

Draft scoping decision for the plan for the North Sea Energy Island

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1. About the scoping decision

Pursuant to section 11 of the Danish Environmental Assessment Act (*Miljøvurderingsloven*), prior to the preparation of an environmental report for plans and programmes, the report contents must be delimited.

The purpose of a scoping decision is to specify the key factors that must be described, analysed and assessed in the environmental report. The scoping decision also sets the scope and states how detailed the environmental report must be, so that the authorities can assess the environmental impacts of a plan or programme and decide whether to approve it on an informed basis, including whether special measures should be implemented in relation to monitoring environmental impacts or the like.

This draft scoping decision represents the Danish Energy Agency's (DEA) proposal for the contents and level of detail of the environmental report which Energinet is preparing for the North Sea Energy Island plan, in accordance with the 'Order to conduct preliminary studies for energy islands' (*Pålæg om gennemførelse af forundersøgelser for energiøer*) of 29 November 2020. The scoping decision thus forms the basis for the contents of the environmental report to be prepared for the plan for the North Sea Energy Island. Before issuing the final scoping decision, affected authorities and neighbouring countries will be consulted. It has also been decided to engage in public consultation at an early stage. The final scoping decision will be prepared based on this draft and the consultation responses received.

2. Background to the plan for the North Sea Energy Island

In the 2020 climate agreement, all the political parties in the Danish Folketing, with the exception of Nye Borgerlige, agreed on a climate plan for energy and industry etc. from June 2020. The agreement stipulates that an energy island is to be constructed in the North Sea, with 3 GW of offshore wind power connected. Long term, it is expected that 10 GW of offshore wind power will be connected to the North Sea Energy Island¹. On 4 February 2021, the political parties agreed on an 'Addendum to the climate agreement on energy and industry of 22 June 2020, regarding the ownership and construction of energy islands etc.' This stipulates that the North Sea island is to be built using land reclamation², and defines possible locations for the island and 3 GW of offshore wind power for preliminary study. The decision to initiate

¹ The 'North Sea Energy Island' refers to the complete project, consisting of offshore and onshore facilities, including grid expansions to integrate 3 GW of renewable energy from offshore wind power in phase one and 10 GW in the longer term.

² 'Artificial island' refers to the island to be established in the North Sea through land reclamation, as a base for the technical systems necessary to realise the North Sea Energy Island project.

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preparations for preliminary studies in a selected area of the North Sea is based on a fine screening of possible sites for offshore wind farms in Danish waters conducted for the Danish Energy Agency in spring 2020³, and an addendum to the fine screening prepared in late summer 2020⁴.

The first steps in tendering the artificial island were commenced in 2021. The offshore wind farms will only be tendered after this tender has been completed. The final tender conditions express the mandates from the 2020 climate agreement, and the subsequent decisions made by the parties to the agreement. Pursuant to the Danish Act on renewable energy, the Danish Energy Agency is the authority in relation to planning large-scale offshore wind farms, and responsibility for establishing the artificial island will be assigned to the agency in the proposed Act on the planning and construction of an energy island in the North Sea⁵. The plan for the North Sea Energy Island sets the framework for establishing the energy island, and thus for the coming tenders. Prior to the final tender conditions being set, Energinet will conduct a number of preliminary and environmental studies at the behest of the Danish Energy Agency, including an environmental assessment of the plan for the North Sea Energy Island, pursuant to Section 8(1) of the Danish Environmental Assessment Act.

The preliminary political and administrative decisions and related analyses that form the basis of the Danish Energy Agency's plan for the North Sea Energy Island are shown in Table 1.

Table 1. Overview of the political decisions and analyses that form the basis of the plan for the North Sea Energy Island. Political agreements and reports are publicly available at: <https://ens.dk/ansvarsomraader/vindenergi/udbud-paa-havvindmoelleomraadet/energioeer>

Political decision/analysis	Content of the decision/analysis
<i>10 GW Screening (Danish Energy Agency) of April 2019</i>	The energy agreement from 2018 states that Danish territorial waters must be screened for locations for up to 10 GW of future offshore wind farms. The main focus of the screening is to identify suitable areas for erecting new offshore wind farms, taking into account other applicable interests in Danish waters, as of early 2019. The screening identified six suitable areas in the North Sea, three of which are large enough to accommodate 3 GW.
<i>Fine screening 2020 (COWI) of May 2020</i>	The fine screening from 2020 updates the 10 GW screening from 2018 for selected areas in Danish waters for the installation of offshore wind power.

³ COWI 2020 (May), 'Miljø- og planmæssige forhold for Bornholm I + II, Nordsøen II + III og området vest for Nordsø II + III'.

⁴ COWI 2020 (September), 'Tillæg til finscreening af havarealer til etablering af nye havmølleparker med forbindelse til energiø/hub'

⁵ <https://hoeringsportalen.dk/Hearing/Details/65330>

The purpose of the fine screening is to confirm that it is practically possible to establish 3 GW of offshore wind power at a specific location in the designated areas in the North Sea, in relation to environmental and planning aspects, and to provide financial calculations to serve as a basis for deciding on the most economically optimal locations.

The fine screening confirms that it is possible – in practice and in relation to environmental, planning and economic aspects – to construct offshore wind farms connected to an energy island/hub in all the areas investigated.

Climate agreement for energy and industry etc. of 22 June 2020

The parties to the agreement decided to establish two energy islands – one in the North Sea and one in the Baltic Sea. The island in the North Sea will serve as a hub for 3 GW of offshore wind power and be connected to Jutland and other nations.

The agreement also stipulates that park 3 from the 2018 energy agreement is to be part of the first phase of the energy islands, and thus be realised by 2030.

Addendum to fine screening (COWI) of September 2020

The addendum to the fine screening investigates an alternative location for the offshore wind farms and artificial island within the broad areas investigated.

The fine screening shows that it is possible to place the three offshore wind farms within a radius of approx. 40 km from a centrally located energy island.

A geological screening survey of potential energy island areas in the Danish North Sea (GEUS). 2020

Geological expert assessment for the specific shallow areas in the North Sea which may be relevant to construction of the island.

Decision by the parties to the energy agreement on location in the Baltic Sea and the general area in the North Sea, November 2020

The parties to the energy agreement decided on the location of the energy island in the Baltic Sea and the general area in the North Sea. It was also decided that the Danish Ministry of Climate, Energy and Utilities should instruct Energinet to initiate preliminary studies within the selected location in the Baltic Sea, and prepare preliminary studies in the North Sea.

Political agreement with Germany, the Netherlands and

The energy islands' initial capacity of 3 GW in the North Sea and 2 GW in the Baltic Sea, with the possibility to add a further 7 GW in

Belgium, December 2020 and February 2021

the North Sea, is larger than the expected future Danish electricity consumption. The electricity must therefore be exported to our neighbouring countries and contribute to the green transition outside Denmark's borders.

Work on establishing international connections is already underway. Denmark has made political agreements with Germany, the Netherlands and Belgium to commence joint analysis work on the connection to the North Sea Energy Island.

The agreements will provide the basis for cooperation between the transmission system operators, which will now investigate possible ways to connect the North Sea Energy Island to the various countries.

Addendum to the climate agreement on energy and industry of 22 June 2020, regarding the ownership and construction of energy islands etc., February 2021

The parties to the agreement decided that the island in the North Sea must be constructed as reclaimed land, rejecting a platform solution. It was also decided that the North Sea Energy Island must handle a minimum of 3 GW in the first phase, and up to 10 GW in the longer term.

The parties to the agreement also decided that the nearest offshore wind farms should be located approx. 80 km from the west coast of Jutland and delimited an area for the final location of the artificial island.

Proposed Act on planning an energy island in the North Sea

The purpose of the act is to set the framework for realising the political agreements on the energy island in the North Sea. The act has been drafted as a main act that allows permission to construct the energy island to be granted. The act will be presented to the Danish Folketing in October 2021.

3. Plan for the North Sea Energy Island

The Danish Energy Agency is preparing a plan for the North Sea Energy Island. The plan is being prepared in cooperation with Energinet, in consultation with the public, affected authorities and neighbouring countries.

The plan has been preliminarily described in the '*Framework for the coming proposed plan for the North Sea Energy Island to be used for environmental assessment*' memorandum of 23 August 2021. The final proposal will be complete in the spring or summer of 2022. The memorandum does not include the locations of land facilities,

as these will only be decided in autumn 2021, but the final plan proposal will define specific areas in the North Sea and Jutland for the construction of the North Sea energy island, and the general elements the energy island will consist of.

The plan thus creates a general planning framework, within which projects can be tendered and authorities can issue permits or approve plans going forward.

The purpose of the plan is to make it possible to construct the North Sea Energy Island, and thereby increase the share of renewable energy from offshore wind power in the Danish and European power grids.

If finally approved, the plan will make it possible to tender specific offshore wind farms, the artificial island, landing cables and onshore facilities etc. for the North Sea Energy Island.

The plan is expected to include the following areas at sea:

- A general area in the North Sea, 1,052 km² in size, for construction of an artificial island and associated facilities, a 3 GW offshore wind farm, submarine cables connecting the wind turbines with the artificial island's high-voltage substations, corridors for submarine cables that can connect future offshore wind farms (up to an additional 7 GW) to the artificial island, and a navigation route into the artificial island's port facilities.
- The artificial island will be positioned within a delimited sub area, 6.25 km² in size, within the area noted above.
- A number of corridors approx. 1,500 metres wide, connecting the artificial island to the west coast of Jutland. Submarine cables can be installed in the corridors.
- A number of corridors approx. 1,500 metres wide, connecting the contained island with partner countries and existing corridors for submarine cables in German waters. Submarine cables will be laid in the seabed in the corridors for the transfer of electricity to partner countries (interconnectors).

The plan is expected to include the following areas on land:

- Areas on the west coast of Jutland for landing cable connections from the North Sea Energy Island.
- Areas for establishing a possible coastal coupling station within a distance of 5 km from the coast.
- Areas for establishing a high-voltage substation for grid connection to the 400 kV transmission grid (between Tjele in the north and Kassø in the south), within a distance of 5 km from the relevant existing high-voltage substations.
- Corridors for laying underground cables between landfall locations and onshore substations.

4. Process for environmental assessment of the plan for the North Sea Energy Island

The plan for the North Sea Energy Island is subject to environmental assessment requirements, in line with Section 8(1) of the Danish Environmental Assessment Act. This means that the plan must be environmentally assessed and an environmental report must be prepared, to be published together with the proposed plan for the North Sea Energy Island.

The environmental assessment process consists of the following steps:

- The Danish Energy Agency prepares draft scoping decision.
- The Danish Energy Agency consults the affected authorities, the public and neighbouring countries regarding scoping of the environmental report contents.
- The Danish Energy Agency prepares the final scoping decision based on the draft and the consultation responses received.
- Energinet prepares an environmental report assessing the likely environmental impacts of the plan based on the scoping decision.
- The Danish Energy Agency submits the proposed Plan for the North Sea Energy Island for public consultation together with the environmental report. At the same time, neighbouring countries are consulted on cross-border impacts.
- The Danish Energy Agency approves the plan. This is then published together with a summary statement describing how the environmental assessment and the consultation responses have been taken into consideration.
- The Danish Energy Agency performs any planned monitoring of the environmental impacts of the plan.

5. Statutory requirements for the environmental report

Section 12 of the Danish Environmental Assessment Act stipulates the requirements for the environmental report. The environmental report must be prepared based on the following information, stated in Appendix 4 of the Act:

- a) an outline of the plan or programme content, main purpose and links with other relevant plans and programmes

- b) a description of the relevant aspects of the current environmental status and its probable future development if the plan or programme is not implemented
- c) a description of the environmental factors in areas which could be significantly affected
- d) a review of any existing environmental problems relevant to the plan or programme – particularly problems in areas of special significance to the environment, such as those highlighted in Directives 79/409/EEC and 92/43/EEC
- e) the environmental protection objectives set at an international, partnership or member state level which are relevant to the plan or programme, and how these objectives and other environmental considerations have been taken into account when preparing the plan or programme
- f) the likely significant impact on the environment, including on biological diversity, the population, human health, fauna, flora, soil, water, air, climatic factors, property and cultural heritage – including churches and their surroundings and architectural and archaeological heritage, landscapes and the mutual relationships between the above factors
- g) a description of the planned measures that can be implemented to avoid, limit and counteract, as far as possible, any significant negative environmental impact from implementation of the plan or programme
- h) a brief outline of the reasons for selecting the alternatives which have been covered, and a description of how the assessment has been carried out, including any difficulties (such as technical deficiencies or lack of know-how) which have arisen during collection of the required information
- i) a description of the monitoring measures envisaged pursuant to Section 14
- j) a non-technical summary of the information given under the above points.

Section 12 of the Danish Environmental Assessment Act also stipulates that the environmental report must contain any information that can be reasonably demanded, taking into account current knowledge and common assessment methods and how detailed the plan is, its contents, its stage in the overall decision-making process, and whether factors might be better assessed at another stage of the process.

6. Scope of the environmental report

This draft scoping decision is based on Section 12 and Appendix 4 of the Danish Environmental Assessment Act, including which environmental aspects and parameters are to be included.

6.1 Description of the North Sea Energy Island plan

Appendix 4(a) of the Danish Environmental Assessment Act stipulates that the environmental report must contain an outline of the plan contents, main purposes and links with other relevant plans and programmes. This includes:

- A general description of the process for the North Sea Energy Island, from the 2020 climate agreement to the addendum to the climate agreement in 2021, including the earlier fine screening of locations and selection of the specific study area, and including the reasons for selecting the area, the background for the plan, and the further process following the strategic environmental assessment.
- An outline of the area reservations for the technical facilities for which the plan creates the framework: The artificial island with onshore facilities, landing cables for Jutland, onshore facilities in Jutland in the form of underground cables, any coastal coupling station and any expansion of the existing high-voltage substation, and offshore wind farms, internal cable grids and export cables to the artificial island. Cable connections (interconnectors) to other countries must also be outlined. The legal impacts of the plan on use of the areas are also outlined.
- A description of the relationships to other relevant plans and programmes, the planning in the affected municipalities (e.g. in relation to onshore renewable energy expansion or other physical planning) and the Marine Spatial Plan, which is expected to come into force in late 2021.

6.2 Alternatives

Annex 4 (h) of the Danish Environmental Assessment Act stipulates that the environmental report must include a description of possible alternatives and the reasons for choosing and rejecting technical solutions and the placement of the North Sea Energy Island. The description must account for the process involving the 10 GW screening in 2019, the subsequent screening of specific areas in 2020 and associated addendum, and selection of the planned area for the North Sea Energy Island. The description must specify the general criteria for selection of the preliminary investigation area for North Sea Energy Island in relation to the alternatives, including in relation to Danish Defence's exercise and shooting areas, Natura 2000 sites, and narrowing down the original general area for offshore wind power in the North Sea.

6.3 Environmental status, existing environmental conditions and the reference scenario

Annex 4 (b) and (c) of the Danish Environmental Assessment Act stipulate that the environmental report must describe the current environmental status in the plan area and existing environmental conditions for the selected environmental factors from Appendix 4 (f) stated in sections 6.6 and 6.7. The existing environmental conditions must be described based on existing knowledge.

The report must focus on the environmental conditions that are expected to be affected by construction of an artificial island and offshore wind farms with associated onshore facilities and cable connections, as described in the plan for the North Sea Energy Island, with a special focus on relevant existing environmental conditions, including environmental objectives, limit values etc., which are at risk of being impacted by the construction of the North Sea Energy Island. There must also be special focus on the areas or species protected under the Conservation of Wild Birds Directive and the Habitats Directive which are at risk of being impacted.

In addition to reporting on existing environmental conditions, the environmental report must contain a description of the likely future development in the area if the plan (i.e. an artificial island and offshore wind farms with onshore facilities and cable connections to other countries) is not implemented in the plan area – alternative 0 or the reference scenario. This scenario must both consider 'local' environmental impacts from the plan, and the environmental impacts from the expansion of renewable energy which will not take place if the plan is not implemented.

6.4 Environmental protection objectives

In relation to the current environmental status and existing environmental conditions (section 6.3) and assessment of the impact on the environment (section 6.5), Appendix 4 (e) of the Danish Environmental Assessment Act stipulates that the report must include relevant environmental protection objectives and protection obligations, set at the international, national or local level, and describe how the plan takes these into account.

The environmental protection objectives and obligations to be included in the environmental report must include:

- The UN Sustainable Development Goals
- The Habitats Directive (92/43/EEC), with national Natura 2000 plans and special protection of species (Annex IV)
- The Conservation of Wild Birds Directive (2009/147/EC) with national Natura 2000 plans and general protection of birds
- The Water Framework Directive (2000/60/EC) with national water plans

- The Marine Strategy Directive (2008/56/EC) with its national marine strategy (Denmark's Marine Strategy)
- The Danish Nature Conservation Act (Section 3 protection, protected areas, building and protection lines)
- The Danish Marine Environment Act (discharges, disposal and dumping)
- The Danish Raw Materials Act (extraction and utilisation of raw materials)
- The Danish Fisheries Act (exploitation of marine food resources)
- The Danish Nature Conservation Act (protected nature and watercourses)
- The Danish Museum Act (protected dikes, etc.)
- The Danish Soil Contamination Act
- The Danish Watercourse Act
- Area interests identified in the regions' raw material planning (raw material areas)
- Area interests identified in municipal planning (areas of special landscape value, map of Green Denmark, cultural heritage areas, areas with special drinking water interests, etc.)
- Municipal strategies for sustainability, climate, nature, the environment, etc.
- Municipal climate adaptation projects

6.5 Environmental impacts – general

Appendix 4 (f) of the Danish Environmental Assessment Act stipulates that the environmental report must contain assessments of the plan's likely significant environmental impacts. A detailed description of the required content for the various environmental conditions the Danish Environmental Assessment Act covers is given below.

The impacts to be described and assessed must cover, as necessary, direct and indirect, secondary, cumulative, cross-border, short, medium and long term, permanent or temporary, and positive or negative effects.

Cumulative impacts refer to the combined impacts from the plan, i.e. construction of an artificial island and offshore wind farms in the area designated for the North Sea Energy Island and onshore facilities and cable routing within the specified time period for establishment and grid connection, together with other known and approved plans or programmes or specific approved projects. The focus is particularly on potential cumulative impacts with other offshore wind farms that are planned, under construction or laid out in the Marine Spatial Plan, other utilisation of the marine area and planning for land resulting from municipal or local planning.

For each environmental factor, the plan's impact on the environment must be assessed at the level of detail that is possible in light of the contents of the plan. The plan's impact on the environment should not be assessed for a specific project, but at a general level in relation to the potential environmental impacts that may result

from construction of an artificial island, offshore wind farms with the given GW capacity, onshore facilities and cable connections. The assessment of temporary impacts from the construction phase must be described at a theoretical level but can only be assessed in connection with the specific project. The environmental impact assessment must primarily focus on the permanent impacts from the construction and operating phases and quantify these as far as possible.

Appendix 4 (g) of the Danish Environmental Assessment Act stipulates that the environmental report must, as far as relevant and possible, describe and assess measures to limit the most significant environmental impacts of the plan, e.g. through the placement and design of the facilities or the choice of construction methods and times.

The environmental report must include an assessment of the likely significant impacts on the environmental conditions, at the level of detail described in sections 6.6 and 6.7.

6.6 Impacts on the environment from onshore facilities

The various environmental factors listed in Appendix 4 (f) of the Danish Environmental Assessment Act are reviewed below. An assessment is made as to whether the plan for the North Sea Energy Island could result in a likely significant impact from onshore facilities on the various environmental factors, and whether each factor should be included in the environmental report.

6.6.1 Biodiversity

6.6.1.1 Flora and fauna, including Annex IV species and Natura 2000

Description of potential environmental impacts

The construction of a possible coastal coupling station in Jutland and the installation of underground land cables may potentially affect protected and vulnerable species and natural habitats in the plan area by removing or disturbing habitats. This includes impacts on protected species and areas, such as habitat areas, Section 3 areas and species in the conservation objectives.

However, the environmental impacts and possibilities for preventive measures are deemed to be completely dependent on the specific project, construction methods and plant locations. Since these are not known at present, the environmental report must therefore only deal with the potential environmental impacts at a general level.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must report on the existing general environmental conditions in the area where the plan is intended to be implemented. The report must focus on the presence and nature of existing protected natural habitats and species, including species in the conservation objectives for Natura 2000 sites, and Annex IV species that can be expected to be found in the area where the subsequent specific project is to be implemented. The report is expected to be completed on the basis of existing available monitoring and habitat data.

Assessment of impacts

The environmental report must contain an assessment of the expected potential impacts on species and natural habitats from the onshore facilities included in the plan. This assessment must focus on particularly vulnerable and protected habitats or species in the area, where extra attention in relation to construction methods and periods, preventive measures or monitoring is required during the later specific project.

The environmental report must, as far as possible, make recommendations as to how adjustments can be made to the location or design of the facilities etc. in order to reduce the environmental impacts, in connection with the specific project's design and environmental assessment.

For Natura 2000 sites, a HRA must be carried out and an Appropriate Assessment must subsequently be prepared if it cannot be shown that it will be possible to implement the plan without significant impact on the conservation objectives. A similar assessment must be conducted in relation to Annex IV species and impacts on breeding and resting areas, with the aim of maintaining the ecological functionality for the protected species.

The HRA must clearly state whether a significant impact on Natura 2000 sites can be ruled out. If a significant impact cannot be ruled out, the environmental report must contain an Appropriate Assessment that meets the requirements in Article 6(3) of the Habitats Directive.

If it is deemed that detailed conditions in relation to the project design, location, construction methods etc. will be necessary in order to implement the plan and the subsequent project without harming the conservation objectives of a Natura 2000 site, this must be clearly stated. In this case, the conditions and their expected impact on the Natura 2000 site must be clearly explained, so that they can be stipulated when implementing the plan, and in connection with subsequent implementation and environmental assessment of the specific project.

The Natura 2000 HRA must be clearly presented as an independent section in the environmental report.

6.6.2 Population and human health

6.6.2.1 Noise and dust

Description of potential environmental impacts

The onshore construction in the plan may have impacts during the construction phase resulting from the noise and dust-generating work of laying underground cables and construction work to establish and expand substations.

The specific project design and location are not defined in the plan. No meaningful assessment of noise and dust impacts in the construction phase can therefore be made in the environmental report. However, experience from other onshore facilities for offshore wind turbine projects has shown no significant environmental impacts.

During the operation phase, there will be noise from high-voltage substations which may result in disturbance and the applicable noise limits being exceeded.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report does not report on existing conditions in relation to dust and noise impacts in the areas designated in the plan, as potential environmental problems and local vulnerability to the impacts, e.g. proximity to residential areas, can only be assessed in connection with environmental assessment of the specific project (EIA).

Assessment of impacts

However, the environmental report must contain a general assessment of the noise impact that can be expected during the operation phase for the type of onshore facilities that will have to be constructed to service the North Sea Energy Island. The assessment must be based on experience from comparable existing facilities, including experience in relation to noise disturbances and distances to residential areas etc. The environmental report must, as far as possible, make recommendations as to how adjustments can be made to the location or design of the facilities etc. in order to reduce the environmental impacts, in connection with the specific project's design and environmental assessment.

6.6.2.2 Magnetic fields

Description of potential environmental impacts

The plan allows for the construction of energised installations, such as underground cables and coupling stations. All energised installations generate magnetic fields when current flows through them. These magnetic fields quickly decrease in intensity in proportion to the distance from the installation. Outside the fence around a high-voltage substation, the magnetic field will have dropped to an insignificant level. The magnetic field around an underground cable will have fallen to a very low value just a few metres from the cable. Given the scientific uncertainty regarding the possible

health impacts from long-term exposure, the Danish Health Authority recommends a precautionary approach in relation to the placement of new high-voltage installations in proximity to residential properties etc. and vice versa.

It is normal practice to place live onshore installations at a certain distance from sensitive settlement, and this is also assumed in the plan. It is therefore deemed that the plan will not result in environmental impacts from magnetic fields on the population and human health.

Contents and level of detail in the environmental report

This issue is not discussed in the environmental report.

6.6.2.3 Recreational interests

Description of potential impacts

The plan's designation of land areas for substations and land cables will result in restrictions to public access to these areas, and potentially to temporary barriers on access roads and paths. This may affect public access to recreational experiences.

The permanent substations may affect the recreational experience of the landscape due to visual impacts and noise. If the noise level (see section 6.6.2.1 above) or the visual impact (see section 6.6.7) is deemed to be significant, this will be included in the assessment of the recreational impact for the areas affected.

Contents and level of detail in the environmental report

The environmental report must describe the recreational impacts on the areas included in the plan and the potential impacts from a future project a general level. The environmental report must state whether the location or visual and noise impacts of future onshore facilities will have a significant impact on recreational interests.

6.6.3 Land and soil areas

Description of potential impacts

The plan's designation of areas for onshore facilities will entail that construction work and operating activities may impact on soil and the use of land areas. This applies, for example, to cable laying and the allocation of land for the establishment of coupling stations and expansion of existing high-voltage substations. It is expected that normal agricultural operations can be maintained, under certain conditions, in connection with the operation of a future cable installation. Experience from similar projects shows that there may primarily be impacts on land areas and soil from the establishment of substations, while the impacts from cable routing are not expected to be significant.

A detailed assessment can only be made in connection with the municipal planning associated with the permit application for the specific project the land is allocated to in the plan.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must contain a general report on the land use in the areas designated for onshore facilities, with a focus on cable installations, high-voltage substations and any coupling station. The report will not include details about soil types, soil conditions and any soil contamination, as the impacts of these will depend entirely on the specific location and design of the facilities.

Assessment of impacts

The environmental report must contain a general assessment of the potential impact of the plan on land use in the designated areas, e.g. in relation to maintaining agricultural operations. The assessment must be based in part on Energinet's knowledge and experience from other projects.

6.6.4 Water

Description of potential impacts

The plan allows for the construction of onshore facilities in the designated areas. Construction work could impact on groundwater, watercourses, lakes etc. – the aquatic environment, which may have an impact on meeting water planning objectives.

The nature and scope of the potential impacts will depend entirely on the specific project and location, including whether cables are laid by cutting through or drilling under watercourses. It is therefore not deemed to be possible to qualify the potential impact in connection with the environmental report. Potential impacts on water and water quality from onshore installations will therefore only be considered in general terms.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must contain a general report on types of surface water (lakes and watercourses) within or near areas that may be affected by elements of the plan, i.e. any coastal coupling station, land cables or expansion of the existing high-voltage substation. The report should not consider the status and condition of

the various surface water in detail. The report should focus on groundwater at a general level, if it is possible that the later specific project may have an impact on groundwater.

Assessment of impacts

The environmental report must contain a general assessment of the impacts the onshore facilities could have on surface water and groundwater, based on Energinet's knowledge and experience from other projects.

6.6.5 Air and climatic factors

Description of potential impacts

Production of the components to be used when connecting to the existing high-voltage grid will involve the consumption of raw materials and energy, and machinery will also have to be used during the construction phase which emits particles and greenhouse gases to the air. This impact is deemed to be entirely dependent on the specific project, so there is insufficient basis for an assessment in the environmental report. However, experience from other onshore facilities for offshore wind turbine projects has shown no significant environmental impacts.

There will be no air emissions from either a coupling station or the high-voltage cables during the operation phase, but components for any expansion of the existing high-voltage substation could contain powerful greenhouse gases.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report is not intended to report on existing air and climate conditions and the impact on these from onshore facilities. A report on the significance of the plan in relation to objectives for the reduction of greenhouse gases and the green transition will be provided in the section of the environmental report covering possible impacts on the marine environment (see later in this scoping decision).

Assessment of impacts

The environmental report must contain an assessment of potential greenhouse gas emissions from the onshore facilities that can be expected to be used for a specific project, if these are expected to contain powerful greenhouse gases. The description must be based in part on Energinet's experience from similar types of facilities, including the risk of emissions.

The environmental report will not contain an assessment of the impact on air and climatic factors in general, either in relation to the construction or operation phase.

6.6.6 Material assets

Description of potential impacts

The impact on material assets that can be expected as a result of the plan for the North Sea Energy Island will be closely tied to the land use that follows from construction of the specific facilities.

Impacts on material assets can result from impacts on the possibilities for utilising land for raw material extraction, agriculture, infrastructure or residential buildings. The potential impacts will be entirely dependent on the specific project, including the location of noise-generating components and distances to residential areas etc., and the extent to which agricultural operations can continue above underground cables.

The plan allows the establishment of onshore facilities which are themselves of material benefit to society. The placement of near-shore facilities can potentially lead to an increased risk of the loss of material assets, due to the risk of coastal erosion and flooding. The impacts are deemed to be entirely dependent on the specific project and location, and therefore cannot be qualified in the environmental report.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must contain a general report on existing conditions in relation to material assets and their utilisation.

Assessment of impacts

The environmental report must contain a general report on the potential impact of the onshore facilities on other land utilisation in the area covered by the plan for the North Sea Energy Island. The environmental report must report at general level on the extent to which existing land utilisation will continue to be possible, including whether potential raw material extraction, agricultural interests, residential areas or infrastructure could be affected.

The environmental report's outline of the potential impacts on material assets should not include any financial valuation, e.g. impairment of properties subject to noise exposure or compensation in relation to loss of agricultural operations, as these factors are outside the scope of an environmental assessment.

The environmental report must, as far as possible, make recommendations as to how adjustments can be made to the location or design of the facilities etc. in order to reduce the environmental impacts, in connection with the specific project's design and environmental assessment.

6.6.7 Landscape and visual factors

Description of potential impacts

The plan allows for onshore facilities which, depending on the location and design, may be visible to varying degrees in the existing landscape. The visual impact, i.e. visibility, of coupling stations and high-voltage substations, can affect the population, as technical installations can disturb the experience of a landscape (visual impact).

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must contain a general description of existing visual factors and landscape interests in the areas designated for onshore facilities in the plan.

Assessment of impacts

The environmental report must contain a general assessment of the visual impact from the types of technical installations that are expected to be established in the designated areas in the plan. As far as possible, this assessment must be based on example illustrations, images of existing, comparable facilities or representative visualisations from similar projects.

The assessment should not be specific in relation to the visual impact for given locations, as the plan does not state the specific placement and design of onshore facilities. The assessment should only be a general assessment of the expected scope and nature of the visual impacts. However, the assessment in relation to the placement of the high-voltage substations must be more detailed, as their specific locations will be known when the environmental report is prepared. A specific description must therefore be given of the area and any expansion of the substation.

The assessment should also not include any visual disturbances from the construction phase, as the elements of the construction phase are not defined in the plan and a meaningful assessment therefore cannot be made. Experience from other onshore facilities for offshore wind turbine projects shows that the construction phase does not have a significant impact on visual factors.

6.6.8 Cultural heritage, including churches and their surroundings, and architectural and archaeological heritage

Description of potential impacts

The construction of onshore facilities could potentially have impacts on cultural heritage, including churches and their surroundings, and architectural and archaeological heritage, due to the placement of a possible coupling station and expansion of an existing high-voltage substation. The impacts could affect the value of the landscape and the experience of the landscape and cultural heritage.

Construction work could potentially affect archaeological assets. The specific impacts can only be assessed in connection with the environmental impact assessment (EIA) for a specific project, but the general nature of the onshore facilities is known and the environmental report can therefore give an idea of the potential environmental impact.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must generally report on existing relevant cultural heritage in the designated areas, i.e. whether the areas contain special cultural heritage assets.

Assessment of impacts

The environmental report must contain a general assessment of the potential impacts of future facilities on cultural heritage, including churches and their surroundings, and architectural and archaeological heritage. The assessment must be based on existing knowledge.

The environmental report should not contain an assessment of the potential impact on cultural heritage from the construction phase of a future specific project.

The environmental report must, as far as possible, make recommendations as to how adjustments can be made to reduce the environmental impacts, in connection with the specific project's design and location.

6.7 Impacts on the environment from offshore facilities

This section contains a description of the environmental factors to be included in the environmental report with regard to possible impacts the plan to construct the North Sea Energy Island could have on environmental factors at sea, including impacts on other users of the marine area.

6.7.1 Biodiversity

6.7.1.1 Natura 2000 and Annex IV species

Description of potential impacts

The construction of an artificial island and offshore wind turbines with associated submarine cables and interconnectors could potentially impact on the conservation objectives for Natura 2000 sites and on Annex IV species, in both the construction and operation phases.

Whales and certain seal species are protected by the EU Habitats Directive and in the conservation objectives for Natura 2000 sites. All whale species are also protected in their natural areas of incidence (Annex IV species). Construction of an artificial island and offshore wind farms could impact marine mammals if noisy methods are used during the construction phase, such as driving monopiles or pin piles for wind turbine foundations, which can cause temporary or permanent hearing damage and significant disruptions to behaviour.

Other impacts on marine mammals can be caused by noise from marine traffic (in the construction and operation phases), sediment dispersion in connection with excavation activities on the seabed and impacts on the species' food supply, as well as a number of other factors.

The artificial island and offshore wind farms could potentially also interfere with whale migration, which occurs annually between foraging and resting areas and breeding areas. Finally, the reduced seabed area as a result of the artificial island could result in less fish and other marine feed animals for whales. Permanent underwater noise (low-frequency noise) from the wind turbines could potentially interfere with whale communication.

For seals, construction of the artificial island could create artificial marine habitats in shallow water where food is more accessible to them. Finally, it is possible that the island's shores could be used as a resting and breeding area for grey seals and common seals, depending on the final shape of the island's coastal profile.

All bat species are covered by Annex IV of the Habitats Directive. Wind turbines can also affect bats during the operation phase due to differences in air pressure caused by the rotating turbine blades. The location of a future offshore wind farm in relation to foraging areas and migration routes for bats would thus also be relevant to report on.

The island can also serve as a resting and breeding place for bats, depending on its final shape and design.

Many bird species are covered by the EU's Conservation of Wild Birds Directive, and neither plans nor specific projects can normally be implemented if they harm the conservation objectives in Natura 2000 sites. Impacts on birds in the conservation objectives for Natura 2000 sites can arise due to displacement from resting or foraging areas, collisions with wind turbines, or barrier effects on the birds' migration routes. Many seabird stocks are also in decline, which means that extra attention is needed in connection with environmental impact assessments for offshore wind farms.

Contents and level of detail in the environmental report

The environmental report must contain a Habitat Regulation Assessment (HRA), which shows whether it will be possible to implement the plan for the North Sea Energy Island without risk of a significant impact on Natura 2000 sites. The environmental report must include a similar assessment of Annex IV species (primarily whales and bats) in relation to the impact on the ecological functionality of the species in their natural areas of incidence.

The HRA must describe the importance of the area as a habitat or breeding, resting or foraging area or in relation to bird migration, and the existing condition, status and expected presence in the area of species in the conservation objectives in relevant Danish or foreign Natura 2000 sites, and for relevant Annex IV species with natural incidence in that part of the North Sea.

In relation to the potential impact, the HRA must incorporate the current known conditions and factors in connection with the future projects which could lead to significant impacts on the protected species. This includes the potential impact on marine mammals from pile-driving monopiles or pin piles for wind turbine foundations, other noisy or sediment-dispersing construction methods that can be expected to be used for construction of an artificial island, the placement of the artificial island and associated offshore wind farms in relation to impacts on the food supply and migration for marine mammals, and possible impacts from the operation of offshore wind farms on marine mammals, birds and bats. The assessments must, where possible, include experience from other construction projects. The assessment must also, at a general level, cover other possible impacts on the protected species.

The HRA must also include an assessment of whether the protected species of marine mammals, bats and birds can be expected to experience positive effects from offshore wind farms, based on experience from other projects.

The HRA must, as far as possible, show at a general level whether the construction and operation of an artificial island, offshore wind farms, landing cables, export cable and international connections, in line with the plan, can be expected to be implemented in accordance with the relevant protection provisions and objectives for the species in the conservation objectives for Natura 2000 sites and the relevant Annex IV species.

The HRA must also describe the extent to which the habitats on the artificial island could have positive or negative impacts on other species or natural habitats covered by the Conservation of Wild Birds Directive or the Habitats Directive.

The assessment must also, as far as possible, include expected cumulative effects with other offshore wind farms or other North Sea projects, in relation to expected overlap or succession in the construction phases.

The HRA must clearly state whether a significant impact on Natura 2000 sites and Annex IV species can be ruled out. If a significant impact cannot be ruled out, including due to a lack of knowledge of the specific projects, the environmental report must contain an Appropriate Assessment that meets the requirements in Article 6(3) of the Habitats Directive.

If it is deemed that detailed conditions in relation to the project design, location, construction methods etc. will be necessary in order to implement the plan and the subsequent projects without harming the conservation objectives of a Natura 2000 site, this must be clearly stated. In this case, the conditions and their expected impact on the Natura 2000 site must be clearly explained, so that they can be stipulated when implementing the plan, and in connection with subsequent implementation and environmental assessment of the specific projects.

The Natura 2000 HRA and the impact assessment (where relevant), must be clearly presented as an independent section in the environmental report. If the affected Natura 2000 site also extends onto land, the assessment must include the onshore part, so that a total assessment is made of the entire site.

6.7.1.2 Other marine flora and fauna

Description of potential impacts

The construction of an artificial island and offshore wind turbines with associated submarine cables and interconnectors can have impacts on other marine flora and fauna (including fish and seal species which are not protected by the Habitats Directive) during both the construction and operation phases.

Excavation work or cable trenching during the construction phase will result in a greater concentration of suspended sediment and thus greater sediment depositing. This can lead to the release of nutrients and xenobiotic substances and reduce visibility for animals or cause shadow effects.

Construction of an artificial island and foundations for the offshore wind turbines will occupy areas on the seabed and laying cables in the seabed may lead to temporary changes, particularly in areas with reef-like structures, which could affect marine flora and fauna.

Earlier offshore wind farms have generally not resulted in significant negative impacts on marine flora and fauna during the operation phase, but some experience has shown that energised submarine cables may lead to local impacts on animals that are particularly sensitive to electromagnetic fields. Experience also shows that favourable conditions can sometimes arise around wind turbine foundations, in the form of artificial reef formation, for several animal and plant species, and that the foundations can therefore potentially contribute to greater biodiversity in an area. The

rock walls that are expected to be constructed around the artificial island will lead to the establishment of new habitats for marine animals and plants associated with stone reefs, creating an artificial reef habitat.

The expected impacts will depend entirely on the specific project, the choice of island design and size, the number and types of wind turbines, wind turbine placement, foundation methods etc., and the environmental report will therefore only discuss the potential impacts at a general level.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must report on the existing conditions for marine flora and fauna and natural habitats, including whether particularly vulnerable and protected species and natural habitats are likely to be found in the marine area that can be impacted by the plan for the North Sea Energy Island. The environmental report must also report on whether the area or parts of it are deemed to have high biological diversity and be important spawning, feeding, migration or growth areas for fish. The report must consider the protection obligations that exist for the area, or relevant areas in the vicinity, pursuant to the Water Framework Directive, the Marine Strategy Directive and the Habitats Directive (the latter will be covered in more detail as part of the Habitats Regulations Assessment), etc.

Assessment of impacts

The environmental report must contain a general assessment of the impact the plan for the North Sea Energy Island can be expected to have on marine flora and fauna, natural habitats and biological diversity, during the construction and operation phases, and show whether it is feasible for an offshore wind farm to be constructed in accordance with national and international marine environment protection obligations. The assessment must also report on any expected effects of an artificial island and offshore wind farms in relation to biodiversity, for example from reef effects. The assessment must also discuss whether the offshore wind turbine foundations can be expected to attract species or give rise to natural habitats that do not naturally occur on a soft bottom, and possible derived effects. The assessments can draw on knowledge and experience from existing offshore wind farms.

6.7.1.3 Birds (which are not in the Natura 2000 conservation objectives)

Description of potential impacts

Construction of an artificial island and offshore wind farms may affect birds. Impacts during the construction phase are expected to be short-lived, in the form of disruptions from maritime traffic and construction work.

However, potential impacts on birds during the operation phase may be longer lasting, in the form of displacement of birds from the area, barrier effects for migrating

birds or the risk of collision for certain bird species that fly through the offshore wind farm. Impacts from offshore wind farms can thus lead to the direct loss of birds, while the indirect results of barrier effects and displacement may be increased energy consumption during migration and displacement from important resting or foraging areas.

The artificial island will serve as a rest area for migrating birds, and it will also be possible to establish stocks of breeding birds. The island will therefore have a significant impact on the migration patterns of birds, as species which do not normally migrate so far across water will have a rest area. The importance of the island as a resting and breeding place for birds will depend on the island's final design and structure.

Contents and level of detail in the environmental report

Existing conditions and environmental status

Based on available knowledge – both general and specific to the area – the environmental report must report on the incidence of relevant bird species in the area that are not protected by the Habitats Directive, including the importance of the area as a foraging and resting area, and in relation to migration routes for both seasonal and foraging migration.

Assessment of impacts

The environmental report must assess the potential disturbance to birds in the area during both the construction and operation phases. The assessment must focus on the possible impacts from displacement, barrier effects and collisions with offshore wind turbines. The assessment must include any expected cumulative effects with offshore wind farms under construction or planned in the North Sea.

The assessments may draw on knowledge and experience from existing offshore wind farms and national and international studies.

As far as possible, the environmental report must contain recommendations for minimising environmental impacts, for example through placement, the design of facilities or the choice of construction methods and times.

6.7.1.4 Terrestrial flora and fauna

The artificial island will create new terrestrial habitats for land-based animals and plants. This will mean that species with widely dispersed habitats will gain new habitats. Experience from other projects shows that very varied flora and fauna can be established, with several rare and protected species. The specific impact will depend on the island's final shape and design.

Contents and level of detail in the environmental report

Existing conditions:

There is no terrestrial flora and fauna in the area, and this is therefore not discussed in the environmental report.

Assessment of impacts

The potential impact cannot be assessed until the specific project is defined, but the environmental report must generally describe the possible permanent effects based on experience from similar projects.

6.7.2 Population and human health

6.7.2.1 Aviation safety

Description of potential impacts

Construction of an artificial island and offshore wind farms may affect aviation safety in the area, both during the construction and operation phases. During the construction phase, cranes with a height of more than 150 metres are often used, which is normally the lower altitude limit for civil air traffic, while military planes may fly lower. During the operation phase, offshore wind turbines with a height possibly exceeding 350 metres will be in operation, and there will be specific requirements for air traffic marking.

The specific project and choice of construction methods are not currently known and impacts on aviation safety must therefore be discussed generally in the environmental report.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must report on existing airports, airfields and the scope of air traffic relevant to the plan for construction of the North Sea Energy Island. This information must be obtained from relevant players and air traffic authorities.

Assessment of impacts

The environmental report must contain a general assessment of the impact on aviation safety and air traffic during construction and operation of the North Sea Energy Island within the plan area, and report on the relevant rules and requirements for marking and approval by the aviation authorities. The environmental report must clearly state that the risk to air traffic cannot be fully assessed at present, and that an additional assessment must be made in connection with the specific project.

6.7.2.2 Navigation conditions and safety

Description of potential impacts

Construction of an artificial island and offshore wind farms can impact on navigation conditions (such as the need to adjust ferry routes) and navigation safety during both

the construction and operation phases. A large number of vessels will be used during the construction phase, and there will be a lot of traffic between the departure port and construction area at times. However, the specific impacts of the construction work on navigation conditions and safety will depend entirely on the specific project. It is therefore not possible to qualify these in the environmental report.

The operation phase may cause an impact on navigation conditions and safety in the area, in the form of an increased risk of collisions and running aground at the offshore wind farms, and traffic to/from the artificial island. Given that the final location and design of the artificial island and offshore wind farms are not known at present, navigation safety should only be discussed at a general level in the environmental report.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must report on existing navigation conditions in the area and describe identified shipping routes, transit routes or other conditions that could be problematic in connection with the construction of an artificial island and offshore wind turbines with associated submarine cables and interconnectors, or which will require special attention in connection with the design of the specific project.

Assessment of impacts

The environmental report must contain a general assessment of the impacts on navigation safety from the placement and construction of an artificial island and offshore wind turbines with associated submarine cables and interconnectors. The assessment should not consider specific navigation risks and impacts on navigation conditions, either in the construction or operation phase, as the final location and design of the artificial island and the offshore wind farms are not known. The assessment should therefore generally assess the potential impacts on navigation safety and conditions. The environmental report must also assess whether there are special parts of the area designated for the North Sea Energy Island where the proximity to shipping routes is likely to increase navigation risk.

In connection with navigation conditions, the environmental report must also include a general assessment of the impact of the offshore wind farm on potential rescue operations and marine environment emergency response.

6.7.2.3 Noise (airborne)

Description of potential impacts

The construction phase will involve a lot of noisy activities at sea. During the operation phase, the turbines and the technical facilities on the artificial island will emit noise. However, the distance to the shore is so great that it will not be possible to detect the noise. During the operation phase, noise may impact people working and

staying on the artificial island, but this impact can be reduced by using personal protective equipment. There are therefore no significant impacts resulting from noise in the construction and operation phases.

Contents and level of detail in the environmental report

The environmental report describes the most important sources of airborne noise in the construction and operation phases but does not address the issue further.

6.7.3 Seabed and topography

Description of potential impacts

Construction of an artificial island and offshore wind turbines with associated submarine cables and interconnectors will impact on the seabed and cause changes. The impacts will depend on the existing conditions, the construction methods chosen, the placement and dimensions of the island, and materials used for things like corrosion protection for the artificial island and the offshore wind farms.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must contain a general report on existing geological and geomorphological conditions in the area.

Assessment of impacts

The environmental report must generally assess whether impacts on the seabed are likely during the construction or operation phase, including on topography and composition, which could further impact the hydrography and coastal morphology in the area. Where possible, the assessment must include experience from similar projects.

6.7.4 Hydrography, coastal morphology and water quality

Description of potential impacts

The topographical changes resulting from construction of an artificial island and offshore wind turbines with associated submarine cables and interconnectors may impact local currents and sediment movements. This may affect the water quality in the area. The impacts will depend on the existing conditions, the construction methods chosen, the placement and dimensions of the island, and materials used for things like corrosion protection for the artificial island and the offshore wind farms.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must contain a general report on existing coast morphology and hydrological conditions in the area, including water quality. The report must consider action plans, requirements and objectives pursuant to the Danish Marine Strategy and the water plans.

Assessment of impacts

The environmental report must generally assess whether impacts on the area's water quality, currents and sediment deposition conditions are likely from the construction or operation phase of the North Sea Energy Island, which can in turn impact on the coastal morphology of the nearest coasts. Where possible, the assessment must include experience from similar projects.

The environmental report must also generally assess the extent to which xenobiotic substances are likely to be spread in connection with sediment dispersion.

6.7.5 Air and climatic factors

Description of potential impacts

Production of the components used in connection with an artificial island and offshore wind farms with associated submarine cables and interconnectors entails the consumption of raw materials and energy. A number of vessels will also be used during both the construction and operation phases which emit particles etc. to the air during operation. This impact is deemed to be entirely dependent on the specific project. It is therefore not relevant or meaningful to assess this in the environmental report. However, experience from offshore wind power projects shows that the issue does not have a significant environmental impact.

There will be no significant air emissions from an artificial island or offshore wind farm during the operation phase, but the offshore wind farm will reduce greenhouse gases when renewable energy displaces fossil fuels. Offshore wind farms will therefore have a positive effect in relation to reducing the use of and dependence on fossil fuels and counteracting anthropogenic climate change.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must report on national and international objectives and obligations in relation to reducing greenhouse gas emissions. The environmental report should not report on existing conditions in relation to air quality and climatic factors.

Assessment of impacts

The environmental report must assess the expected effect of the North Sea Energy Island in relation to the displacement of fossil fuels and Denmark's objectives for the

green transition and reduction of greenhouse gas emissions and international targets.

6.7.6 Material assets, including marine infrastructure

6.7.6.1 Radio chains and radar

Description of potential impacts

The placement of an artificial island and offshore wind farms may affect the radar coverage in the area, which may have a significant impact on military/defence conditions and civil radar and communication systems, etc. Offshore wind farms and other structures at sea may also affect military and civil radio communication, including radio chains, if placed within the radio coverage area or the radio chains' line of sight, resulting in signal attenuation.

The potential impacts of the offshore wind farms on radar and radio communication/radio chains should be further analysed early in the project, as measures to address any disruptions caused by the offshore wind farm can be expensive and require a long time for preparation and establishment.

In relation to the potential impact on military radar and radio communication systems, Danish Defence requires that the analysis work be carried out by a contractor approved by Danish Defence. The Danish Energy Agency therefore deems that the analysis work should be carried out in parallel with – but separate from – work on the environmental report.

However, in relation to the potential impacts on other (civil) radar and radio communication systems, the Danish Energy Agency deems it expedient to incorporate these into the environmental report, as there are applications and territorial water and air space considerations which could have a significant impact on the feasibility of siting and constructing the North Sea Energy Island.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must report on existing civil radar systems and radio chains in the area, for both the Danish and foreign parts of the North Sea. The Danish military radar and radio communication systems will be handled in a separate, parallel analysis.

Regarding foreign military radar and radio communication systems, statements on the possible cross-border impacts of the offshore wind farms will be requested from their authorities.

Assessment of impacts

The environmental report must generally assess whether construction of the offshore wind farms is likely to affect civil radar systems and radio chains in the area. As far as relevant and possible, the environmental report must also contain recommendations for minimising the impacts on civil radar systems and radio chains, including suggestions for possible mitigation measures, such as using gap fillers and replacing specific radar systems.

Regarding the assessment of the impact on Danish military radar and radio communication systems and the need for any mitigation measures, a statement will be requested from Danish Defence on this once the results of the separate analysis work are available.

6.7.6.2 Raw materials and raw material extraction

Description of potential impacts

Construction of an artificial island will involve the use of very large volumes of marine raw material resources (sand). It is expected that these raw materials will have to be extracted from outside existing designated raw material sites. This could have local impacts on the availability of the marine raw material resources, and also lead to environmental impacts where the sand is extracted, in the form of topographic changes and impacts on marine flora and fauna.

Construction of the artificial island will also require very large volumes of rock for coastal protection. Stone resources will be obtained from land-based quarries.

Contents and level of detail in the environmental report

Description of existing conditions

The environmental report must report on existing marine raw material deposits and define possible areas from which extraction could take place. The existing environmental conditions in these areas must be described at a general level, primarily with a focus on special protection in relation to Natura 2000 or Annex IV species, and whether there are other significant potential conflicts in relation to the current use of the areas.

Assessment of impacts

The report must generally describe significant environmental impacts from the extraction of raw materials for the onshore and offshore projects, including the impact on the volume of available raw material resources. The report must also describe the environmental impacts to be included, described and assessed when selecting specific raw material areas for the project.

6.7.6.3 Fishing

Description of potential impacts

The placement of an artificial island and offshore wind farms may have impacts on fish resources, such as impacts on important spawning areas etc., and on commercial fishing, if the island or offshore wind farms lead to restrictions in access to key fishing areas. Fishing must be considered at a general level in the environmental report, as the impacts will depend on the specific project location and design, which will not be known at the time of the strategic environmental assessment. The assessment should not consider the value of the material assets and the potential impact on these, such as estimates of the value of lost fishing due to a future offshore wind farm, as financial aspects of this nature should not be included in an environmental assessment.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must report on the general fish resource in the area in terms of its condition and importance to commercial fishing, including whether the area encompasses significant fishing areas, spawning grounds etc.

Assessment of impacts

The environmental report must assess the expected impact on fishing in connection with the construction phase of a project, including whether a ban on fishing is likely during this phase and the consequences of this.

The assessment may be based on experience from similar projects.

The environmental report must assess the impacts of an artificial island and the offshore wind farm on fishing in the area, and the possibility of fishing within or around the offshore wind farm during the operation phase. The assessment may be based on experience from similar projects. The assessment must also note the expected cumulative impacts on fishing from other offshore wind farms in the North Sea that are being planning or under construction.

In relation to indirect consequences, the environmental report must also assess whether experience from other offshore wind farms shows that birds (e.g. cormorants) use transition pieces or other parts of wind turbines as resting places, leading to a greater concentration of birds and indirect effects on fish stocks.

6.7.7 Landscape and visual impact

Description of potential impacts

The construction of offshore wind farms with a height possibly exceeding 350 metres means that the wind farms will be visible at great distances. However, is it doubtful that the wind farms will be visible from land due to the great distance (80 km).

Contents and level of detail in the environmental report

The environmental report must report on whether and under what circumstances the North Sea Energy Island will be visible from land.

6.7.8 Marine archaeology

Description of potential impacts

Construction of an offshore wind farm may affect wrecks, previous settlements etc. of cultural and marine archaeological significance. The specific impact depends entirely on the given installation pattern, foundation method, etc., as protection interests are often very location-specific. It is therefore only relevant to discuss marine archaeology at a very general level in the environmental report.

Contents and level of detail in the environmental report

Existing conditions and environmental status

The environmental report must, as far as possible, report on any wrecks in the area or other factors of archaeological or cultural significance.

Assessment of impact from the construction phase

Given that the impacts are often very location-specific, it is not deemed to be relevant to specifically assess the impacts of the artificial island and offshore wind farms on archaeological and cultural assets. The environmental report should therefore simply draw attention to any protection considerations that should be taken into account in the later environmental assessment for the specific project.

6.8 Lack of knowledge and uncertainties

The environmental report must identify any knowledge shortfalls in relation to assessment of the impact of the plan on the environment and any deficiencies in the knowledge base and significant uncertainties associated with the assessments. Uncertainties that have key significance to the conclusions of the environmental report or the validity of the assessments must be clearly described for the relevant environmental issues, so these can be taken into account in the decision of the authorities.

6.9 Mitigation measures and monitoring

The environmental report must describe measures that should be taken to avoid, prevent, mitigate, or if possible, neutralise likely significant harmful impacts on the environment resulting from the plan.

Any mitigation measures must be described under each environmental issue and gathered in a summary section of the environmental report, so it is clear whether adjustments have been made to the plan in connection with the environmental as-

assessment in order to reduce potential significant environmental impacts. The expected effect of the measures/adjustments, including any significant uncertainties, must also be clearly stated.

If possible measures are identified which can be best implemented at a specific project level, i.e. in connection with an environmental impact assessment (EIA) for the specific project, which the concession holder/developer wants to establish, this must be clearly stated.

The environmental report must also describe any necessary schemes for monitoring material harmful effects of the plan, which are best undertaken at government level in connection with the preparation and planning of the North Sea Energy Island. If monitoring of significant environmental impacts is deemed to be most expedient at the specific project level, this must be stated.

6.10 Method description

The environmental report and any related background documents must contain a description of the method, the basis for the assessment and the parameters investigated. It must also contain a description of the assessment method used to assess the severity of the environmental impacts.

The method used to assess the environmental impacts must be able to reach a clear conclusion on the extent to which the plan is expected to affect the environment for the given environmental parameters, whether the project is expected to be harmful to the environment, and the consequences of these impacts. The method must also clearly support conclusions on necessary preventive measures and monitoring in connection with the plan.

6.11 Non-technical summary

The environmental report must contain a non-technical summary in easy-to-read language which communicates the main points of the report in a clear manner. The non-technical summary is targeted at people without environmental, technical or legal expertise.