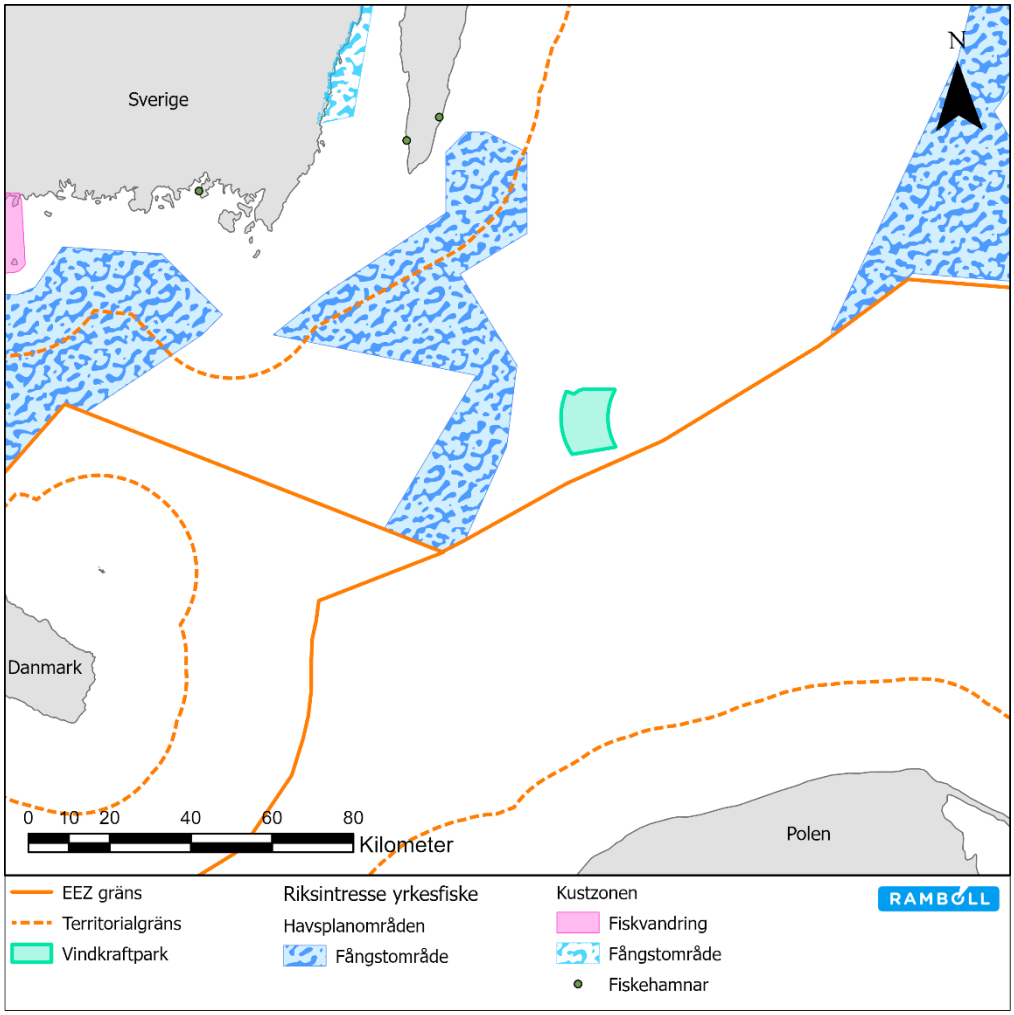

Figure 10. National interest: commercial fishing (Havs- och vattenmyndigheten, 2020).

6.1.6.2 Possible impacts

Possible impacts on the fishing area during construction, operation and decommissioning are described in section 6.13, and these are the effects that are also considered likely to occur for the designated national interest for commercial fishing.

6.1.6.3 Delimitation

The impact of construction, operation and decommissioning on the national interest for commercial fishing will be further investigated and assessed in the forthcoming EIA.

6.1.7 **National interest: shipping and fairways**

The Swedish Transport Administration is responsible for making national interest claims for modes of transport, including ports and fairways, in accordance with Chapter 3, Section 8 of the Environmental Code.

6.1.7.1 Baseline description

There are two deep-water fairways north of the wind farm, "Gedser-Stora Björn" and "Ölands södra udde-Finska viken", where a total of about 40,000 vessels pass each year. This includes cargo vessels, tankers and passenger vessels. The "Utklippan-Gdansk (Poland)" fairway runs south-west of the wind farm.

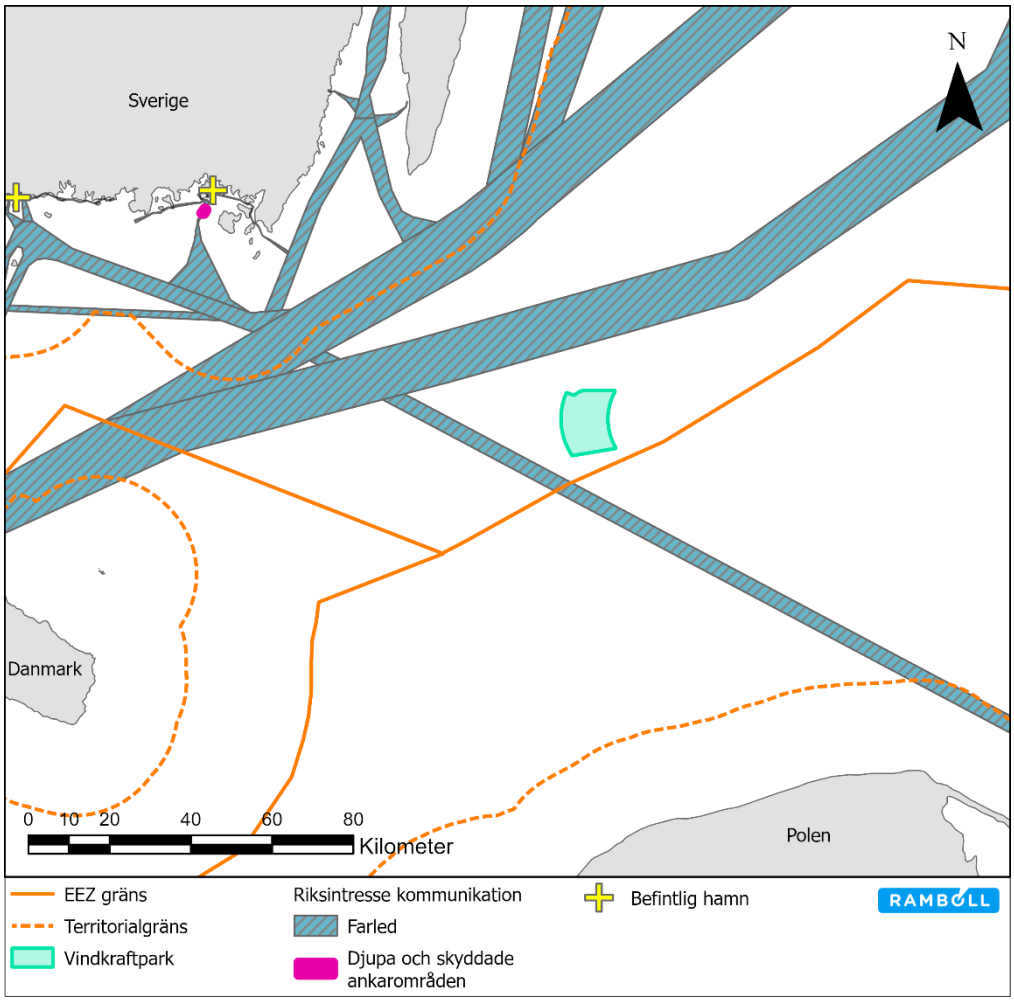

Figure 11. National interest: shipping and fairways (Trafikverket, 2021).

6.1.7.2 Possible impacts

The wind farm, which is entirely outside the fairways described above, does not affect the national interest for communications (shipping). Different types of vessels related to the project will operate in the area of the planned wind farm during the construction and decommissioning phases, and this could affect nearby shipping.

6.1.7.3 Delimitation

The impact of the construction, operational and decommissioning phases on shipping and fairways will be further investigated and assessed in the forthcoming EIA.

6.1.8 Natura 2000

The Natura 2000 network of protected areas in the EU was set up in order to halt the extinction of animals and plants and prevent the destruction of their habitats. Natura 2000 areas are designated pursuant to two EU Directives: the Birds Directive and the Habitats Directive. Areas that are designated to comply with the Birds Directive are known as SPAs (Special Protected Areas), while areas designated under the criteria in the Habitats Directive are known as SCIs (Sites of Community Importance).

6.1.8.1 Baseline description

Figure 12 shows Natura 2000 areas in and around the planned wind farm.

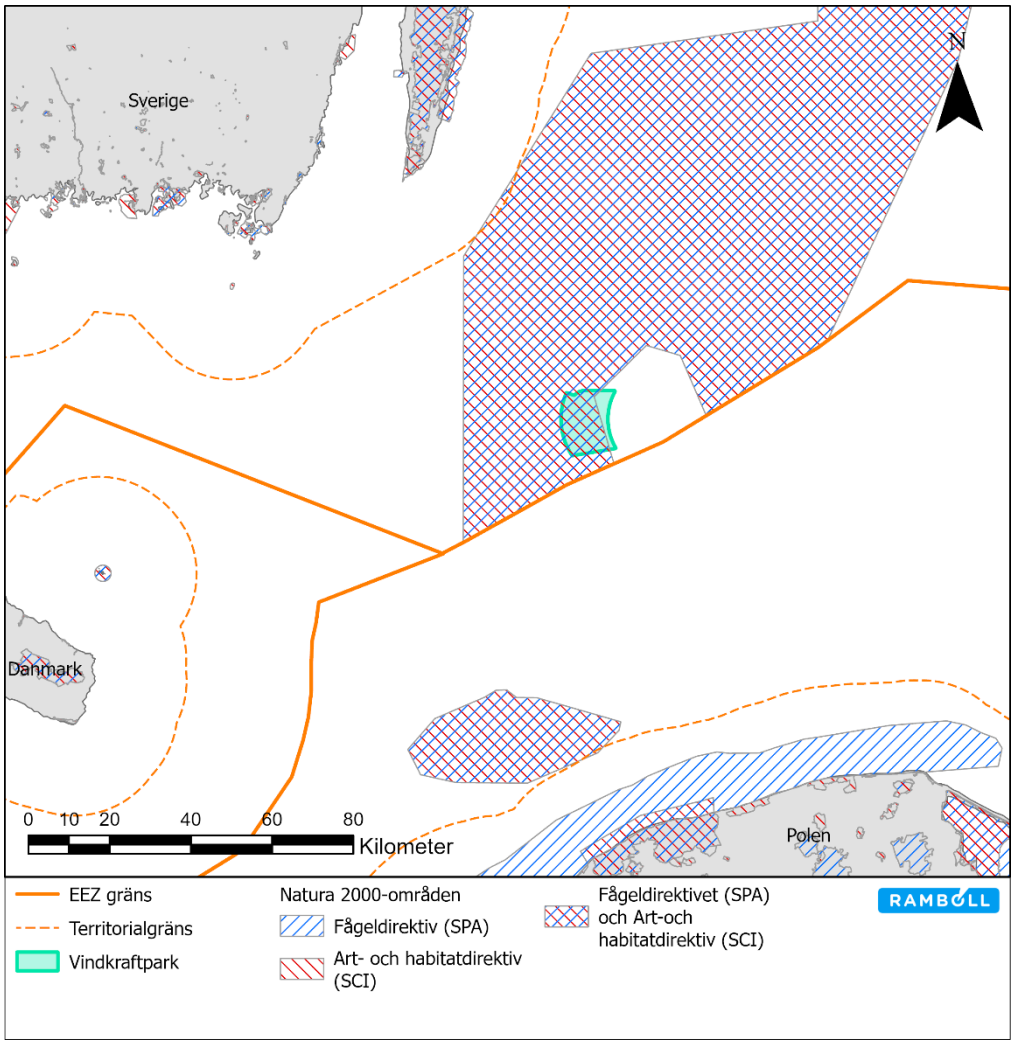

Figure 12. Natura 2000 areas in and around the planned wind farm. The Natura 2000 area Hoburgs bank och Midsjöbankarna, which overlaps with the planned wind farm, is being examined in a separate exercise under Chapter 7, Section 28a of the Environmental Code, and an application has been compiled and submitted (EEA, 2022).

The planned wind farm is partly located within the Natura 2000 area Hoburgs bank och Midsjöbankarna (SE0330308), which is an SPA and an SCI. Designated habitats are sandbanks (1110) and reefs (1170) and designated species are long-tailed duck (A064), black guillemot (A202), harbour porpoise (1351) and eider (A063). These banks are important feeding and nursery areas for fish and sea birds, and together they form the most important wintering area in the Baltic Sea for long-tailed ducks and a core area for the Baltic harbour porpoise population (Länsstyrelsen Gotland län och Kalmar län, 2021).

The Natura 2000 area Hoburgs bank och Midsjöbankarna is being examined in a separate exercise under Chapter 7, Section 28a of the Environmental Code for what is known as a Natura 2000 permit for the wind farm and its associated internal cable network. This application, together with an accompanying EIA and

annexes, has been prepared and submitted for examination. In view of this, potential impacts on the Natura 2000 area Hoburgs bank och Midsjöbankarna will not be addressed further in this consultation document beyond this baseline description.

The Natura 2000 area Ławica Słupska (PLC990001), which is both an SPA and an SCI, is situated in Polish waters about 60 km south of the planned wind farm. Sandbanks (1110) and reefs (1170) are designated habitats, while black guillemot (A202), long-tailed duck (A064), black-throated diver and red-throated diver (A002 and A001 respectively) are designated species.

The Natura 2000 area Ottenby NR (SE0330108), which is an SCI, is situated on the southern tip of Öland, about 65 km north of the planned wind farm (Länsstyrelsen Kalmar län, 2016). Designated marine habitats are sandbanks (1110), mudflats and sandflats not covered by seawater at low tide (1140), coastal lagoons (1150), large shallow inlets and bays (1160) and reefs (1170). Designated species include the grey seal (1364) and the common seal (1365). The Natura 2000 area Ottenby NR includes the Natura 2000 area Ottenby (SE0330083), which is an SPA with several designated bird species (Länsstyrelsen Kalmar län, 2016). The common Natura 2000 area has – among other things – a unique environment, with riparian cultivated land and important marine habitats to which many species-rich plant and animal communities are linked.

6.1.8.2 Possible impacts

Underwater noise will be generated during construction, operation and decommissioning which may affect both fish and marine mammals: see also sections 6.5 and 6.6 respectively. Installation and decommissioning may produce loud noise levels that could cause flight behaviour and affect their hearing and, in a worst case scenario, could be fatal. The provision of a wind farm in the project area will change the underwater soundscape while the wind farm is in operation. Underwater noise will not affect these areas during any phase of the planned wind farm due to the long distance to Natura 2000 areas.

Temporary changes in water quality may occur during construction and decommissioning due to turbidity, sedimentation and possible release of pollutants. The turbidity and hence sedimentation and possible release of pollutants will not affect the Natura 2000 areas as these areas are located a very long distance from the planned wind farm.

Birds may be affected during construction and operation due to the physical presence of project-related vessels within the planned wind farm and en route to the planned wind farm. Vessels will be present and construction works will be carried out during construction, which may affect birds. Collisions with the wind turbines or barrier effects for birds may occur during operation due to the planned wind farm, as well as possible exclusion of birds from areas in which they forage. See also section 6.7 on birds.

6.1.8.3 Delimitation

Natura 2000 areas will be detailed in the forthcoming EIA. There will be no impact on designated habitats or species or their conservation status because of the great distance to the Natura 2000 areas other than Hoburgs bank och Midsjöbankarna, which is being assessed in a separate exercise. Therefore, their impact will not be assessed in the EIA. Therefore, assessment under the Natura 2000 provisions for these Natura 2000 areas, which are not Hoburgs bank och Midsjöbankarna, is not considered to be relevant.

6.1.9 International protection

HELCOM (the Helsinki Commission) is the governing body of the "Convention on the Protection of the Marine Environment of the Baltic sea area". The HELCOM Marine Protected Area (MPA) network aims to protect marine and coastal habitats and species specific to the Baltic Sea (HELCOM, 2021).

6.1.9.1 Baseline description

There is a Marine Protected Area (MPA) located at Norra Midsjöbanken, just over 30 km north of the wind farm. A Marine Protected Area, the Torhamn archipelago, is located about 80 km north-west of the wind farm. Another protected area, Ławica Słupska off the coast of Poland, is located about 60 km south of the wind farm, Figure 13.

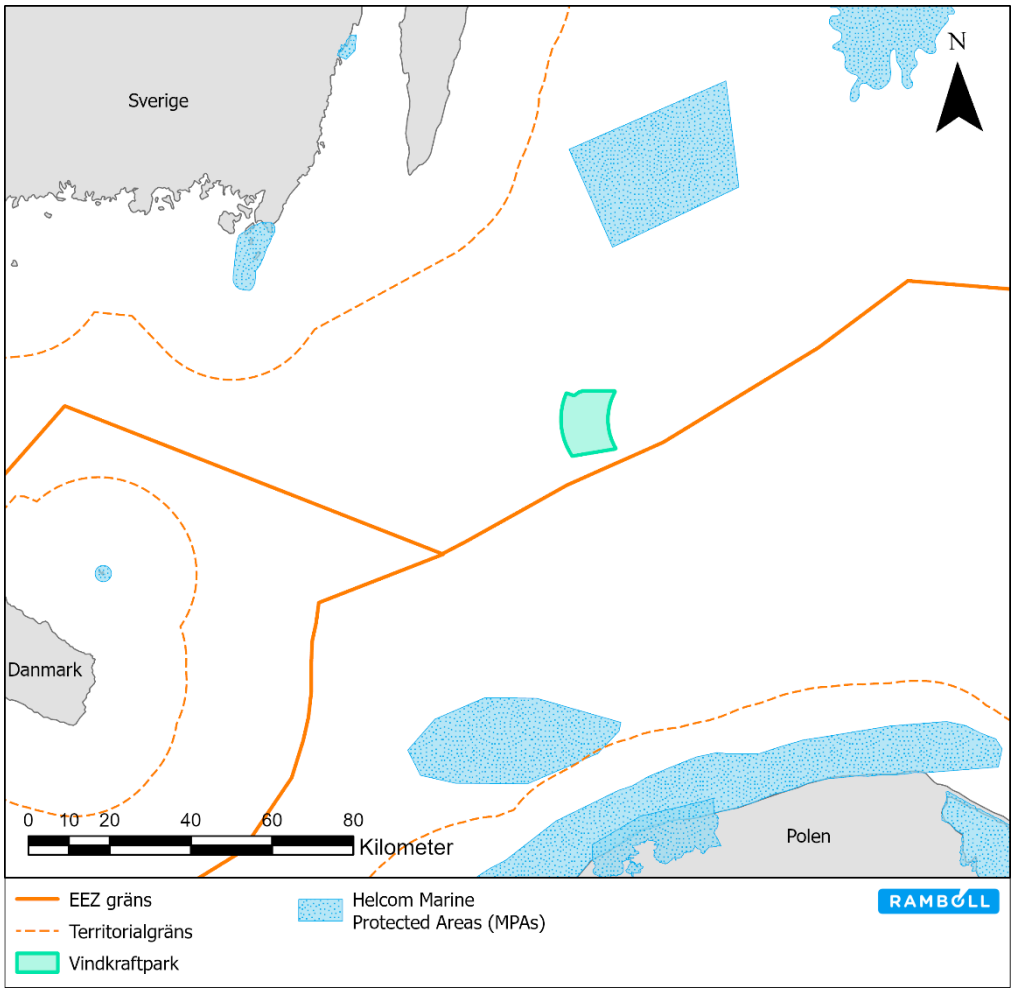

Figure 13. Marine Protected Areas (MPAs) within HELCOM around the planned wind farm (HELCOM, 2022).

6.1.9.2 Possible impacts

No impacts are expected for the Marine Protected Areas (MPAs), as these areas are not in the vicinity of the planned wind farm.

6.1.9.3 Delimitation

MPAs will be reported in the forthcoming EIA but will not be assessed as no impacts are foreseen.

6.2 Depth conditions and hydrology

Depths within the area of the planned wind farm increase mainly from east to west, and range from about 23 to 36 metres: see Figure 2. The Södra Midsjöbanken shallows are located east of the planned wind farm.

The Baltic Sea is an almost closed brackish inland sea. Salinity is relatively low because the Baltic Sea has few inflows of saltier water across the Great and Little Belts and Öresund, compared to relatively high inflows of freshwater from land and precipitation.

The limited inflows of salt-rich and oxygen-rich water from the North Sea into the Baltic Sea, together with the high freshwater inflows from land and precipitation, cause sharp stratification of water that can prevent oxygenation of deeper waters and give rise to oxygen-depleted or completely oxygen-free seabeds (SMHI, 2018). Figure 14 shows areas with oxygen-depleted or completely oxygen-free seabeds in autumn 2020. If the oxygen content is sufficiently low, hydrogen sulphide will be produced as organic matter decomposes. Hydrogen sulphide is toxic and the animals that are unable to leave these areas will die, which will further increase the concentration of hydrogen sulphide. Anoxic and oxygen-free seabeds have low biodiversity because of this. Inflows through the Great and Little Belts and Öresund that are great enough to improve oxygen conditions on the deep seabeds are very rare: the last two such inflows occurred in 2014 and 2003 (SMHI, 2020; SMHI, 2022; SMHI, 2012).

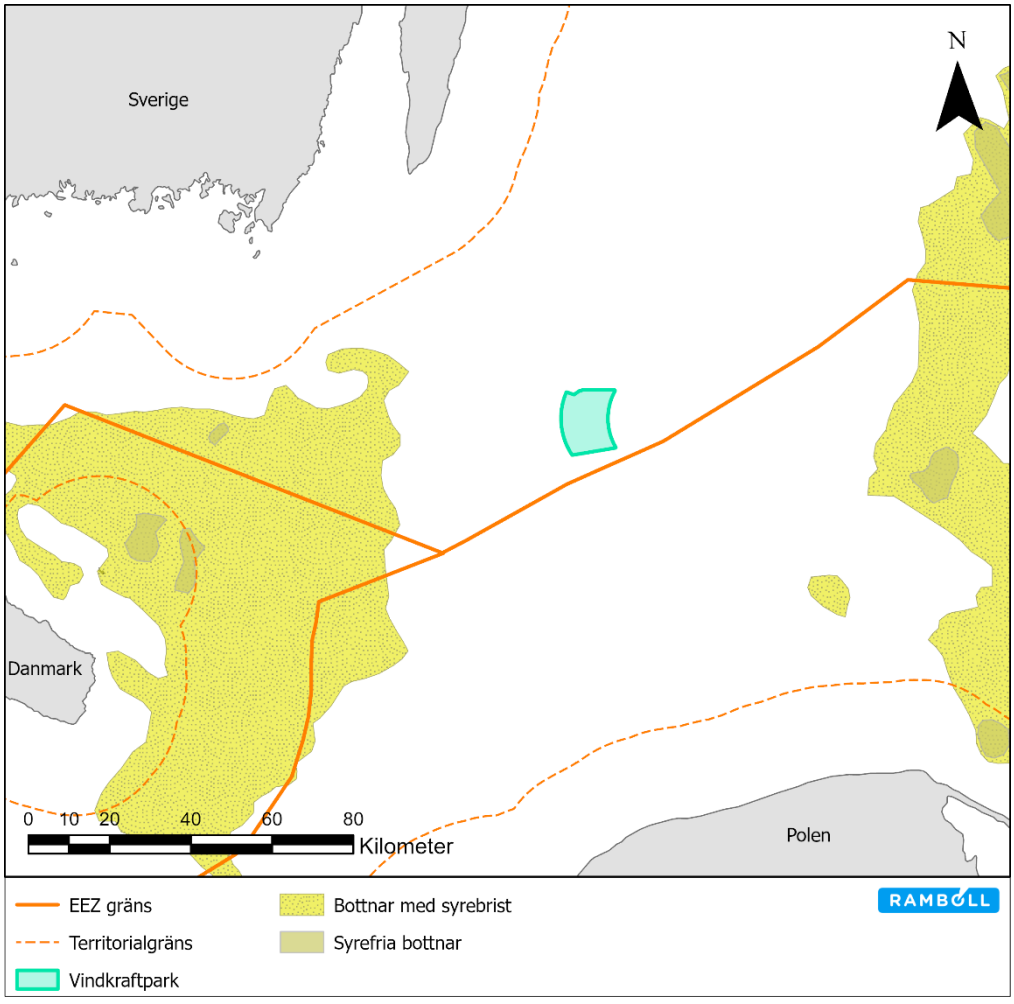

Figure 14 Oxygen-deficient or oxygen-free seabed areas in the vicinity of the planned Södra Victoria wind farm (SMHI, 2022).

6.3 Seabed conditions, sediments and pollution

According to the sediment sampling carried out, the area of the planned wind farm's seabed material is classified as a sandbank, as the top layer of the seabed

is dominated by sand with elements of gravel, as well as the presence of rocks and boulders (Ocean Ecology, 2022; SGU, 2022). Figure 15 shows the dominant seabed material in the top metre of the seabed.

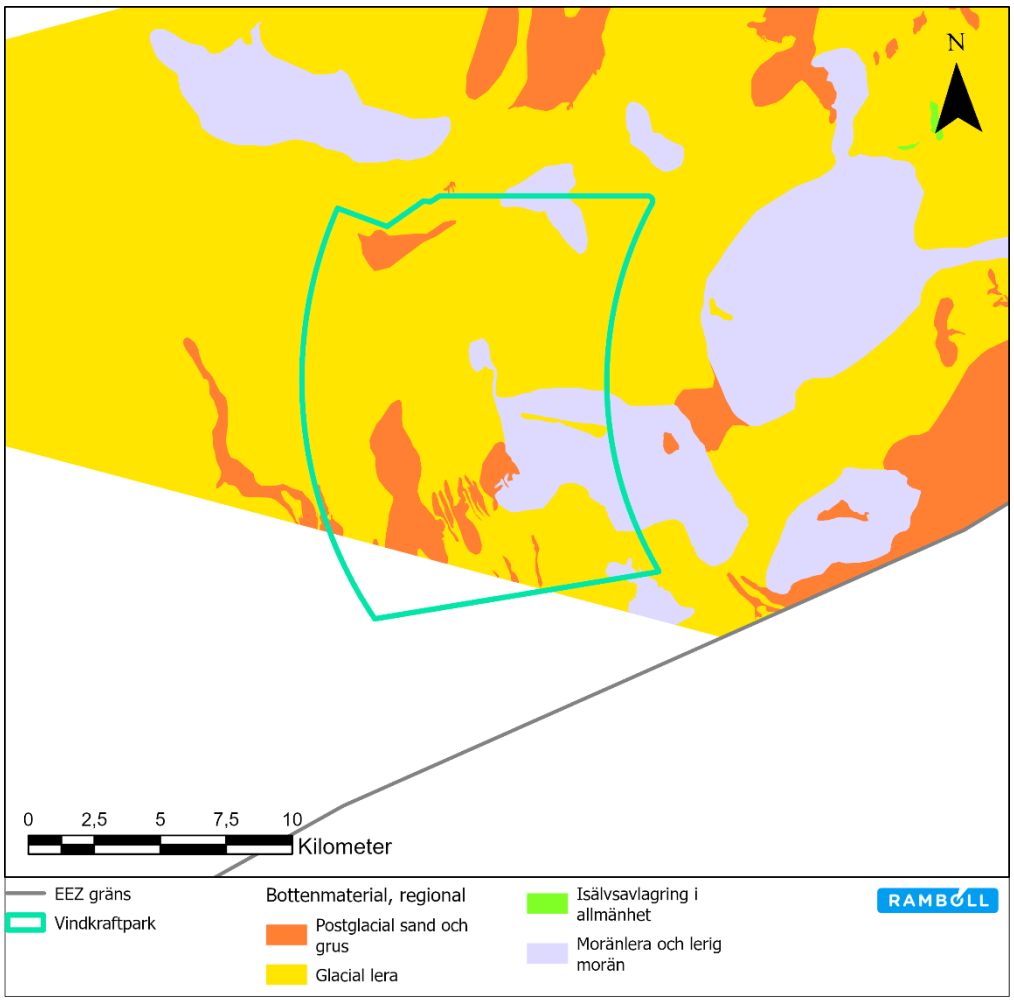

Figure 15. Illustration of the seabed material dominating the top metre of the project area (SGU, 2022).

Sampling also indicates that the surface sediments within the project area generally contain very low to low concentrations of substances (class 1 and 2, respectively). Measured concentrations of metals (cadmium, copper and lead) and PAHs (anthracene and fluoranthene) are below the assessment limit for applicable environmental quality standards (Marine Monitoring AB, 2022).

According to the Swedish Agency for Marine and Water Management, there is dumped ammunition and a risk of submerged mines in Hoburgs bank och Midsjöbankarna (area Ö245) and Södra Midsjöbanken (Ö248) (Havs- och vattenmyndigheten, 2022d).

6.4 Bottom flora and fauna

6.4.1 Baseline description

Bottom vegetation and fauna, also known as benthic flora and fauna, includes plants and animal organisms that live on or in the seabed.

Bottom vegetation

Bottom vegetation consists of macroalgae and various types of seaweed. Bottom vegetation in the Baltic Sea is mainly limited by the availability of light, which is related to the depth and turbidity of the water. Usually there is very little light available at depths greater than 20 m. However, macroalgae were found down to a depth of more than 30 m during surveys of Södra Midsjöbanken (Naturvårdsverket, 2006). Bottom vegetation is considered to be limited as the depths within the area of the planned wind farm vary from about 23 to 36 metres (see section 6.2), but there may still be areas of vegetation, particularly on the eastern side where the depths are slightly shallower. Seabed surveys carried out in 2021 confirm this and the presence of red algae in the project area (Ocean Ecology, 2022).

Bottom fauna

The species composition of benthic fauna populations in the Baltic Sea is dependent on various biotic and abiotic factors. The physical conditions that govern the composition of bottom fauna are mainly substrate type (including any reef structures), light, salinity, temperature, oxygen content, organic matter and water movement, but also water quality. As the Baltic Sea has brackish waters and many limnic and marine species are not adapted to such conditions, benthic biodiversity is limited compared to the west coast of Sweden, where oceanic conditions prevail. The bottom fauna in the area is therefore mainly made up of opportunist species with high growth rates and short life cycles, such as several species of polychaetes and bivalves (Bivalvia). Studies and surveys confirmed that the species composition was dominated by mussels, Baltic macoma and annelids, but also the presence of cnidarians, molluscs, arthropods and amphipods (Naturvårdsverket, 2006; Ocean Ecology, 2022).

6.4.2 Possible impacts

Bottom vegetation and fauna may be affected during construction of the planned wind farm as the structures will occupy the seabed, and during decommissioning if the structures are removed. Bottom vegetation and fauna may also be affected during construction and decommissioning due to the methods used to install and remove structures within the project area. These practices may cause increased levels of suspended sediment, release of pollutants and sedimentation, which may affect bottom species by way of impaired photosynthesis or smothering of sessile animals, for example. During the operational phase, the structures at the planned wind farm will produce what is known as a reef effect, as the foundations of the wind turbines create new structures where hardground species can grow.

6.4.3 Delimitation

As bottom vegetation may occur within the project area and may potentially be affected by the planned wind farm, impacts of the construction, operational and

decommissioning phases on bottom vegetation will be further investigated and assessed in the forthcoming EIA.

For the same reason, the impact of the construction, operational and decommissioning phases on bottom fauna will be further investigated and assessed in the forthcoming EIA.

6.5 Fish

6.5.1 Baseline description

The most abundant fish species at Hoburgs bank och Midsjöbankarna and Södra Midsjöbanken are cod, herring, lumpfish, flounder, sprat, three-spined stickleback, fourbeard rockling, shorthorn sculpin, plaice and turbot. Eel, salmon and sea trout are migratory fish species that may temporarily be found in the area (Marine Monitoring AB, 2022).

In 2010, the Swedish Environmental Protection Agency carried out test fishing with nets at Hoburgs bank and Norra Midsjöbanken. The catch was dominated by cod, flounder and turbot. Other species caught were shorthorn sculpin, herring, sprat, plaice, eelpout, lumpfish and great sand eel (Naturvårdsverket, 2010).

According to the 2020 Swedish Red List, cod is deemed to be Vulnerable (VU), eel is Critically Endangered (CR) and fourbeard rockling is Near Threatened (NT), while the other species referred to are deemed to be of Least Concern (LC) (SLU Artdatabanken, 2020).

Parts of Hoburgs bank och Midsjöbankarna, as well as Södra Midsjöbanken, are considered to be spawning grounds for herring (see Figure 16), sprat, flounder, plaice, turbot and eelpout. The planned offshore wind farm is located within spawning grounds for herring. Part of the offshore banks may also provide nursery areas for cod, flounder, plaice and eelpout. Salmon and sea trout may temporarily be present in the affected areas as these are potential nursery and feeding grounds (Marine Monitoring AB, 2022).

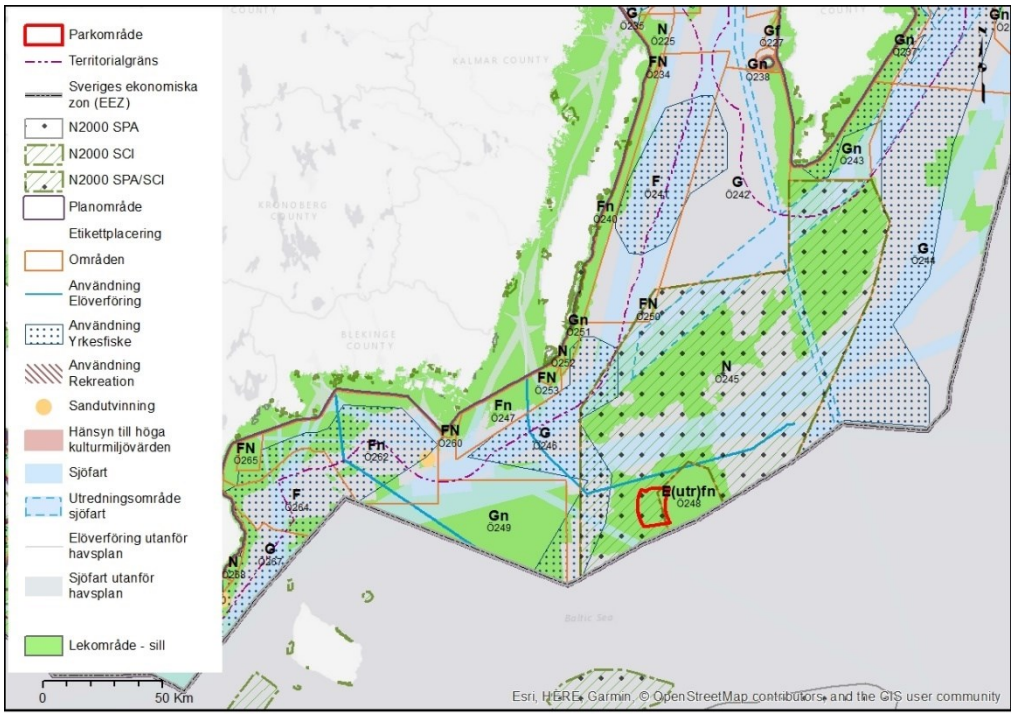

Figure 16. Illustration of spawning grounds for herring in the Baltic Sea and within the project area (Marine Monitoring AB, 2022).

6.5.2 Possible impacts

Temporary changes may occur in fish behaviour during the construction and decommissioning phases due to turbidity, sedimentation and potential release of pollutants into sediments. In a worst case scenario, sediment dispersion may result in mortality as fish eggs are covered or suspended material becomes trapped in the gills of the fish. The effect of sediment dispersion depends mainly on the bottom substrate at the site: fine-grained sediment may cause more extensive dispersion, for example.

Underwater noise during the construction and decommissioning phases has the potential to affect fish as increased noise levels can result in flight behaviour and affect their hearing, and – in a worst case scenario – cause mortality. The wind farm will cause a change in the underwater soundscape in the affected area during the operational phase.

The wind farm's occupation of the affected seabed may affect fish habitats during the construction phase. What is known as a reef effect may be formed as a result of the addition of new solid structures such as hardground in the form of foundations. A reef effect means that certain fish species are attracted to structures and there is an increased abundance of them in the vicinity of the wind turbines as the change provides a new habitat where fish can find food and seek shelter. The numbers of fish accumulating has been shown to increase with the structural complexity of the foundation (Naturvårdsverket, 2008). The reef effect may disappear when the wind farm structures are decommissioned.

Shadowing from the stationary tower and rotating rotor blades may affect fish in the vicinity during the operational phase.

Electromagnetic fields from power cables on the seabed may potentially affect the spatial orientation of fish.

6.5.3 Delimitation

The impact of the construction, operational and decommissioning phases on fish will be further investigated and assessed in the forthcoming EIA.

6.6 Marine mammals

6.6.1 Baseline description

Harbour porpoises (see Figure 17) and seals (grey seals, common seals and ringed seals) are marine mammals that regularly inhabit the Baltic Sea. There are Baltic harbour porpoises and grey seals in the Natura 2000 area of Hoburgs bank och Midsjöbankarna (Länsstyrelsen Gotland län och Kalmar län, 2021).

The Baltic population of harbour porpoises is a toothed whale species of note for the Natura 2000 area Hoburgs bank och Midsjöbankarna: see section 6.1.8. The population in the area is present in higher densities in months when the animals calve and mate (AquaBiota, 2016). The species is considered to have an unfavourable conservation status in the Baltic Sea and is deemed to be Critically Endangered (CR) (SLU Artdatabanken, 2020). Harbour porpoises are usually found alone or in small groups, and are usually found in coastal areas close to the surface of the water or at depths below 200 m. Harbour porpoises have well-developed hearing and a wide frequency range, which results in a high sensitivity to underwater noise (AquaBiota, 2016). The June to November period is an important time for harbour porpoises when mating, birth and suckling of calves take place. They are considered to be most sensitive to disturbance from June to August (Naturens Stemme, 2022), and the June to September period is biologically important for harbour porpoises (HELCOM, 2019). Harbour porpoises mainly eat fish such as herring, cod, sprat, sandlances and gobies (AquaBiota, 2016). The area immediately west of Södra Midsjöbanken is not deemed to be a main foraging area for harbour porpoises (Naturens Stemme, 2022). The company commissioned a survey of harbour porpoises in the survey area for the wind farm from February 2020 to December 2020 and January 2021 to December 2021 using harbour porpoise detectors. The results indicate that harbour porpoises do not permanently reside in the area but occur more intermittently and demonstrate seasonal variation, and occur at higher densities mainly during the summer period. The area is not considered to be an important foraging area (BioConsult SH, 2020; BioConsult SH, 2021).

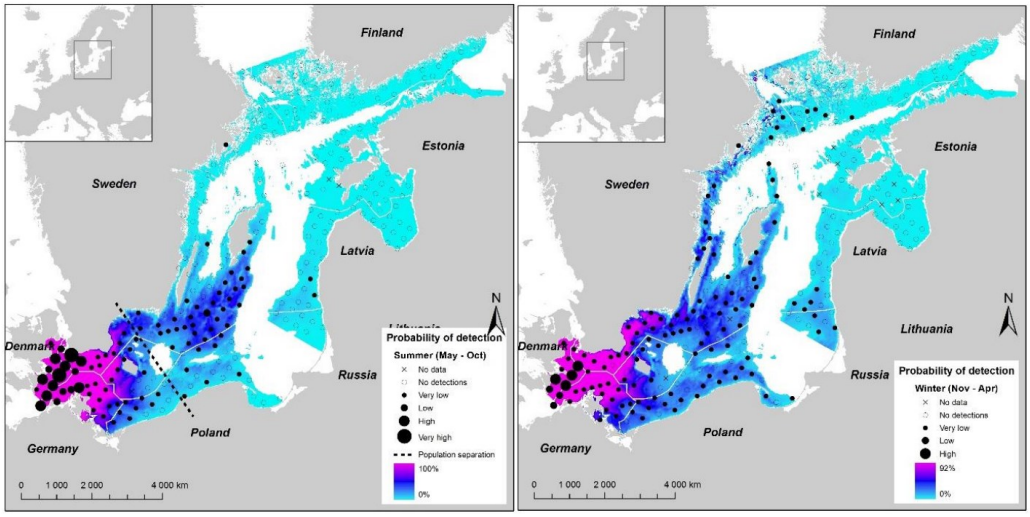

Figure 17. Harbour porpoise abundance in the Baltic Sea during the May to October period (left) and the November to April period (right), measured during the SAMBAH project in 2011-2013 (SAMBAH, 2016).

The grey seal is deemed to be of Least Concern (LC) (SLU Artdatabanken, 2020) and can be observed along most of the coast of Sweden, but it is more abundant in the areas around the Stockholm archipelago and Åland. The species is dependent on open water and usually remains further out from the coast, such as at the outermost islets or skerries. Grey seals have well-developed hearing and a wide frequency range, which makes them vulnerable to underwater noise. The reproductive period falls in May-June, and for grey seals in the northern part of the Baltic Sea, pups are usually born directly on the drift ice at the turn of the month between February and March. Between summer and late autumn, grey seals forage across large parts of the Baltic Sea at depths of 10-40 m. The species is not specialised in its food selection, but feeds mostly on various shoaling and bottom-dwelling fish such as herring, eelpout and flatfish, but also on salmonids, cod and whitefish (SLU Artdatabanken, 2022; Thomsen, Ludemann, Kafemann, & Piper, 2006). According to (Havs- och vattenmyndigheten, 2018), grey seals do not reside permanently in the project area, but may be present from time to time.

6.6.2 Possible impacts

During the construction phase, or during any decommissioning works, harbour porpoises may be affected by underwater noise from piling works, which may result in behavioural changes, flight behaviour or – in a worst case scenario – mortality. The wind farm will cause a change in the underwater soundscape in the affected area during the operational phase.

During the operational phase, any reef effect – see section 6.5.2 – may attract fish to the area, which in turn may attract harbour porpoise and grey seal individuals to the location.

6.6.3 Delimitation

As harbour porpoises and grey seals may periodically occur in the project area, the impact of the construction, operational and decommissioning phases on both species will be further investigated and assessed in the forthcoming EIA.

6.7 Birds

6.7.1 Baseline description

In the Baltic Sea, the breakdown of bird species varies according to the season, with some occurring all year round and others staying more intermittently in the area. The various locations in the Baltic Sea thus provide important sites for foraging, breeding, rearing and wintering. As migratory birds usually migrate via land areas or along the coastal strip, the incidence of birds flying longer distances over the open sea is relatively low.

In the Baltic Sea, Hoburgs bank och Midsjöbankarna and Södra Midsjöbanken are important wintering areas, mainly for long-tailed ducks and black guillemots, as well as for common guillemots and razorbills. Black-throated divers, red-throated divers, velvet scoters, eiders, common scoters, black-headed gulls, common gulls, European herring gulls, lesser black-backed gulls and great black-backed gulls may also be present in the areas concerned (Ottvall Consulting AB, 2021b; Länsstyrelsen Gotland län och Kalmar län, 2021).

Aerial surveys of sea birds in the Baltic Sea were carried out in 2009-2011, 2016 and the 2019/2020 and 2020/2021 winter periods. In Södra Midsjöbanken, an inventory of black guillemots was also carried out from a boat. Long-tailed ducks dominated in numbers during the period in question. Long-tailed ducks and black guillemots were mainly found in the shallower parts of Södra Midsjöbanken. Common guillemots and razorbills were mainly found in the deeper parts. Common gulls, European herring gulls, great black-backed gulls, little gulls, common scoters, velvet scoters, red-throated divers and black-throated divers were observed in varying numbers. The results indicate that Södra Midsjöbanken is an important winter foraging area for long-tailed ducks and black guillemots in the main, as well as for common guillemots and razorbills. (Ottvall Consulting AB, 2021a).

According to the 2020 Swedish Red List, the long-tailed duck, black guillemot, common gull and red-throated diver are deemed to be near threatened (NT) and the European herring gull, great black-backed gull and velvet scoter are deemed to be vulnerable (VU), while the other species observed in the study area are deemed to be of least concern (LC) (SLU Artdatabanken, 2020).

Södra Midsjöbanken is deemed to be of no importance as a foraging area during the breeding period, as the area is so far from the breeding sites that regular flights to the area during the period are considered unlikely (Ottvall Consulting AB, 2021b). The project area is also not considered to be within a significant migratory route for birds, as only a few bird species in low numbers are estimated to pass through the project area (Ottvall Consulting AB, 2022).

BirdLife International has identified what are known as Important Bird and Biodiversity Areas (IBAs) based on 20 criteria, including threatened species, restricted-range species, species with unfavourable conservation status and large congregations of birds (including migratory species) (BirdLife Sverige, 2021). Södra Midsjöbanken is designated by BirdLife International as an Important Bird and Biodiversity Area (IBA) with respect to large populations of black guillemots and long-tailed ducks in winter: see Figure 18.

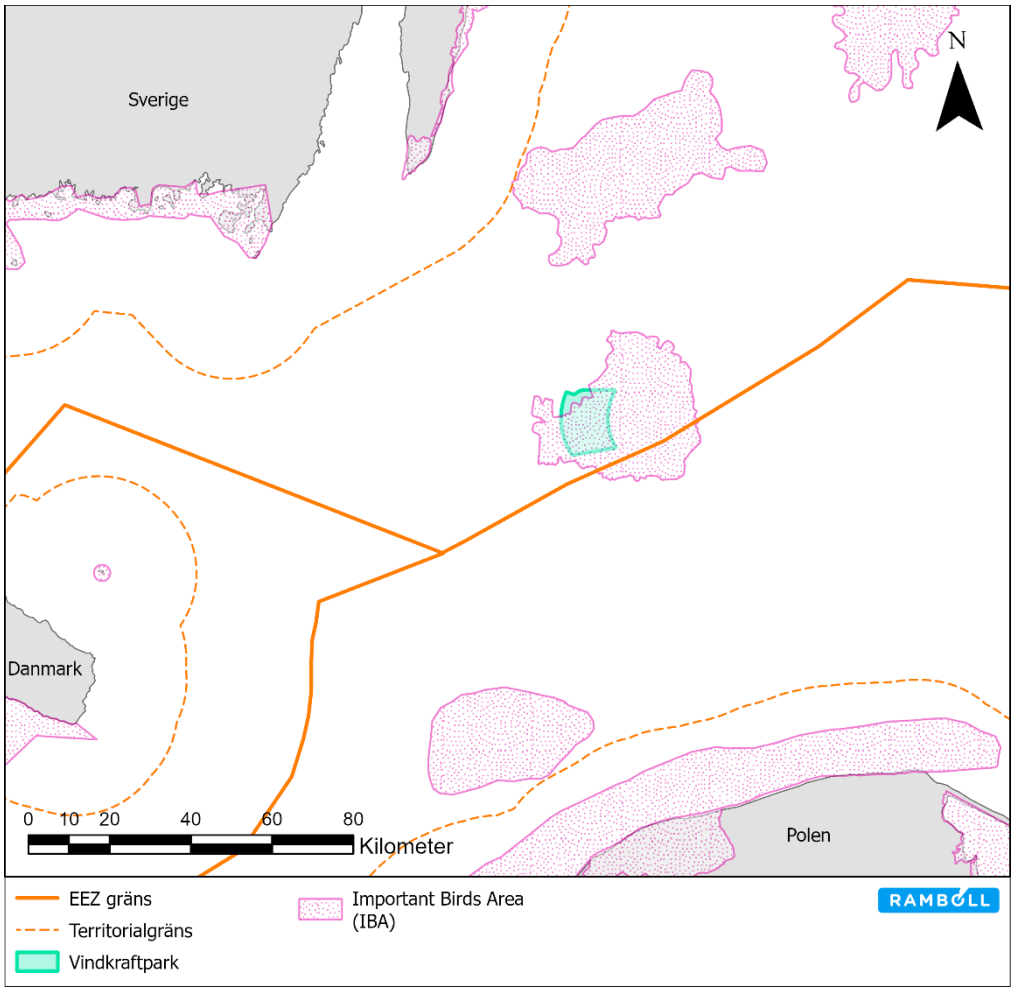

Figure 18. Important Bird Areas (IBA) at the planned wind farm (BirdLife Sverige, 2021).

6.7.2 Possible impacts

During the construction and decommissioning phases, birds remaining in the area such as when foraging may be temporarily affected indirectly or directly by activities causing turbidity or noise. The presence of project-related vessels may also have an impact.

During the operational phase, the wind turbines may constitute obstacles for birds which, in the event of collision, may lead to mortality. The barrier effect may lead

to a change in the feeding patterns of the birds concerned and their passage through the area.

6.7.3 Delimitation

As birds periodically occur in the project area and may be affected by the wind farm, impacts of the construction, operational and decommissioning phases will be further investigated and assessed in the forthcoming EIA.

Any impact on the IBA area will be further investigated in the forthcoming EIA.

6.8 Bats

6.8.1 Baseline description

19 bat species have been found in Sweden, and there is wide variation in how the species are distributed geographically throughout the country and how they behave. Several species migrate in autumn and spring, but only a few species are generally thought to move around. Bats can also hunt over the sea, although they do not make migratory flights over the sea, as has been observed in several locations. Studies show that migratory species congregate at specific outbound points in autumn and wait for good weather conditions before flying over the sea, but otherwise follow the land and coast as far as possible. There is also migration of bats in spring (Calluna, 2021).

In the case of bat migration, for example, the common noctule, soprano pipistrelle, Nathusius' pipistrelle, serotine bat, northern bat, pond bat and Daubenton's bat have been reported at sea (Calluna, 2021). Most of these sightings were closer to the coast than the project area. However, a previous survey at Södra Midsjöbanken shows that the bats pass over the open sea and that at least two species, the Nathusius' pipistrelle and the parti-coloured bat, both of which are known long-distance migrants, have been found at Södra Midsjöbanken (Eriksson et al., 2013; Calluna, 2021). The closest coastline from the project area is the Öland coast, about 70 km away. The occurrence of bats is therefore expected to be relatively limited in the project area.

All bat species are protected under Section 4 of the Species Protection Ordinance, which means a general ban on deliberately capturing, killing, harming or disturbing the animals. The prohibition in the Species Protection Ordinance also includes damage to animal habitats. Several species are red-listed according to the Swedish Red List, such as the pond bat, serotine bat and northern bat, which are listed as 'near threatened', and the lesser noctule and common pipistrelle, which are listed as 'vulnerable' (SLU Artdatabanken, 2020).

6.8.2 Possible impacts

Bats can potentially be affected by the wind farm mainly during operation by collision with the wind turbine blades, or by being caught in a wind current and sucked behind the blades, resulting in a pressure drop that can cause internal bleeding in bats. The risk of bats being affected by wind turbines varies between species. Among the high-risk species to be affected by the wind turbines are those that hunt insects over large open areas and those that may have their migration

routes past the project area. Bats can stop and examine wind turbines out at sea and in the absence of other structures, wind turbines can be particularly attractive for bats to use for resting during a long flight over the Baltic Sea (Calluna, 2021).

6.8.3 Delimitation

As bats may occur in the project area and may potentially be affected by the planned wind farm, impacts of the construction, operational and decommissioning phases on bats will be further investigated and assessed in the forthcoming EIA.

6.9 Cultural environment and marine archaeology

6.9.1 Baseline description

As humans have been travelling on the Baltic Sea for about 10,000 years, traces of cultural history may still be present under the surface of the sea. These remains include wrecks, buildings or historically important environments such as settlements. The Baltic Sea has been, and still is, a well-travelled sea that hides many wrecks on the seabed from different historical periods. The absence of shipworm in the Baltic Sea has also meant that many of these wrecks have been preserved over the years (Vrak, 2021).

According to the Cultural Environment Act, remains from before 1850 are considered ancient remains. There are no known cultural historical remains within the project area: see Figure 19.

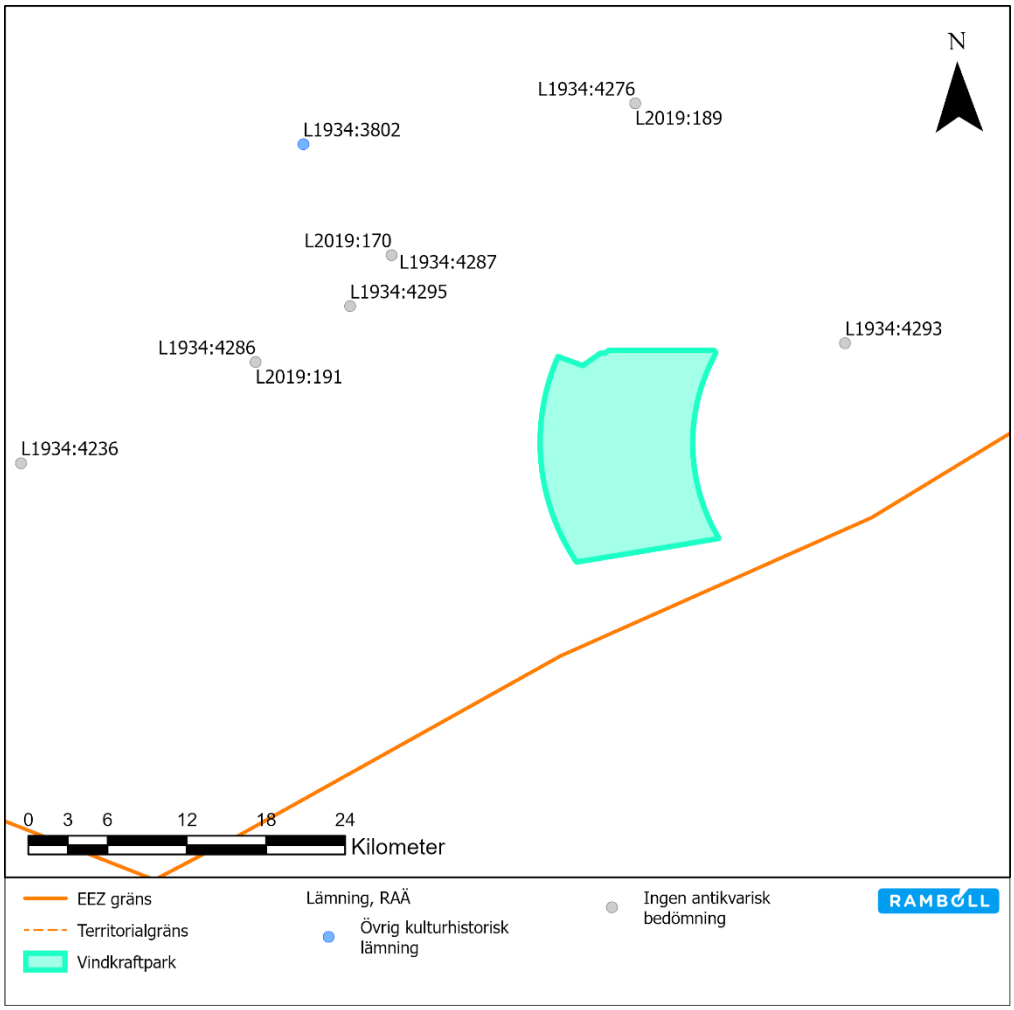

Figure 19. Cultural historical remains at the project area (Riksantikvarieämbetet, 2022).

6.9.2 Possible impacts

A marine archaeological survey will be carried out in the project area at a later stage to ascertain the presence and nature of any remains in the area. Any remains found will be avoided so as to avoid possible impacts, and protective measures will be observed during the construction, decommissioning and operational phases.

6.9.3 Delimitation

A marine archaeological survey will be carried out in the project area at a later stage. Protective measures and consequences of the construction, operational and decommissioning phases for any marine archaeological remains will be further investigated and assessed in the forthcoming EIA.

6.10 Outdoor recreation

6.10.1 Baseline description

The project area is not covered by any national interest for outdoor recreation. However, the sea is important for human well-being and quality of life and thus for outdoor recreation, which provides opportunities for recreational activities such as fishing, boating and diving. Outdoor recreation includes experiences linked to the cultural environment, such as wreck diving, or the natural environment such as protected marine areas.

6.10.2 Possible impacts

The wind farm will produce two types of noise during the operational phase: mechanical (including the gearbox in the hub) and aerodynamic (the movement of the rotor blades through the air). The project area is located about 70 km south of the coast of Öland, which means that the distance is so great that it is most likely only passing boats will be able to perceive the change in sound and the experience of a changed landscape in the area.

During the construction and decommissioning phases, vessels connected to the project will operate in the affected area, which may affect the accessibility of other boats. Safety zones will be ensured for the wind turbines, as well as for some associated project vessels, during all three project phases.

The majority of recreational boats will not be affected by the project in the affected area as they are mainly located closer to the coast.

6.10.3 Delimitation

Impacts on outdoor recreation will be further investigated and assessed in the forthcoming EIA.

6.11 Human health

6.11.1 Baseline description

Wind farms can generate noise and shadows that can affect human health. The project area is located in open water, about 70 km south of the coast of Öland.

6.11.2 Possible impacts

The wind farm will produce two types of noise during the operational phase: mechanical (including the gearbox in the hub) and aerodynamic (the movement of the rotor blades through the air). As the wind farm is located at a great distance from Öland, no homes will be affected by airborne noise during the operational phase.

During the operational phase, the wind farm will generate both stationary and moving shadow effects from the towers and the rotating rotor blades. No dwellings will be affected by the shadow effects of the project area as there is a great distance from the wind farm to the nearest dwellings, which are located on Öland.

6.11.3 Delimitation

The impact of the wind farm on human health will not be addressed further in the forthcoming EIA, as there is a great distance from the nearest coast to the project area.

6.12 Shipping and fairways

6.12.1 Baseline description

The traffic routes on the sea that are usually marked with solid black lines on charts are known as fairways. The Swedish Maritime Administration is responsible for accessibility, availability and safety in Swedish coastal waters for infrastructure at sea (development and maintenance).

The fairways through Hoburgs bank och Midsjöbankarna are both extensive and used by various types of vessels, including fishing boats, passenger vessels, tankers and cargo vessels. Vessel traffic also occurs outside designated fairways (Sweco, 2022b).

There is a main fairway to the north of the project area, at its closest point about 8 km away, which is mainly used by large vessels such as cargo, tanker and passenger vessels. There is a small fairway to the south-west of the site, about 7 km away, which is mainly used by passenger, unidentified and cargo vessels. Around 900 vessels passed through the planned wind farm area, mainly cargo vessels and unidentified vessel types, between 2020 and 2021. According to the Swedish Maritime Administration’s reporting system for AIS information, about 42,000 vessels passed between Öland and Södra Midsjöbanken in 2015. There is also extensive shipping south of Södra Midsjöbanken. Another main fairway runs about 40 km north-west of the project area (Sweco, 2022b).

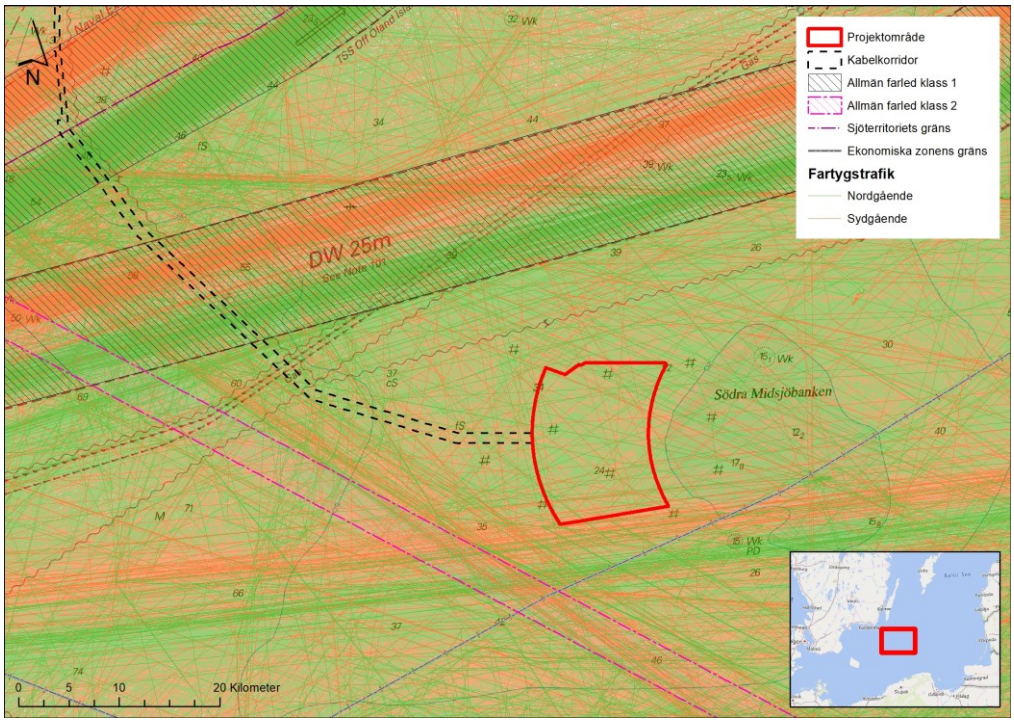

Figure 20. Illustration of vessel traffic (AIS data) inside and outside the project area between May 2020 and April 2021. The green line indicates northbound traffic, and the orange line indicates southbound traffic. © Swedish Maritime Administration permit no 21-02646.

6.12.2 Possible impacts

Different types of vessels related to the project will operate in the area of the planned wind farm during the construction and decommissioning phases, and this could affect nearby shipping.

Safety zones will be ensured for project-related vessels during the construction and decommissioning phases, as well as during the operational phase for any repairs or maintenance within the wind farm. During the operational phase, a safety zone will be established around the wind turbines, including during the construction and decommissioning of structures that could affect shipping.

An impact on boats sailing outside existing fairways cannot be excluded, as the wind farm constitutes a more or less permanent obstacle to maritime traffic in part of the area during the operational phase.

6.12.3 Delimitation

The impact of the construction, operational and decommissioning phases on shipping and fairways will be further investigated and assessed in the forthcoming EIA.

6.13 Commercial fishing

6.13.1 Baseline description

According to the Marine Plan, the western part of Hoburgs bank och Midsjöbankarna (area Ö245) is designated as a commercial fishing area. The planned wind farm is outside the national interest area for commercial fishing: see section 6.1.6.

In the project area and neighbouring sub-areas, commercial fishing is carried out mainly by countries such as Sweden, Poland, Denmark, Latvia, Estonia and Lithuania (Marine Monitoring AB, 2022) Herring and sprat are two of the species with the highest EU quotas in the Baltic Sea (Havs- och vattenmyndigheten, 2022e). The herring in the project area forms part of the central Baltic Sea stock, excluding the Gulf of Riga. Sweden accounted for the largest share of catches in 2020 with 26%, followed by Poland and Finland, which accounted for around 20% and 18% of catches respectively. For sprat, Sweden accounted for only 15% of Baltic catches in 2020 (Havs- och vattenmyndigheten, 2022a).

Swedish commercial fishing takes place both along the coast and out at sea and consists mainly of smaller fishing boats but also a smaller number of larger vessels. The fishing method varies according to the size and type of vessel, the species of fish and whether the area is coastal or offshore. In general nets, pots, cages, trawls and pelagic fishing gear are used (Marine Monitoring AB, 2022).

Swedish commercial fishing takes place to a large extent south of the planned wind farm and consists almost exclusively of trawling. The proportion of recorded catches is lower in the Natura 2000 area compared to neighbouring sites. There is a small amount of trawling to the west of the area, and a small amount of net fishing just to the east of the area, within Södra Midsjöbanken. In the project area, there have been only a small number of registrations for trawling and net fishing. Trawl catches consisted mainly of sprat and herring, but also cod. The catches in nets consisted mainly of cod and turbot, but flounder, plaice and mackerel were also present. In the areas around the planned wind farm, the total catch weight for the years 2015-2019 consisted of 87% herring and sprat, 9% cod and 2% flounder (Marine Monitoring AB, 2022).

6.13.2 Possible impacts

During the construction, decommissioning and operational phases, access to certain locations within the project area may need to be restricted as this poses a safety risk: see section 6.12. Restrictions may be placed on different fishing methods as the project will change the conditions for commercial fishing in the project area.

During the construction and decommissioning phases, turbidity and possible release of contaminants from sediments into the water may affect water quality. This may cause behavioural changes in fish, which may indirectly affect their tendency to be caught.

Underwater noise associated with the construction and decommissioning phases can also cause behavioural changes in fish, potentially affecting their tendency to be caught.

6.13.3 Delimitation

The impact of the construction, operational and decommissioning phases on commercial fishing will be further investigated and assessed in the forthcoming EIA.

6.14 Military areas

6.14.1 Baseline description

The planned wind farm is not located in any openly declared area of national interest within the military component of total defence: see section 6.1.5. About 11 km south of the project area is a designated military area for underwater exercises for Germany, Denmark and Sweden (EMODnet, 2022): see Figure 21. Information on military interests in the area is expected to be highlighted during the consultation process.

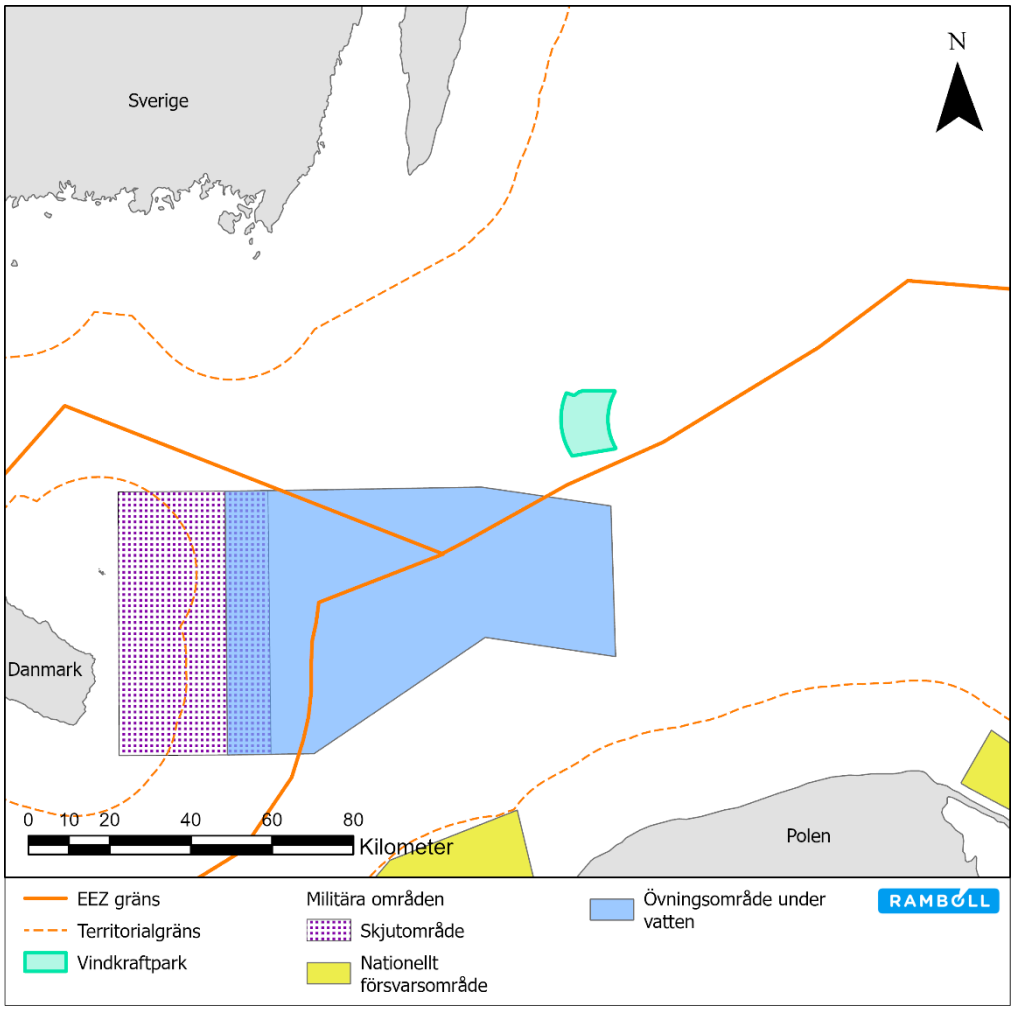

Figure 21. Military areas around the planned wind farm (EMODnet, 2022).

6.14.2 Possible impacts

The project area is not located within any openly designated training area. Potential impacts may occur during the construction and decommissioning phases for those national interests for total defence that are not declared in the area. Project-related shipping may then pose an obstacle to any military exercises that may be carried out in the area during the construction and decommissioning phases. The offshore wind farm is a permanent structure in the area during the operational phase, which may affect possible military activities.

6.14.3 Delimitation

The impact of the construction, operational and decommissioning phases on military interests and possible coexistence between stakeholders will be further investigated and assessed in the forthcoming EIA.

6.15 Infrastructure

6.15.1 Baseline description

Offshore wind farms, cables, pipelines, aviation and even airborne radio signals may be present within and in the vicinity of the planned wind farm.

Nord Stream and Nord Stream 2 are two natural gas pipelines located about 25 km from the project area. NordBalt is a submarine cable for heavy current located about 4 km north of the wind farm area (EMODnet, 2022; TeleGeography, 2022; HELCOM, 2022).

There is active sand mining activity at Södra Midsjöbanken, within the Polish Economic Zone.

The nearest offshore wind farm is Kårehamn, located about 140 km north of Södra Victoria. Arkona, Wikinger and Kriegers flak are offshore wind farms located about 200 km south-west of Södra Victoria in the German and Danish Economic Zones (4coffshore, 2022; EMODnet, 2022; Länsstyrelserna, 2022).

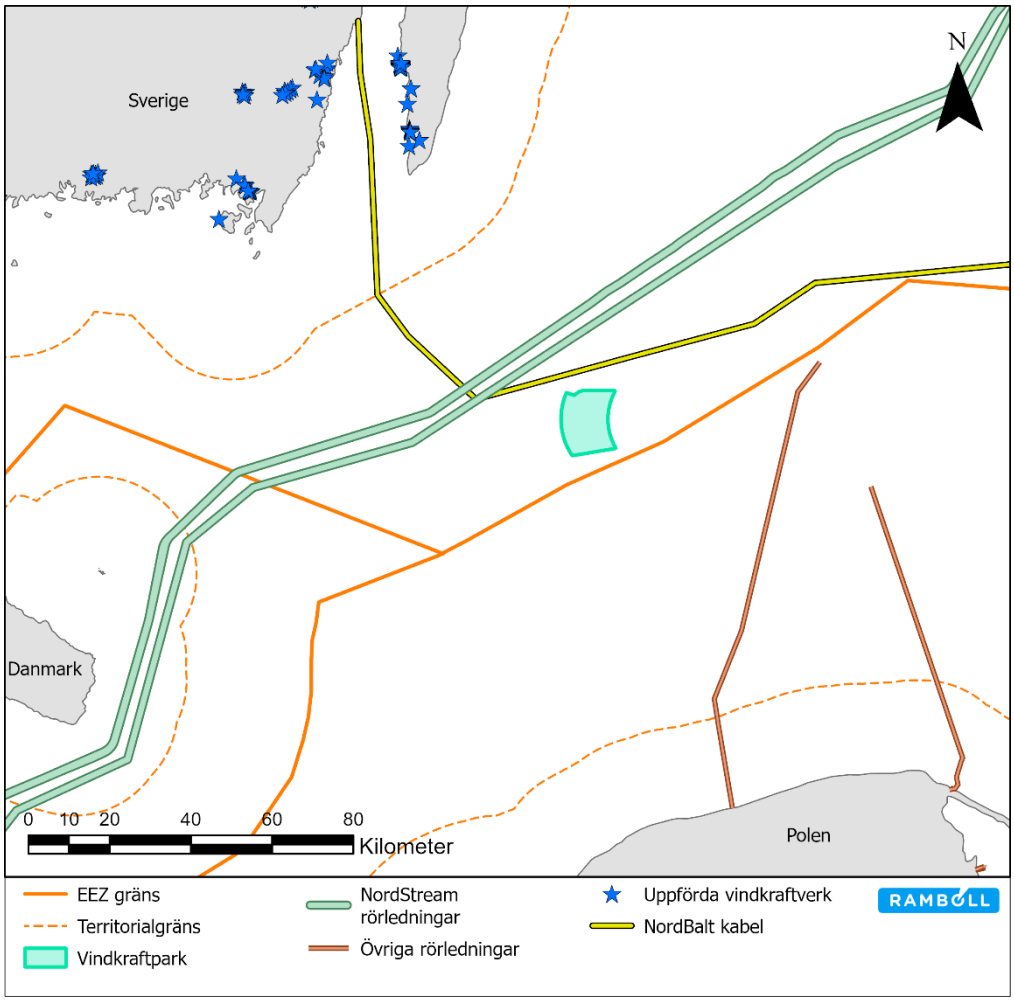

Figure 22. Infrastructure around the planned wind farm (EMODnet, 2022; HELCOM, 2022; Länsstyrelserna, 2022).

6.15.2 Possible impacts

Existing cables or pipelines on the seabed may be damaged during the construction and decommissioning phases if protective measures are not taken. The possibility of maintenance on existing cables or pipelines may be temporarily limited within the project area during the construction and decommissioning phases. Any structures left behind during the removal of the wind farm may affect planned installations.

Airborne radio signals may be affected by the wind farm, including both transmission and reception of signals.

The wind farm represents a series of new structures at sea, so it may pose a safety risk to aviation, such as collision risk. There is a great distance to the nearest wind farms, so no impact from the planned wind farm is expected.

6.15.3 Delimitation

The impact of the construction and decommissioning phases on infrastructure will be further investigated and assessed in the forthcoming EIA. Relevant authorities and activities will be consulted for radio signals and aviation. Flight obstacle analysis will be developed at a later stage.

6.16 Monitoring stations

6.16.1 Baseline description

Environmental monitoring stations for the Kust och hav [Coast and Sea] national environmental monitoring programme are located around the planned wind farm (Havs- och vattenmyndigheten, 2022). National environmental monitoring is governed by set environmental objectives, legislative requirements, EU directives and Sweden's commitments under international conventions. There are also environmental monitoring stations for hydroacoustics and trawling coordinated through the International Council for the Exploration of the Sea (ICES). These surveys are carried out within ICES statistical rectangles, which may mean that the location of the survey may vary within the rectangle from one year to the next (ICES, 2014a; 2014b). ICES coordinates marine and coastal monitoring and research and advises commissions and authorities on management issues (Havs- och vattenmyndigheten, 2022c). No environmental monitoring stations are located within the planned wind farm. The closest environmental monitoring station that has had regular sampling (between 2017-2020) is station 1026, which surveys the presence of harbour porpoises. This station is located about 27 km from the planned wind farm.

6.16.2 Possible impacts

During construction and decommissioning of the planned wind farm, turbidity, sedimentation and possible release of pollutants will occur in the water mass which could potentially affect environmental monitoring stations. During construction, operation and decommissioning, underwater noise is generated which could potentially affect hydroacoustic measurements.

6.16.3 Delimitation

The impacts of the construction, operational and decommissioning phases will be further investigated and assessed in the forthcoming EIA.

6.17 Raw material extraction sites

6.17.1 Baseline description

Raw material extraction sites aim to extract sand or gravel from the seabed. Södra Midsjöbanken offers opportunities for extraction of postglacial sand and gravel. However, sand extraction is probably not possible as the area consists of valuable ecosystems, and sand extraction is directed to other possible areas according to the Marine Plan. Extraction of raw materials is not possible at Hoburgs bank och Midsjöbankarna (SGU, 2015).

There is currently no carbon dioxide storage in the seabed in Sweden, but in general, carbon dioxide is stored mainly on sedimentary bedrock, making the south-eastern Baltic Sea a suitable area for possible carbon dioxide storage. The

potential storage units in the south-eastern Baltic Sea are Faludden, När and Viklau. The project area is located within the potential areas for carbon dioxide storage (SGU, 2016).

6.17.2 Possible impacts

The planned wind farm may pose a future obstacle in the area to possible extraction of sand or gravel in Södra Midsjöbanken and carbon dioxide storage on part of the seabed in south-eastern Baltic Sea storage units.

6.17.3 Delimitation

As the designated area for extraction of raw materials in Södra Midsjöbanken is not likely to be feasible, this will not be addressed further in the forthcoming EIA. The impact of the planned wind farm on carbon dioxide storage will be further investigated and assessed in the forthcoming EIA.

7. Landscape view

The visual impact of a wind farm depends on the design of the wind farm, the dimensions of the wind turbines, the distance, the vantage point and the weather conditions. The wind farm will not be visible from land because of the large distance from land to the planned wind farm, which is at least 70 km from the southern tip of Öland.

During the operation of the planned wind farm, the wind turbines will be equipped with what is known as obstruction lighting so that they are visible even in the dark out of consideration for the safety of aviation and shipping. The wind turbines will be obstruction marked for aviation navigation purposes in accordance with the Swedish Transport Agency's regulations on obstruction lighting in TSFS 2020:88. They will also be marked with maritime safety devices and markings for shipping in the form of lights on the foundations or the lower part of the tower for shipping, for example, in accordance with the Swedish Transport Agency's regulations TSFS 2017:66. The transformer substation will also be marked during the operation of the planned wind farm.

The impact of the planned wind farm on the landscape will not be investigated further due to the long distance to land.

8. Marine Environment Directive and Water Framework Directive

8.1 Marine Environment Directive

The Marine Environment Directive is implemented in Swedish law through Chapter 5 of the Environmental Code and in the Marine Environment Ordinance (2010:1341) and the Swedish Maritime and Water Agency's Code of Statutes (HVMFS) 2012:18. The Directive aims to achieve or maintain good environmental

status in the seas of Europe. Environmental quality standards (EQS) for the marine environment are used as legal instruments in order to maintain good environmental status.

8.1.1 Good environmental status

Good environmental status is characterised by 11 descriptors: see Table 3, in Annex 2 to HVMFS 2012:18. The conditions under which good environmental status is achieved are described by the criteria of each descriptor. Indicators must be provided for each criterion (some are missing) that specify what is being measured/studied in the environmental monitoring in order to assess compliance with the criterion.

Table 3. The eleven descriptors of good environmental status.

Good environmental status
Descriptor 1. Biodiversity
Descriptor 2. Non-indigenous species
Descriptor 3. Commercially exploited fish and shellfish
Descriptor 4. Marine food webs
Descriptor 5. Eutrophication
Descriptor 6. Sea floor integrity
Descriptor 7. Permanent alteration of hydrographical conditions
Descriptor 8. Concentrations and effects of hazardous substances
Descriptor 9. Hazardous substances in fish and other marine foods
Descriptor 10. Marine litter
Descriptor 11. Underwater noise

The planned wind farm is located within the offshore waters of the Bornholm Sea and Hanöbukten. Possible impacts on the descriptors and thus on the good environmental status of the marine environment will be addressed in more detail in the EIA.

8.1.2 Environmental quality standards for the marine environment

EQSs have been defined for the marine environment in order to achieve good environmental status. These can be sorted according to the five environmental pressures shown in Table 4. Annex 3 to HVMFS 2012:18 contains EQSs for the marine environment. Each EQS must have at least one indicator (some lack additional indicators). Indicators are used in environmental monitoring measurements/surveys in order to assess compliance with EQSs.

Table 4. Five environmental pressures under which the various EQSs are classified.

Environmental pressures
A. Supply of nutrients and organic matter
B. Supply of hazardous substances
C. Biological disturbance
D. Physical disturbance
E. Litter and noise

Any impact on EQSs for the marine environment will be addressed in more detail in the EIA.

9. Risk analysis

The company will include a risk analysis in the EIA to identify risks to shipping and the area's natural assets during construction, operation and decommissioning of the Södra Victoria wind farm. This analysis also includes unplanned emissions in the event of an accident and proposals for risk-mitigating measures. The analysis will be based on the risk analysis included in the company's application for a Natura 2000 permit for the wind farm. The following main conclusions can be drawn on the basis of the risk analysis:

- The Södra Victoria wind farm is not expected to cause a major increase in risk in the area.
- The risk to shipping is not expected to increase significantly as a result of the wind power installation. A small number of vessels that currently pass through the planned wind power area will have to change course. The crowding together of shipping caused by the wind farm is estimated to be small.
- The risk to conservation values in the area increases slightly as a result of a wind power installation at Södra Midsjöbanken. The consequences of an accident resulting in an oil spill could be serious. However, the probability of such an accident occurring is low.
- There are always certain risks associated with the establishment of a wind farm, as the wind farm will create a new potential obstacle to maritime traffic. Risk mitigation measures should therefore be taken.

Risk analysis and mitigation measures will be further described in the EIA.

10. Cumulative effects

Potential cumulative effects on the environment and the surrounding area may occur as a result of the company's planned activities in combination with other wind farms and other activities in the area.

According to Section 18 of the Environmental Assessment Ordinance (2017:966), cumulative effects arising from the proposed activity in combination with other activities that are currently carried out, have received a permit, or have been notified and may be commenced must be reported.

Ongoing activities in the maritime area with which the planned activities could potentially give rise to cumulative effects include shipping and mining activities in the Polish Economic Zone at Södra Midsjöbanken. The company is not aware of any licensed wind farms or other licensed or notified activities in the south-eastern Baltic Sea that may have cumulative effects together with Södra Victoria.

Cumulative effects will be investigated and described in the forthcoming EIA.

11. Surveys and investigations

Various surveys and investigations will form the basis for the assessments carried out for the forthcoming EIA. Further surveys and investigations may be carried out if issues arise during the consultation that have not been considered previously. These issues will then be developed in the EIA. The company's completed and planned surveys are presented below.

11.1 Completed

RWE has extensive knowledge of the area and the environment in and around the planned Södra Victoria wind farm from the company's history of establishing offshore wind power in Södra Midsjöbanken: see section 1.2. The surveys that have been carried out for the planned Södra Victoria wind farm and that will form the basis of the forthcoming EIA are presented below.

Alternative locations:
SWECO, 2022. *Investigation of alternative locations for offshore wind farms.*

Underwater noise:
Ramboll, 2020. *Södra Victoria offshore wind farm. Part 1. Modelling of underwater noise from geotechnical survey equipment.*

Ramboll, 2021. *Södra Victoria offshore wind farm. Part 2. Modelling of underwater noise.*

Sediment dispersion:
SWECO, 2022. *Sediment dispersion during wind farm construction and cable laying – Södra Victoria project.*

Bottom flora and fauna:
Ocean Ecology, 2022. *Södra Victoria Offshore Wind Farm Benthic Characterisation Survey 2021.*

Fish and commercial fishing:
Marine Monitoring AB, 2022. *Södra Victoria – Impact on fish communities and commercial fishing.*

Marine Monitoring AB, 2020. *Investigation of pelagic fish in Södra Midsjöbanken and their importance as a food source for harbour porpoises and sea birds.*

Harbour porpoises:
Naturens Stemme, 2022. *Possible impact of the offshore Södra Victoria wind farm at Södra Midsjöbanken on the Baltic harbour porpoise.*

BioConsult SH, 2021. *Södra Victoria C-POD monitoring. Presence of harbour porpoises (Jan.2020 – Dec. 2020).*

BioConsult SH, 2022. *Södra Victoria (formerly Södra Midsjöbanken). C-POD monitoring. Presence of porpoises (Jan.2021 – Dec. 2021).*

Birds
Ottvall consulting AB, 2022. *Birds at Södra Midsjöbanken Occurrence of birds in relation to planned wind power.*

Ottvall consulting AB, 2021. Use of Södra Midsjöbanken by breeding bird populations.

Ottvall consulting AB, 2022. *Migratory birds at Södra Victoria in relation to planned wind power.*

Bats:
Calluna, 2021. *Desk study on bats at Södra Midsjöbanken 2021 – Possible impact on bat fauna from the planned wind farm on the basis of similar previous surveys.*

Risk analysis:
SWECO, 2021. *Risk analysis for wind power installation at Södra Midsjöbanken.*

11.2 Planned

Geophysical and geotechnical surveys, including drilling, will be carried out and used as a basis for the detailed design of the planned wind farm, the final selection of foundation techniques and the selection of cable laying methods in the area of the wind farm and the cable corridor for the export cable. Permits for these surveys will be examined in a separate exercise at a later stage.

A marine archaeological survey will be carried out at a later stage within the planned wind farm to ascertain the possible presence and type of remains in the area.

12. Ongoing process

12.1 Schedule for the planned activities

Provided that the necessary permits are obtained, the preliminary schedule for construction, operation and decommissioning is expected to be as follows:

- Pre-construction surveys: approx. 1 year
- Construction work: approx. 2–4 years
- Operation: min. approx. 35 years
- Decommissioning: 1–2 years

12.2 Timetable for the permit process

Figure 23 shows an example timetable for the permit process for review in accordance with the Swedish Economic Zone Act and the Continental Shelf Act, the reviews that are considered to be design factors for the schedule. The timing of the various permit processes and their mutual order are not definite. The permit processes are estimated to take a total of three to four years before the construction phase can begin.

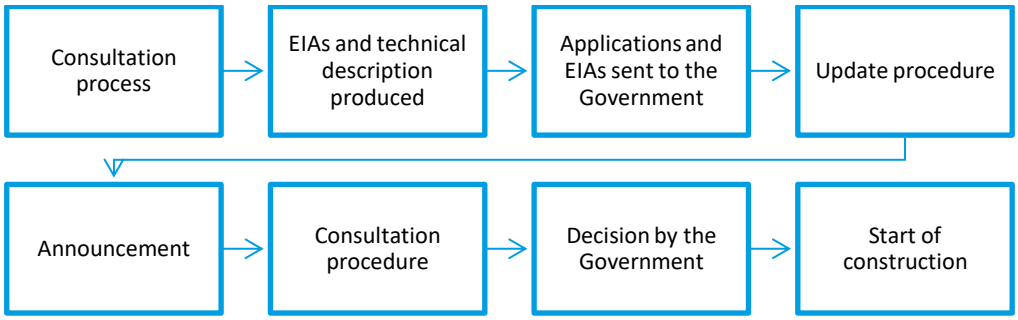

Figure 23. Example of a schematic schedule for the review process for a wind farm in the Swedish Economic Zone.

12.3 Continued consultation process and reviews

Before the wind farm is established, further consultations will be carried out with relevant stakeholders and authorities after the current delimitation consultation has been completed.

12.4 Adjustments during the EIA process

As the consultation and EIA process proceeds, during which the conditions for relevant aspects will be identified, it will be possible to make an early analysis of the project's expected environmental impact and gain an overall picture of its consequences. This will provide a basis for progressively planning and designing adjustments and protective measures in the project. The environmental

adaptation carried out in the project through the environmental assessment process will be described as a whole in the EIA document.

13. Content of the environmental impact assessment and parties to be consulted

13.1 Delimitation of the environmental impact assessment

Chapter 6, Section 35 of the Environmental Code states what an EIA must include. The information to be included in an EIA must be of a scope and level of detail that is reasonable in the light of current knowledge and assessment methods and which is necessary to provide an overall assessment of the significant environmental effects that the activity or measure is likely to have (Environmental Code, Chapter 6, Section 37).

Table 5 summarises the delimitation proposed in Chapter 6.

Table 5. Proposed delimitation in the forthcoming EIA.

Aspect	Addressed in EIA	Comments
National interest: wind energy	Yes	
National interest: nature conservation and nature reserves	Presentation of baseline conditions only	
National interest: cultural environment	Presentation of baseline conditions only	
National interest: outdoor recreation	Presentation of baseline conditions only	
National interest: total defence	Depending on the outcome of the consultation process	
National interest: commercial fishing	Yes	
National interest: shipping and fairways	Yes	
Natura 2000	Presentation of baseline conditions only	Natura 2000 assessment for Hoburgs bank och Midsjöbankarna is a separate process. Long distance to other Natura 2000 areas
International protection	Yes	
Depth conditions and hydrology	Presentation of baseline conditions only	
Seabed conditions, sediments and pollution	Presentation of baseline conditions only	

Aspect	Addressed in EIA	Comments
Bottom flora and fauna	Yes	
Fish	Yes	
Marine mammals	Yes	
Birds	Yes	
Bats	Yes	
Cultural environment and marine archaeology	Yes	
Outdoor recreation	Yes	
Human health	No	Long distance to the coast
Shipping and fairways	Yes	
Commercial fishing	Yes	
Military areas	Depending on the outcome of the consultation process	
Infrastructure	Yes	
Monitoring stations	Yes	
Raw material extraction sites	Yes	Carbon dioxide storage only
Landscape view	No	Long distance to the coast
Marine Environment Directive and Water Framework Directive	Yes	
Risk analysis	Yes	
Cumulative effects	Yes	

RWE proposes the following structure and content for the EIS through the proposed delimitation:

Non-technical summary

1. Administrative details
2. Introduction
3. Permit process and environmental assessment
4. Consultation
5. Delimitation
6. Options
7. Technical description
8. Location, planning conditions and national interests
9. Method for assessments
10. Impacts of planned activities
11. Baseline description, environmental impact and protective measures during construction, operation and decommissioning
    - 11.1. Bathymetry
    - 11.2. Water quality and hydrography
    - 11.3. Sediments and pollutants in sediments
    - 11.4. Wind conditions

11.5. Soundscape
11.6. Bottom flora and fauna
11.7. Fish
11.8. Marine mammals
11.9. Birds
11.10. Bats
11.11. Protected natural areas
11.12. Heritage sites
11.13. Recreation and outdoor activities
11.14. Commercial fishing
11.15. Shipping and fairways
11.16. Installations and infrastructure
11.17. Military training areas
12. Cumulative effects
13. Transboundary impacts
14. Risk assessment
15. Climate and air emissions
16. Marine Environment Directive
17. Environmental objectives
18. Overall assessment
19. Protective measures
20. Competence in the EIA team
References

During the consultation, RWE welcomes comments on the forthcoming EIA scope and format.

13.2 Parties consulted

RWE proposes that the following individuals, authorities, organisations and others be included in the consultation and contacted by email or post:

State and local authorities	
National Board of Building, Planning and Housing	Swedish Environmental Protection Agency
Swedish Energy Agency	Swedish Police Authority
National Defence Radio Establishment	Swedish Post and Telecom Authority (companies with radio and telecommunications connections)
Swedish Armed Forces	Region Gotland
Swedish Agency for Marine and Water Management	Swedish National Heritage Board
Swedish Board of Agriculture	Swedish Geotechnical Institute
Legal, Financial and Administrative Services Agency	Swedish Maritime Administration
Municipality of Kalmar	SMHI
Municipality of Karlskrona	Swedish National Maritime and Transport Museums
Swedish Coast Guard	Svenska Kraftnät

Swedish Civil Aviation Administration	Geological Survey of Sweden
Kalmar County Administrative Board	Municipality of Torsås
Gotland County Administrative Board	Swedish Defence Research Agency
Swedish Civil Contingencies Agency	Swedish Transport Administration
Municipality of Mörbylånga	Swedish Transport Agency
Swedish Museum of Natural History	
Associations and organisations	
3G Infrastructure Services AB (3GIS)	Swedish Pelagic Federation Producentorganisation (SPFPO)
BirdLife Sweden	Svenska Båtunionen
Coalition Clean Baltic	Svenska kryssarklubben
Föreningen Svensk Sjöfart	Svenska UMTS Nät AB
Greenpeace	Sveriges fiskares Producentorganisation (SFPO)
Havs- och kustfiskarnas producentorganisation (HKPO)	Association Ports of Sweden
Hi3G Access AB	Chamber of Commerce and Industry of Southern Sweden
Kalmar Airport	Tele 2
Swedish Society for Nature Conservation.	Telenor
Net 4 mobility	Telia
Rönne Airport	Teracom
Ronneby Airport	Visby Airport
Swedish Anglers Association	World Wide Fund for Nature WWF
Swedavia	
Miscellaneous	
Swedish Institute for the Marine Environment	Kalmar Maritime Academy
Lund University	Stockholm University Baltic Sea Centre
Swedish University of Agricultural Sciences	World Maritime University

Otherwise, the public and other stakeholders will be consulted via advertisements in the daily press.

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