Energistyrelsen

Scoping opinion for the strategic environmental report for the draft Plan for Programme North Sea Energy Island

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This translation is provided for convenience only, and in the event of any conflict between the wording of the Danish and English versions, the wording of the Danish version shall prevail in all respects.

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1. About the scoping opinion

Pursuant to section 11 of Danish Act no. 1976 of October 2021 on Environmental Assessment of Plans and Programmes and of Specific Projects (EIA) ('the Environmental Assessment Act' (*Miljøvurderingsloven*)), a scoping must be done of the contents of the environmental report on plans and programmes prior to the preparation thereof.

The purpose of a scoping opinion is to specify the key factors that must be described, analysed and assessed in the environmental report. The scoping opinion also defines the scope and level of detail of the information in the environmental report. Under Section 32(3)(2) of the Danish Environmental Assessment Act, affected authorities and states must be given the opportunity to submit comments and questions about the contents of the environmental report before the authority decides on the scoping of the environmental report. This is to help ensure that the environmental report is prepared on an informed basis. To ensure the early involvement of the public in connection with strategic environmental assessment (SEA) of the Plan for Programme North Sea Energy Island, it has been decided that the public must also be consulted before deciding the scope of the environmental report. The final scoping opinion will be prepared based on the draft scoping opinion and the consultation responses received.

This draft scoping opinion represents the Danish Energy Agency's proposal for the contents and level of detail of the environmental report which Energinet is preparing for the Plan for Programme North Sea Energy Island, in accordance with the 'Order to conduct preliminary studies for energy islands' *(Pålæg om gennemførelse af forundersøgelser for energiøer)* of 29 November 2020. Together with the 'Framework for environmental assessment of the Plan for Programme North Sea Energy Island', the scoping opinion forms the basis of the content of the environmental report for the draft Plan for Programme North Sea Energy Island.

2. Background to the draft Plan for Programme North Sea Energy Island

The *Climate agreement for energy and industry etc.* of 22 June 2020, and later supplementary agreements, commit Denmark to building the world's first energy islands – one in the North Sea and one on Bornholm. The energy island in the North Sea is to be built in phases, as electricity consumption rises and the energy island is connected to other countries. It has been decided that the North Sea Energy Island must be realised in 2033 with at least 3 GW of offshore wind power, and to establish a total of at least 10 GW (phase one and two) of offshore wind power connected to the island as soon as possible thereafter, with 2040 as the aim, depending on the necessary international connections being in place. The parties to the agreement understand that the North Sea Energy Island is to be realised as a flexible island concept,

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so it can support a gradual increase in capacity, new energy technology in relation to energy production, conversion and transmission, and additional or other interconnections to partner countries.

In relation to the environmental assessment of the North Sea Energy Island, it is assumed that it must include establishment in two phases:

- A first phase in which at least 3 GW of offshore wind power will be established, but with the possibility of up to 12 GW within the same area if the power per km^2 is increased
- A second phase in which a total of at least 10 GW of offshore wind power (phase one and two) is established, but with the possibility of establishing a total of up to 40 GW (phase one and two) within the same area if the power per km^2 is increased
- The North Sea Energy Island will thus comprise at least 3 GW of offshore wind power in 2033, and at least 10 GW (phase one and two) with 2040 as the target time frame, with the possibility of establishing total offshore wind power of up to 40 GW (phase one and two) if the power per km^2 is increased.

The strategic environmental assessment (SEA) will be broader than the political agreements, to ensure flexibility in the implementation of one of the largest construction projects seen in recent years. Both phase one and two must allow for Power-to-X (PtX) plants[1] and other innovation.

The aim of the energy islands is to ensure that Denmark can electrify more areas of society in the coming years, and to help ensure that the electricity consumption of all Danish households and businesses is met by green electricity. Electricity from the energy islands will also be exported to neighbouring countries and contribute to the green transition across Europe. It has to be possible to connect technologies, which can store or convert renewable energy from the offshore wind turbines, for example into green fuels using PtX.

3. Draft Plan for Programme North Sea Energy Island

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

- A draft of the plan has been set out in the memo '*Framework for the future proposed plan to be used for strategic environmental assessment (SEA)*', and covers onshore and onshore plant, including grid reinforcements. The

[1] Note that there is currently no legal framework for PtX plants, and that work is being done to establish the framework for the field.

draft plan covers two phases: A first phase in which at least 3 GW of offshore wind power will be established, but with the possibility of up to 12 GW within the same area if the power per km^2 is increased

- A second phase in which a total of at least 10 GW (phase one and two) is established, but with the possibility of establishing up to 40 GW within the same area if the power per km^2 is increased

The phases may overlap in time and spatially. Both phases must allow for PtX plant and other innovation.

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

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, and plant for PtX and other offshore innovation.

The draft plan covers the areas shown in Figure 1

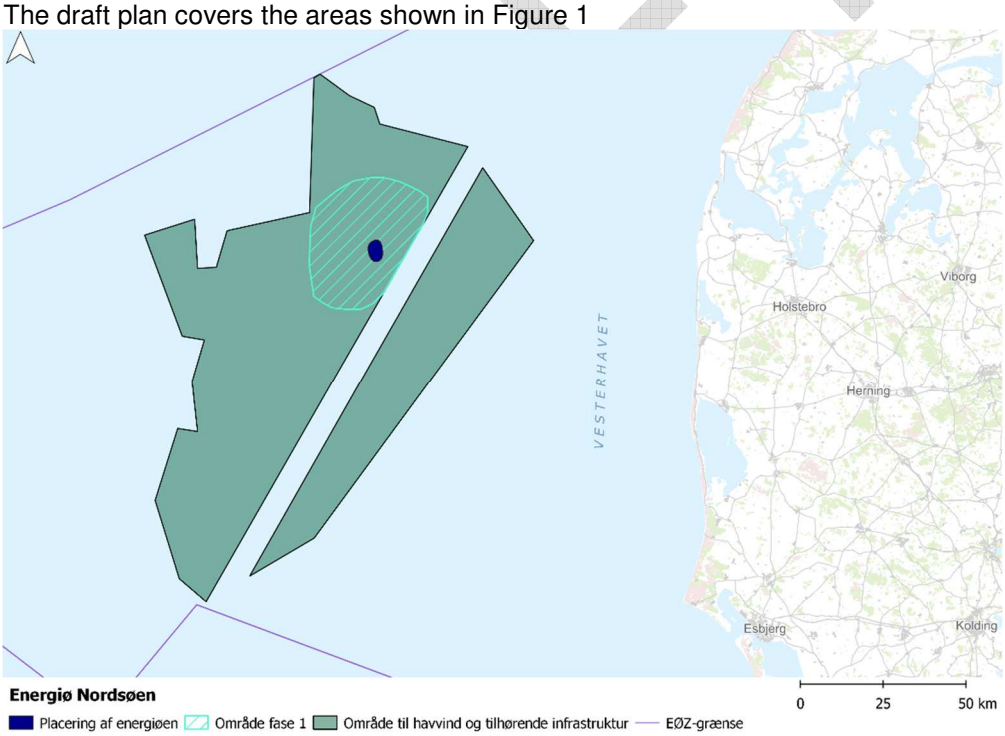

Figure 1 Areas in the North Sea designated for the Plan for Programme North Sea Energy Island.

Energiø Nordsøen	The North Sea Energy Island
Placering af energiøen	Location of the energy island
Område fase 1	Area phase one

Område til havvind og tilhørende infrastruktur	Area for offshore wind power and associated infrastructure
EØZ grænse	EEZ boundary

4. Process for the strategic environmental assessment of the Plan for Programme North Sea Energy Island

The draft Plan for Programme 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 (a strategic environmental assessment – SEA) and an environmental report must be prepared, to be published together with the proposed Plan for Programme North Sea Energy Island.

The SEA process consists of the following steps:

- The Danish Energy Agency prepares a draft scoping opinion
- 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 a final scoping opinion based on the draft scoping opinion and the consultation opinions received
- Energinet prepares an environmental report assessing the likely environmental impacts of the plan based on the scoping opinion
- The Danish Energy Agency submits the draft Plan for Programme North Sea Energy Island for a public consultation procedure together with the environmental impact report and any attachments. At the same time, neighbouring countries are consulted on significant cross-border environmental impacts.
- The Danish Energy Agency approves the plan. This is then published together with a summary statement describing how the SEA and the consultation responses have been taken into consideration
- After the plan is adopted, there is a four-week complaints period. Note that calls for tenders covered by the plan may be initiated as soon as the plan has been adopted.
- The Danish Energy Agency performs any monitoring of the environmental impacts of the plan

5. Statutory requirements for the environmental report

Section 12 of the Danish Environmental Assessment Act lays down 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.

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 Sea. Note that there is currently no legal framework for PtX plants, and that work is being done to establish the framework and jurisdiction for the field.

The Plan for Programme 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 Programme North Sea Energy Island, pursuant to Section 8(1) of the Danish Environmental Assessment Act.

6. Scoping of the environmental report

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

6.1 Description of the draft Plan for Programme North Sea Energy Island

Schedule 4(a) to 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 SEA of the plan.

- An outline of the areas for the technical facilities and installations for which the plan creates the framework. The legal impacts of the plan on use of the areas are also outlined.

- A description of the relationship to other relevant plans and programmes, including the local authority planning in the affected municipalities (e.g. in relation to onshore RE expansion or other physical planning) and the Marine Spatial Plan, which is expected to enter into force at the end of 2022.

6.2 Alternatives

Schedule 4(h) to 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 location of plant covered by the Programme North Sea Energy Island. The description must account for the process involving the 10 GW screening in 2019, the subsequent fine screening of specific areas in 2020 and associated addendum and selection of the area for the Programme North Sea Energy Island. The description must specify the general criteria for selection of the preliminary investigation area for the Programme 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 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 environmental report must focus on the environmental conditions that are expected to be affected by the establishment of the plant covered by the plan and described in general in the *'Framework for the future proposed plan to be used for strategic environmental assessment (SEA)'*, with a special focus on relevant existing environmental conditions, including environmental objectives, limit values etc., which might be impacted by the plant covered by the Plan for Programme North Sea Energy Island. There must also be special focus on the areas or species protected under the Birds Directive and the Habitats Directive, which may potentially be 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 and the plant covered by the plan are not implemented – 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 the facilities and installations that follow from the plan which will not take place if the plan is not implemented.

6.4 Environmental protection goals

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), Schedule 4(e) to the Danish Environmental Assessment Act stipulates that the report must include relevant international, national and local environmental protection objectives and obligations, and describe how the plan takes these into account.

The environmental protection objectives and obligations to be included for relevant environmental issues in the environmental report must comprise:

- The UN Sustainable Development Goals
- The OSPAR Convention
- The United Nations Convention on the Law of the Sea
- The Habitats Directive (92/43/EEC), with national Natura 2000 plans and special protection of species (Annex IV)
- The Birds Directive (2009/147/EC) with national Natura 2000 plans, general protection of birds
- The Water Framework Directive (2000/60/EC), which has been implemented in the Danish Act on Water Planning with National Water Plans (*Lov om vandplanlægning med nationale vandplaner*).
- The Marine Strategy Directive (2008/56/EC) with the national marine strategy (Denmark's Marine Strategy)
- Designated development zones in Denmark's Marine Spatial Plan prepared in accordance with the Danish Marine Physical Planning Act (*Lov om maritim fysisk planlægning*)
- The Danish Nature Conservation Act (*Naturbeskyttelsesloven*) (Section 3 protection, protected areas, building and protection lines)
- The Danish Marine Environment Act (*Havmiljøloven*) (discharges, disposal and dumping)
- The Danish Raw Materials Act (*Råstofloven*) (extraction and utilisation of raw materials)
- The Danish Fisheries Act (*Fiskeriloven*) (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 (*Jordforureningsloven*)
- The Danish Watercourse Act (*Vandløbsloven*)
- Designated area interests in the regions' raw materials planning (raw materials areas)

- Designated area interests in municipal planning (areas of special landscape value, map of Green Denmark, cultural heritage areas, areas with special drinking water interests, etc.)

6.5 Environmental impacts – general

Schedule 4(f) to 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 contents for the various environmental conditions covered by the Danish Environmental Assessment Act is given below.

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

In relation to cumulative impacts, this concerns the result of combined impacts from the plan taken together with other known adopted plans or programmes or approved specific 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 the plan. The assessment of temporary impacts from the construction phase must be described at a general level, corresponding to the level of detail in the plan, but can only be assessed in connection with the specific projects. The SEA must primarily focus on the permanent impacts from the Plan for Programme North Sea Energy Island, which are then quantified as far as possible.

Schedule 4(g) to the Danish Environmental Assessment Act stipulates that the environmental report must, in as far as relevant and possible, describe and assess measures to limit the most significant environmental impacts of the plan, e.g. through the location and design of the facilities and installations 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.

The environmental report must contain separate chapters on cumulative assessments and cross-border impacts, respectively.

6.6 Impacts on the environment from onshore facilities and installations

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

6.6.1 Biodiversity

6.6.1.1 Natura 2000

Description of potential environmental impacts

Facilities and installations covered by the plan may potentially impact Natura 2000 sites in or near the planning area, including natural habitats and species in the designation basis and removal or disturbance of habitats.

However, the environmental impacts and possibilities for preventive measures are deemed to be completely dependent on the specific project, construction methods and location of facilities and installations, which are not known at present. However, the environmental report must contain a materiality assessment at plan level of the impacts on the marine and terrestrial Natura 2000 sites that may be affected by the plan. If a material impact on the designation basis cannot be ruled out on the basis of the materiality assessment, a Natura 2000 impact assessment will have to be prepared.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must give an account of existing Natura 2000 sites in and near the plan area. The report must focus on the presence and nature of existing protected natural habitats and species in the designation basis, which can be expected in and near the plan area. The report is expected to be completed on the basis of existing available monitoring and habitat data.

Assessment of impacts

A materiality assessment must be carried out and an impact assessment must subsequently be prepared if it cannot be shown that it will be possible to implement the plan without significant impact on the designation basis.

The materiality assessment 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 impact assessment that meets the requirements in Article 6(3) of the Habitats Directive.

The Natura 2000 materiality assessment and, if relevant, the impact assessment, must clearly appear as separate sections in the environmental report.
If the affected Natura 2000 site(s) also extend(s) out to sea, the assessment must include the offshore part, so that a total assessment is made of the full site(s).

6.6.1.2 Annex IV species

Description of potential environmental impacts

Facilities and installations covered by the plan may potentially impact species covered by Annex IV to the Habitats Directive.

However, the environmental impacts and possibilities for preventive measures are deemed to be completely dependent on the specific project, construction methods and location of facilities and installations. 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 environmental report

Existing conditions and environmental status

The environmental report must include an account of the presence of Annex IV species that can be expected in or near the plan area. 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 Annex IV species from the onshore facilities included in the plan. The 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.

6.6.1.3 Other flora and fauna

Description of potential environmental impacts

Facilities and installations covered by the plan may potentially impact protected habitats and protected flora and fauna, including birds covered by the general protection provisions in the Birds Directive, through removal or disturbance of habitats.

However, the environmental impacts and possibilities for preventive measures are deemed to be completely dependent on the specific project, construction methods and location of facilities and installations. 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 environmental report

Existing conditions and environmental status

The environmental report must give an account of 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 protected and red-listed species, and birds covered by the general protection provisions of the Birds Directive, which can be expected in the area where the later 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 and installations included in the plan.

6.6.2 Population and human health

6.6.2.1 Noise and dust

Description of potential environmental impacts

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

The specific project design and location are not defined in the plan. No assessment of noise and dust impacts in the construction phase can therefore be made in the environmental report.

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 environmental report

Existing conditions and environmental status

The environmental report must give an account of the existing conditions in relation to noise during the operation phase, by mapping the residential and recreational areas that may be affected by facilities and installations covered by the plan. As potential environmental problems and local vulnerability to the impacts, e.g. proximity to residential areas, cannot be assessed until in connection with an environmental impact assessment (EIA) of the specific projects, it must be done at a general level.

Assessment of impacts

The environmental report must contain a general assessment of the noise impact that can be expected during the construction and operation phase for the type of onshore facilities that will have to be constructed to service the Programme 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.

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 switching 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 to the location of new high-voltage installations in proximity to residential properties etc. and vice versa.

It is normal practice to place energised 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 environmental report

This issue is not discussed in the environmental report.

6.6.2.3 Recreational interests

Description of potential impacts

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

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 environmental report

At a general level, the environmental report must describe the recreational importance of the areas that may be affected by the facilities and installations covered

by the Plan for Programme North Sea Energy Island. The environmental report must state whether the location or visual and noise impacts from facilities and installations will impact recreational interests.

6.6.3 Land and soil areas

Description of potential impacts

The plan's 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 switching 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.

A detailed assessment can only be made in connection with the municipal planning associated with the permit applications for the specific projects.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must contain a general account of the land use in the areas zoned for onshore facilities and installations covered by the plan. 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.

6.6.4 Water

Description of potential impacts

During the construction phase, facilities and installations covered by the plan may impact, for example, groundwater, watercourses and/or lakes and thus the aquatic environment, which may potentially be of importance in relation to meeting water planning objectives.

The potential impacts will be completely dependent on the specific projects and their specific locations, including, for example, whether watercourses are cut through or drilled under in connection with cabling. It is therefore not regarded as possible to quantify a potential impact in connection with the environmental report, and potential impacts from onshore facilities and installations on water and water quality are therefore only dealt with in general terms.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must contain a general account of types of surface water (lakes and watercourses) within or near the areas that may be affected by facilities and installations covered by the Plan for Programme North Sea Energy Island as well as their condition. The report must contain a general groundwater assessment if there is a possibility that facilities and installations covered by the plan may have an impact on the groundwater.

Assessment of impacts

The environmental report must contain a general assessment of the impacts that onshore facilities and installations covered by the plan 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 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 to the air and greenhouse gases. This impact is deemed to be entirely dependent on the specific projects, and there is not deemed to be a sufficient basis for making an assessment thereof in the environmental report.

There will be no air emissions from cables during the operation phase, but components for any expansion of existing high-voltage substations could contain greenhouse gases.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must contain a general account of existing air and climate conditions and an assessment of the impact on these from onshore facilities and installations. 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 opinion).

Assessment of impacts

The environmental report must contain an assessment of potential greenhouse gas emissions from the onshore facilities and installations that can be expected to be used for facilities and installations covered by the plan if these can be expected to

contain greenhouse gases. The description must be based in part on Energinet's experience from similar types of facilities, including the risk of unintended emissions.

The environmental report will not contain an assessment of the impact on air and climatic factors in general.

6.6.6 Material assets

Description of potential impacts

Facilities and installations covered by the Plan for Programme North Sea Energy Island may impact material assets, including existing land use.

Impacts on material assets may occur through impacts on the possibilities for utilising land, for example for extraction of raw materials, agriculture, infrastructure or residential properties. The potential impacts will be entirely dependent on the specific facilities and installations covered by the plan, including the location of, for example, noise-generating components and distances to residential areas etc., and the extent to which other utilisation of the land, such as agricultural operations, can continue above underground cables.

The plan allows the establishment of onshore facilities and installations which are themselves material assets that benefit society. The location of coastal facilities and installations may 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 projects and their locations, and therefore cannot be qualified in the environmental report.

Contents and level of detail in environmental report

Existing conditions and environmental status

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

Assessment of impacts

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

The account of the potential impacts on material assets given in the environmental report is not to include any economic valuation, e.g. value impairment of properties subject to noise exposure or compensation in relation to loss of agricultural operations, as these factors fall outside the scope of a SEA of a plan.

6.6.7 Landscape and visual factors

Description of potential impacts

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

Contents and level of detail in 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 and installations in the plan.

Assessment of impacts

The environmental report must contain a general assessment of the visual impact from the types of technical facilities and installations that are covered by the plan. As far as possible, this assessment must be based on e.g. example illustrations, images of existing, comparable facilities and installations 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 and installations. The assessment should only be a general assessment of the expected scope and nature of the visual impacts.

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 an assessment therefore cannot be made.

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

Description of potential impacts

Onshore facilities and installations covered by the Plan for Programme North Sea Energy Island could potentially have impacts on cultural heritage, including churches and their surroundings, and architectural and archaeological heritage, due to the location of plant covered by the plan. 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 and installations is known and the environmental report can therefore give an idea of the potential environmental impact.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must give a general account of existing relevant cultural heritage in the areas covered by the plan, 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 and installations 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.

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 that facilities and installations covered by the Plan for North Sea Energy Island Programme 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

Description of potential impacts

Facilities and installations covered by the Plan for Programme North Sea Energy Island could potentially impact natural habitats and species in the designation basis for Natura 2000 sites in both the construction and operation phases.

The designation basis could potentially be affected by the utilisation of seabed areas, construction work or the permanent facilities and installations.

The environmental report must contain a materiality assessment of the impacts on the marine Natura 2000 sites that may be affected by the plan. If a material impact

on the designation basis cannot be ruled out on the basis of the materiality assessment, a Natura 2000 impact assessment will have to be prepared in the environmental report.

Contents and level of detail in environmental report

Existing conditions

The environmental report must contain a Natura 2000 materiality assessment (screening) which evaluates whether it will be possible to implement the Plan for Programme North Sea Energy Island without significant impact on Natura 2000 sites.

Assessment of impacts

The materiality assessment must cover all species and natural habitats in the designation basis for the Natura 2000 sites. The assessment must show whether the species or natural habitat has a favourable conservation status within the area. If the conclusion of the materiality assessment is that it cannot be ruled out that the plan may materially impact the conservation objective of a Natura 2000 site, an impact assessment must then be performed.

In relation to the potential impact, the materiality assessment must incorporate the current known conditions and factors in connection with facilities and installations covered by the plan which could lead to material impacts on the protected species or natural habitats.

The materiality assessment must, as far as possible, contain a general evaluation of whether facilities and installations covered by the Plan for Programme North Sea Energy Island can be expected to be implemented in accordance with the relevant protection provisions and objectives for species and natural habitats in the designation basis for Natura 2000 sites.

The materiality assessment must also describe the extent to which offshore facilities and installations covered by the plan could have positive or negative impacts on other species or natural habitats covered by the Birds Directive or the Habitats Directive.

The materiality assessment must clearly state that facilities and installations covered by the plan could have a material impact on the designation basis for Natura 2000 sites. If a material impact cannot be ruled out, the environmental report must contain an impact assessment in accordance with Article 6(3) of the Habitats Directive.

The conditions may be incorporated as terms in connection with the implementation of the plan and subsequent performance and environmental impact assessment of the specific projects where preventive measures could be laid down as specific terms for the use of a facility/an installation/a construction permit.

The Natura 2000 materiality assessment and, if relevant, the impact assessment, must clearly appear as separate sections 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 Annex IV species

Description of potential impacts

Facilities and installations covered by the Plan for Programme North Sea Energy Island could potentially affect species covered by Annex IV of the Habitats Directive (Annex IV species) in connection with removal of or disruption to habitats or breeding or resting areas. Marine mammals are covered by the habitat rules.

The marine construction work 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 behavioural disruptions. As the construction method is determined in connection with the specific project, a worst-case scenario approach must be used in connection with the assessment. The offshore wind farms could potentially disrupt marine mammal migration, which occurs annually between foraging and resting areas and breeding areas. A reduced seabed area could also mean less fish and other marine fauna for marine mammals to eat.

Marine mammals may also be affected by noise from ship traffic, depositing rock or sediment dispersion in connection with excavation activities on the seabed and with resulting impacts on the species' food supply, as well as a number of other impact factors. However, this is not to be discussed in detail in the environmental report.

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 from 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 examine in the report.

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 environmental report

Existing conditions and environmental status

The environmental report must include an account of the presence of Annex IV species that can be expected in or near 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 Annex IV species from implementation of the plan.

The assessment must be conducted in relation to impacts on breeding and resting areas, with the aim of maintaining the ecological functionality for the protected species.

If it is assessed 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 degrading the ecological functionality of Annex IV species, this must be clearly stated.

Any such conditions must be clearly explained and their expected effect in relation to maintaining the ecological functionality of the species, so that these conditions are incorporated into the plan.

6.7.1.3 Birds (which are not in the Natura 2000 designation basis)

Description of potential impacts

Offshore wind farms may affect birds, including birds covered by the general protection provisions of the Birds Directive. 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 of a more long-term duration 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.

Contents and level of detail in environmental report

Existing conditions and environmental status

Based on available knowledge – both general and specific to the area covered by the plan – the environmental report must give an account of the occurrence 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 covered by the plan 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 assessments may draw on knowledge and experience from existing offshore wind farms as well as national and international studies.

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

6.7.1.4 Other marine flora and fauna

Description of potential impacts
Facilities and installations covered by the Plan for Programme North Sea Energy Island may have impacts on the other marine flora and fauna (including plankton, fish and species of seals which are not protected by the Habitats Directive) through loss of area or change of habitat.

Excavation works or cable or pipeline trenching during the construction phase will result in a greater concentration of suspended sediment in the water column 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.

The artificial island and the platforms will need lighting, including at night. Light may affect plankton, fish, birds, etc. during the construction and operation phase.

The expected impacts will depend entirely on the specific project covered by the plan, and the environmental report will therefore only discuss the potential impacts at a general level.

Contents and level of detail in environmental report
Existing conditions and environmental status
The environmental report must give an account of the existing conditions for marine flora and fauna and natural habitats, including whether particularly vulnerable and threatened species and natural habitats are likely to be found in the marine area that may be impacted by the Plan for Programme North Sea Energy Island. The environmental report must also give an account of 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.

Assessment of impacts

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

6.7.1.5 Terrestrial flora and fauna on the artificial island

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 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, for example, military planes may fly lower. In the operation phase, there will probably be specific requirements for air traffic marker lights.

The specific projects and choice of construction methods are not currently known, and impacts on aviation safety must therefore be discussed at a general level in the environmental report.

Contents and level of detail in 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 implementation of the Programme North Sea Energy Island. This information must be obtained from relevant participants and aviation 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 Programme 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 additional assessments must be made in connection with the specific projects.

6.7.2.2 Navigation conditions and safety

Description of potential impacts

Construction of an artificial island, platforms, pipelines and offshore wind farms can impact on navigation conditions (such as the need to adjust ferry routes) and navigation safety. A large number of vessels will be used during the construction phase, and there will periodically be a lot of traffic between the departure port and construction area. However, the specific impacts of the construction work on navigation conditions and safety will depend entirely on the specific projects. 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 platforms, and traffic to/from the artificial island. Given that the final location and design of the artificial island, offshore wind farms, platforms and pipelines 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 environmental report

Existing conditions and environmental status

The environmental report must give an account of existing navigation conditions in the area and describe identified shipping routes, transit routes or other conditions that could be problematic in connection with facilities and installations covered by the Plan for Programme North Sea Energy Island, or which will require special attention in connection with the design of the specific projects.

Assessment of impacts

The environmental report must contain a general assessment of the consequences for navigation safety in connection with the location of facilities and installations covered by the Plan for Programme North Sea Energy Island. The assessment should not consider specific navigation risks and impacts on navigation conditions, as the final location and design of the artificial island, platforms, pipelines and 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 Programme 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 an offshore wind farm and platform 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 and platforms 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 affect persons working and staying on the artificial island and the platforms. There are therefore no significant impacts resulting from noise in the construction and operation phases.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must contain a brief, general account of noise-sensitive onshore land that may be impacted by noisy offshore activities covered by plan and a description of the noise limit values.

Assessment of impacts

The environmental report is not to include an assessment of the potential noise impact of construction works at sea due to the nature of the impact and the distance to shore. The environmental report must contain a general assessment of the noise that can be expected from the North Sea Energy Island and whether noise limit guidelines are likely to be met. The report must be based on noise calculations and experience from existing offshore wind farms, e.g. by using noise calculations or measurements from other projects and, in as far as possible, by including the latest information about source noise from wind turbines of the size that could potentially be erected for the North Sea Energy Island.

6.7.2.4 Recreational use of coastal waters

Description of potential impacts

In connection with facilities and installations covered by the Plan for Programme North Sea Energy Island, the possibility of recreational use of the coastal waters could potentially be affected.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must contain a brief, general account of the use of the affected coastal waters for recreational navigation and fishing, including tourism impacts.

Assessment of impacts

The impact on the recreational use of the coastal waters as a result of facilities and installations covered by the Plan for Programme North Sea Energy Island must be assessed.

6.7.3 Seabed and topography

Description of potential impacts

Facilities and installations covered by the Plan for Programme North Sea Energy Island will impact the seabed and result in changes. Construction of the artificial island, platforms and offshore wind turbines will also impact the subterranean level by compacting sedimentary layers, and shallow gas deposits may also be encountered when driving pile foundations. The severity of the impacts will depend on the existing conditions, the construction methods chosen, the placement and dimensions of the island, platforms and pipelines, and materials used for things like corrosion protection for the artificial island, platforms, pipelines and offshore wind farms.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must contain a general report on the existing geological conditions down to the depth, which could be impacted by the placement of the artificial island and driving pile foundations for offshore wind turbines and platforms. The environmental report must also give a general account of the geomorphological conditions in the area. The impact is deemed to be entirely dependent on the specific projects. It is therefore not relevant or meaningful to assess this in detail in the environmental report.

Assessment of impacts

The environmental report must generally assess whether impacts on the seabed and subterranean level are likely during the construction and operation phase for plant covered by the Plan for Programme North Sea Energy Island, including on topogra-

phy 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 topographic changes resulting from establishing facilities and installations covered by the Plan for Programme North Sea Energy Island may affect local power conditions and transport of sediment. 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.

During the operation phase, there may be a need for discharges to the sea from the plants covered by the plan, including in connection with production from PtX plants. This may affect the water quality and chemical composition. This impact is deemed to be completely dependent on the specific projects, and must therefore be assessed at a general level.

Contents and level of detail in 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 environmental report must also give a general account of the state of the coastal waters. The account must consider focus plans, requirements and objectives under the Danish Marine Strategy and the water plans, and must generally consider discharges in connection with plant covered by the plan.

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 plant covered by the Plan for Programme 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.

6.7.5 Air and climatic factors

Description of potential impacts

Production of the components used in connection with facilities and installations covered by the Plan for Programme North Sea Energy Island 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 the op-

eration phase. This impact is deemed to be entirely dependent on the specific projects. It is therefore not relevant or meaningful to assess this in the environmental report.

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

Recent research has indicated that the construction of offshore wind farms in large areas may affect weather conditions locally and regionally.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must contain an account of national and international objectives and obligations in relation to reducing greenhouse gas emissions. The environmental report should therefore not contain an account of existing conditions in relation to air quality.

Assessment of impacts

The environmental report must assess the expected effect of the Plan for Programme 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.

The environmental report must contain a general assessment of whether the establishment of the offshore wind farms can be expected to affect weather conditions locally and regionally to the extent to which this is possible to assess.

6.7.6 Material assets, including marine infrastructure

Facilities and installations covered by the Plan for Programme North Sea Energy Island may impact material assets, including existing land use.

Impacts on material assets may result from effects on the possibilities for utilising land for, for example, radio chains and radar, extraction of raw materials, fisheries, military areas, marine infrastructure etc.

The scoping for radio chains and radar, extraction of raw materials and fisheries is specified below.

6.7.6.1 Radio chains and radar

Description of potential impacts

The placement of an artificial island, platforms 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 they are located within the coverage area or sight line of the radios, 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 communications systems, the Danish Armed Forces require that the analysis work be carried out by a contractor approved by the Danish Armed Forces. The Danish Energy Agency therefore deems that the analysis work should be carried out in parallel with – but separate from – the preparation of the environmental report.

However, in relation to the potential impacts on other (civil) radar and radio communication systems, the Danish Energy Agency finds it expedient to incorporate these in the environmental report, as there are applications and territorial waters and air space considerations which could have a significant impact on the feasibility of siting facilities and installations covered by the Plan for Programme North Sea Energy Island.

Contents and level of detail in 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 communications systems, statements on the possible cross-border impacts of the offshore wind farms will be obtained from the relevant authorities.

Assessment of impacts

The environmental report must generally assess whether facilities and installations covered by the Plan for Programme North Sea Energy Island are likely to affect civil radars 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 remediating 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 remediating 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 extraction of raw materials

Description of potential impacts

Depending on the design and choice of materials, construction of an artificial island will involve the use of very large volumes of marine raw material resources (sand/gravel). Three potential resource areas within or close to the planning area are being investigated for suitability , but it cannot be ruled out that raw materials will have to be extracted from existing resource areas. 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.

Depending on the design and choice of materials, 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.

The location of an offshore wind farm could have an impact on the possibility of extracting raw materials at sea, e.g. if the offshore wind farm is located in existing or potential future areas for extraction of raw materials, thereby having a potential impact on the future acquisition of raw materials. The area for the Programme North Sea Energy Island and landing cables is expected to be located so as to avoid existing areas for extraction of raw materials to the greatest possible extent. It is therefore only relevant to discuss the possible impact on deposits and extraction of raw materials at a general level in the environmental report.

Contents and level of detail in environmental report

Description of existing conditions

The environmental report must report on existing marine raw material deposits. 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 environmental report must contain a general assessment of the impact on raw material areas.

6.7.6.3 Infrastructure

Description of potential impacts

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

Material assets may be impacted by affecting existing infrastructure. The potential impacts will depend completely on the specific projects.

The plan allows the establishment of offshore facilities and installations which are themselves material assets that benefit society. The location of coastal facilities and installations may 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 projects and their locations, and therefore cannot be qualified in the environmental report.

Contents and level of detail in environmental report

Existing conditions and environmental status

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

Assessment of impacts

The environmental report must contain a general account of the potential impact of the offshore facilities and installations on other area utilisation in the marine area covered by the Plan for Programme North Sea Energy Island.

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 design and environmental assessment of the specific projects.

6.7.6.4 Fisheries

Description of potential impacts

The placement of an artificial island, platforms, pipelines and offshore wind farms and cables may have impacts on fish resources, such as impacts on important spawning areas etc., and on commercial fishing, if the island, platforms, pipelines, offshore wind farms or cables lead to restrictions in access to key fishing areas. Fisheries 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 SEA of the plan. 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 fisheries due to a future offshore wind farm, as economic aspects of this nature

should not be included in a SEA.

Contents and level of detail in environmental report

Existing conditions and environmental status

The environmental report must give an account of the general fish resources in the area in terms of their condition and importance to commercial fisheries, including whether the area encompasses significant fishing areas, spawning grounds etc.

Assessment of impacts

The environmental report must comprise an assessment of the expected impact on fisheries in connection with the construction phase of a project, including a worst-case scenario in which a requirement is made for a ban on fisheries during a construction phase and the consequences thereof.

The assessment may be based on experience from similar projects.

The environmental report must assess the impacts of an artificial island, platforms, pipelines and the offshore wind farm on fishing in the area, and the possibility of fishing within or around the plant during the operation phase. The assessment may be based on experience from similar projects.

6.7.7 Landscape and visual impact

Description of potential impacts

Offshore wind farms can potentially be seen at a great distance and may thus have a visual impact. Even though the specific visual impact will depend on the specific location, choice of wind turbines and final layout, the visual impact must be included in the environmental report in order to give a realistic impression, in as far as possible, of how visible an offshore wind farm can be expected to be.

Contents and level of detail in environmental report

Example visualisations at sea must be provided for 3 and 10 GW, and for 12, 40 and 52 GW, in worst-case scenarios.

6.7.8 Marine archaeology

Description of potential impacts

Construction of plant covered by the Plan for Programme North Sea Energy Island could affect wrecks, previous settlements etc. of cultural and marine archaeological significance. The impact depends on the location, construction method, design etc. of the specific project, as the protection interests are often highly 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 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 construction phase

Given that the impacts are often very location specific, a specific assessment cannot be made at plan level of the impacts of the artificial island, platforms, offshore wind farms and cables 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 projects.

6.7.9 Conventional munitions

Description of potential impacts

During the construction phase, the establishment of the facilities and installations covered by the plan may impact the surrounding environment if there is a need to explode conventional munitions.

Assessment of impact from construction phase

The impact depends on the location of the specific project, as the incidence of conventional munitions varies, and any impact can only be assessed in connection with the specific project. It is therefore only relevant to assess conventional munitions at a very general level in the environmental report.

6.8 Lack of knowledge and uncertainties

The environmental report must identify any lack of knowledge in relation to assessment of the impact of the plan on the environment and any deficiencies in the knowledge basis 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 and any Natura 2000 impact assessment 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 that it is clear whether adjustments have been made to the plan based on identified mitigation measures

during the environmental assessments, 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 projects, which the concession holder/developer wants to establish, this must be clearly stated. Preventive measures may be laid down as specific terms for the exercise of a construction/establishment permit.

The environmental report must also describe any necessary schemes for monitoring any material harmful effects of the plan, which are best undertaken at government level in connection with the preparation and planning of the Programme 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 environmental report must contain clear references to the background material used in connection with the assessment of impacts resulting from the Plan for Programme North Sea Energy Island.

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.

The assessment of cross-border environmental impacts in potentially affected countries must be provided as an independent chapter in the environmental report.

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.