

NORTH SEA WIND POWER HUB

# DANISH PLANNING AND PERMITTING REGIMES FOR EEZ SECTOR

DESK STUDY REPORT

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## 1 Introduction

In connection with the ambitions of the consortium, The North Sea Wind Power Hub (NSWPH), COWI Denmark A/S has been tasked to provide an overview of the planning and permitting regimes within the Danish EEZ.

Tentatively, the consortium has designated an area off the Danish west coast – within the Danish EEZ – chosen as a location potentially suitable for one of several hubs for renewable energy infrastructures. This area is one out of four locations considered as 'test' locations, used to help identify the drivers and barriers as a base for further analysis.

This desk study provides an overview of relevant planning and permitting regimes in the Danish EEZ, including an overview of competent authorities, procedures and tentative time-schedules for executing planning and permitting procedures. The study will furthermore provide insight in the potential predominant aspects of the Danish regimes for the NSWPH projects in the area off the Danish west coast, considering configurations and technologies, including a qualitative assessment of the information need for planning and permitting the projects.

The desk study also takes into consideration a national point of attention regarding considerations of change in the permitting procedures for offshore wind turbines.

Finally, the study argues that the NSWPH consortium is required to undertake an SEA of the combined planning of the NSWPH-activities under the SEA Directive.

## 2 International and European treaties, regulations and directives

Several international and European treaties, regulations and directives set out a framework providing rights and obligations of Denmark as a coastal state in the identified areas off the Danish west coast.

### 2.1 UN Convention on Law of the Sea (UNCLOS)

According to article 65 of the UNCLOS the rights of the coastal State in the exclusive economic zone include sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds.

The coastal state has the jurisdiction regarding the establishment and use of artificial islands, installations and structures, marine scientific research, as well as the duty to protect and preserve of the marine environment.

## 2.2 Espoo Convention

The Espoo Convention sets out the obligations of Parties to assess the environmental impact of certain activities at an early stage of planning. It also lays down the general obligation of States to notify and consult each other on all major projects under consideration that are likely to have a significant adverse environmental impact across boundaries.

According to principle 17 of the convention, Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority. States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith, cf. principle 19 of the Espoo Convention.

## 2.3 EU Energy security policy

Energy policy within the EU is geared towards three main objectives:

- > affordable energy and competitively priced,
- > environmentally sustainable and
- > secure for everybody.

The EUs goal of decarbonisation and increased usage of renewable energy is supported by 2014/94/EU on the Deployment of Alternative Fuels Infrastructure. The directive addresses the current situation where more than 90% of the energy used in transport within Europe is derived from crude oil, most of which is imported. Through Directive 2014/94/EU, the Commission is aiming to resolve this cycle of dependence through the introduction of binding targets on Member States for a minimum level of infrastructure for clean fuels. Electricity is one of the clean fuels specified in the directive and with the focussed establishment of supporting infrastructure by Member States for electricity transmission there is a likely scenario that future demands for electricity will rise.

The directive is directly applicable to the establishment of offshore renewable resources and their connection to the existing electricity grid.

The wider picture sees that the EU imports more than half of all the energy it consumes, and many countries are also heavily reliant on a single supplier, including some that rely entirely on Russia for their natural gas consumption. This dependence leaves them vulnerable to supply disruptions. In response to these concerns, the European Commission released its Energy Security Strategy<sup>1</sup> in May 2014. The strategy aims to ensure a stable and abundant

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<sup>1</sup> COM (2014) The Communication from the Commission to the European Parliament and the Council on European Energy Security Strategy (COM/2014/0330 final)

supply of energy for European citizens and the economy. It also addresses both short and long-term measures including:

- > Increasing energy production in the EU and diversifying supplier countries and routes. This includes further deployment of renewables, sustainable production of fossil fuels, and safe nuclear where the option is chosen.
- > Completing the internal energy market and building missing infrastructure links to quickly respond to supply disruptions and re-direct energy across the EU to where it is needed.

The strategy recognises that the EU can reduce its dependency on particular suppliers and fuels by maximising its use of indigenous sources of energy including renewable energy. It concludes that the transition to a competitive, low-carbon economy will reduce the use of imported fossil fuels by moderating energy demand and exploiting renewable and other indigenous sources of energy.

## 2.4 European Maritime Spatial Planning

The European Commission's intention is to support the development of maritime spatial planning processes throughout the EU, by facilitating cooperation between Member States in the management of the maritime space in sea basins surrounding the EU. In July 2014, the European Council adopted legislation to establish a framework for the implementation of maritime spatial planning in EU waters (2014/89/EU) with the objective to promote the sustainable growth of maritime activities.

The directive obliges all coastal Member States to establish maritime spatial plans by 2021. The implementation of this directive and the establishment of maritime spatial plans will integrate marine users and their activities as well as environmental requirements (e.g. protected sites e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Marine Protected Areas (MPAs)).

The directive obliges all coastal Member States to establish maritime spatial plans by 2021. The implementation of this directive and the establishment of maritime spatial plans will integrate marine users and their activities as well as environmental requirements (e.g. protected sites e.g. Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Marine Protected Areas (MPAs)). All of the Member States within the NSWPH Desk Study, undertake some degree of maritime spatial planning and support the advancement of sectors and their policies e.g. offshore wind energy, in conjunction with other marine activities and environmental requirements, although it is acknowledged that the level of planning is neither consistent between Member States or between sectors within each Member State. This sectoral approach has been a driving force for the development of maritime spatial planning in those countries to date, however it is acknowledged that problems do exist with implementation.

## 2.5 European Maritime Protection

The EU Marine Strategy Framework Directive (MSFD) (2008/56/EC) has adopted an ecosystem-based approach to protect and manage the marine environment. This forms an integral component of maritime spatial planning within the EU and requires Member States to develop a strategy to achieve or maintain Good Environmental Status (GES) in their marine waters by 2020.

The MSFD includes a Programme of Measures that will meet targets set in order to achieve GES, which is defined as: *“the environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive within their intrinsic conditions, and the use of the marine environment is at a level that is sustainable, thus safeguarding the potential for uses and activities by current and future generations”*.

The OSPAR Convention which entered into force in 1998 was established to protect the marine environment. Under this Convention contracting parties have committed to establishing a network of MPAs to protect biodiversity (called OSPAR MPA). Significant areas of the North-East Atlantic have been designated as OSPAR MPA's, nearly 18% of the Greater North Sea is currently within MPA boundaries (highest amount in European seas). All of the Member States within the NSWPH Desk Study are contracting parties of OSPAR and as well committing to progressing and developing an ecologically coherent network of MPA, also cooperate in terms of MSFD requirements.

There is no single definition for MPA however, they are understood to be geographically distinct zones for which conservation objectives can be set and are often established in an attempt to strike a balance between ecological constraints and economic activity, so that the seas may continue to allow for goods and services to be delivered.

MPA networks are a collection of individual MPAs operating synergistically, at various spatial scales, and covering a range of protection levels, designed to meet objectives that individual MPAs cannot achieve<sup>2</sup> MPAs must be given consideration in maritime spatial planning and environmental assessment processes.

Added importance is given to them through Article 13.4 of the MSFD which states that: *“Programmes of measures established pursuant to this Article shall include spatial protection measures, contributing to coherent and representative networks of marine protected areas, adequately covering the diversity of the constituent ecosystems, such as special areas of conservation pursuant to the Habitats Directive, special protection areas pursuant to the Birds Directive, and marine protected areas as agreed by the Community or Member States concerned in the framework of international or regional agreements to which they are parties”*.

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<sup>2</sup> EEA Report No. 3/2015 Marine Protected Areas in Europe's Sea'. An Overview and Perspectives for the Future.

## 2.6 The Water Framework Directive

In addition, the Water Framework Directive (2000/60/EC) establishes a framework for the protection/ enhancement of all waters (surface, ground and coastal waters). Article 4.1 of the Directive requires Member States to “protect, enhance and restore all bodies of surface water” with the aim of achieving “good” surface water status. The directive has subsumed the Shellfish Waters Directive (2006/111/EC) which aims to protect or improve shellfish water in order to support shellfish life and growth. Whilst the major parts of the NSWPH will be offshore the grid will have to be connected to onshore land and hence this directive is directly applicable.

## 2.7 Nature Conservation

There are several directives that form the backbone of the EU legislative context for environmental assessment of plans, programmes and projects delivering the renewable energy production facilities and the adjoining grid infrastructure. The directives aim to provide a high level of protection for the environment and to contribute to the integration of environmental considerations into the preparation of plans, programmes and projects, with a view to avoiding or reducing their environmental impact.

Directive 2001/42/EC, known as the SEA Directive applies to a wide range of public plans and programmes including those related to land use and energy. The directive, which came into force in 2001 has been transposed into all of the target Member States included within the NSWPH Desk Study and all the Member States that have compiled national plans (both statutory and non-statutory) have applied this legislation. It is likely that further plans and programmes emanating from the regional concept proposed in this study will also be required to consider environmental impact under this directive. For those plans not mandatorily falling under this SEA legislation, screening may be required based on criteria set out in Annex II of the directive.

While SEA applies to plans and programmes, it is the Environmental Impact Assessment (EIA) Directive that applies to projects. The initial EIA Directive came into force in 1985 and underwent three amendments before being codified in 2011 [Directive 2011/92/EU]. This directive was subsequently updated in 2014 by Directive 2014/52/EU and this must be transposed by all Member States by May 2017. The new directive places greater emphasis on the marine environment through the inclusion of a specific recital (12) which states that:

*With a view to ensuring a high level of protection of the marine environment, especially species and habitats, environmental impact assessment and screening procedures for projects in the marine environment should take into account the characteristics of those projects with particular regard to the technologies used (for example seismic surveys using active sonars). For this purpose, the requirements of Directive 2013/30/EU of the European Parliament and of the Council<sup>14</sup> could also facilitate the implementation of the requirements of this directive. Similar to SEA, the objective of the EIA Directive is that before a decision is made to authorise project approval, those likely to have significant effects on the environment must undertake an assessment with regard to the potential effects.*

To support the implementation of the EIA Directive, the EU Commission has intermittently developed guidance for Member States, including guidance specifically relating to energy projects, particularly where transboundary issues will arise. This is likely to be the case for projects arising from current RES development for the North Sea.

Another environmental assessment process referred to as Appropriate Assessment (AA) is required for any plan or project likely to have an adverse effect on the integrity of a European Site, designated pursuant to Directive 92/43/EEC (the Habitats Directive) or 2009/147/EC (Birds Directive).

The ultimate objective is to ensure that the species and habitats reach "*favourable conservation status*". Where a plan or project will have a likely significant effect on a Natura 2000 site, an AA (required under Article 6(3) of the Habitats Directive) requires decision makers to establish *beyond reasonable scientific doubt* that adverse effects on site integrity in light of the conservation objectives of the site, will not occur. It is important to note that the intention of the assessment process is not to preclude development which affects these designated sites, but rather to ensure that adverse effects on the species, living places and the integrity of the site will not occur as a result of a proposed development. Where adverse effects may result but where there are no alternatives and where a project must be carried out for imperative reasons of overriding public interest (IROPI), compensation measures must be taken to ensure the overall coherence of the Natura 2000 network.

Complexities are intensified by the mobile nature of a number of bird, fish and mammal species in the wider marine environment and their life cycle which may include migratory routes, feeding areas, breeding/ spawning areas etc. Energy infrastructure plans such as any offshore grid in the North Seas is subject to these AA requirements, which can be usefully combined with SEA procedures, with a view to assessing potential impacts on Natura 2000 sites and identifying measures to prevent or mitigate those impacts and possible alternatives. In recognition of the possible conflicts arising from development of offshore renewables, guidance is anticipated from the EU to cover energy infrastructure and hydropower, which will complement existing guidance on wind energy and ports and harbours.

### 2.7.1 Natura 2000 areas

The chosen area off the Danish west coast is not directly placed in a Natura 2000 area. The nearest Natura 2000 areas to the identified test location include:

- > Jyske Rev
- > Sydlige Nordsø
- > Skallingen and Langeli
- > Thyborøn Stenvolde
- > Sandbanker ud for Thyborøn



> Sandbanker ud for Thorsminde



The types of seabed habitats likely to be encountered by offshore structures and cabling within the North Seas, include sandbanks and biogenic reefs. When carrying out environmental assessments prior to planning and prior to permitting the infrastructures involved in NSWPH the potential impact on these areas should be considered, also when projected outside protected areas.

### 3 Danish planning and permitting regimes

#### Functionalities, installations and activities offshore

Planning and permitting large pipelines and offshore wind farms is covered by the Continental Shelf Act and the Promotion of Renewable Energy Act pointing out The Danish Energy Agency as the competent authority. Furthermore, the expected adoption of the National Maritime Spatial Plan in late 2020, will require that any infrastructure not foreseen in the adopted plan, will require the adoption of an amendment to the National Maritime Spatial Plan. Due to the sovereignty of the state, installations and activities at sea requires permission. Installations covered by the permit requirement include both temporary and permanent installations. The sovereignty of the Danish state is undertaken by The Danish Coastal Authority. The sovereignty regarding permits for establishing

cables and pipelines is however undertaken by the Danish Energy Agency. Some activities on the sea requires a permit from the Danish Environmental Protection Agency.

#### Functionalities, installations and activities inshore

Planning and permitting inshore is covered by multiple acts depending on the project. Hence, the competent authority also differs regarding on which scale the planning is set out and the type, size and scope of the project. The permitting competence regarding some projects is placed at the municipality board regarding official approvals or the Danish Coastal Authority. However, as the only part of the NSWPH project that is visioned to be placed inshore is pipelines and cable the permitting authority is the Danish Energy Agency.

#### Functionalities, Installations and activities terrestrial

Planning and permitting projects on land areas is covered by both the Planning Act and the Regulation in the Environmental Assessment Act. The competent authorities in this regard is shared between local municipalities and The Danish Ministry of Environment and Food (The Danish Environmental Protection Agency). The Energy Agency is however still the permitting authority regarding the establishment of cables and pipelines.

### 3.1 Overview

Location	Principal Legislation	Principal Responsible Authority
Offshore (EEZ) (12 - 200 nm)	<ul style="list-style-type: none"> <li>▪ Continental Shelf Act (Lovbekendtgørelse nr. 1101 af 18. november 2005 om Kontinentalsoklen)</li> </ul>	Danish Energy Agency
	<ul style="list-style-type: none"> <li>▪ Underground Act (Lovbekendtgørelse 2018-09-21 nr. 1190 om anvendelse af Danmarks underground)</li> </ul>	Danish Energy Agency
	<ul style="list-style-type: none"> <li>▪ Act on the Sea Environment (Lovbekendtgørelse 2017-09-04 nr. 1033 om beskyttelse af havmiljøet)</li> </ul>	Danish Environmental Protection Agency
	<ul style="list-style-type: none"> <li>▪ Promotion of Renewable Energy Act (Lovbekendtgørelse nr. 53 af 18. januar 2018 om fremme af vedvarende energi)</li> </ul>	Danish Energy Agency
	<ul style="list-style-type: none"> <li>▪ Act on Raw Materials (Lovbekendtgørelse nr. 124 on Råstoffer af 26. januar 2017)</li> </ul>	Danish Environmental Protection Agency
	<ul style="list-style-type: none"> <li>▪ Act on Maritime Spatial Planning</li> </ul>	Danish Maritime Agency

	<ul style="list-style-type: none"> <li>▪ Energinet Act (Lovbekendtgørelse 2018-06-27 nr. 997 om Energinet)</li> <li>▪ Act on Environmental Assessment (Lovbekendtgørelse nr. 1225 af 25. oktober 2018 om miljøvurdering af planer og programmer og af konkrete projekter (VVM))</li> </ul>	<p>Danish Energy Agency</p> <p>Danish Coastal Protection Authority / Danish Energy Agency</p>
Inshore (0 – 12 nm)	<ul style="list-style-type: none"> <li>▪ Act on Harbours (Lovbekendtgørelse nr. 457 om Havne af 23. Maj 2012 – med senere ændringer)</li> <li>▪ Act on Environmental Assessment (Lovbekendtgørelse nr. 1225 af 25. oktober 2018 om miljøvurdering af planer og programmer og af konkrete projekter (VVM))</li> <li>▪ Act on Raw Materials (Lovbekendtgørelse nr. 124 on Råstoffer af 26. januar 2017)</li> <li>▪ Coastal Protection Act (Lovbekendtgørelse nr. 57 af 21. januar 2019)</li> <li>▪ Promotion of Renewable Energy Act (Lovbekendtgørelse nr. 53 af 18. januar 2018 om fremme af vedvarende energi)</li> <li>▪ Territorial Waters Act (Lov om afgrænsning af søterritoriet (1999))</li> </ul>	<p>Danish Transport, buildings, and housing Agency</p> <p>Danish Energy Agency</p> <p>Danish Environmental Protection Agency</p> <p>Danish Coastal Protection Authority</p> <p>Danish Energy Agency</p> <p>Danish Coastal Protection Authority</p>
Terrestrial	<ul style="list-style-type: none"> <li>▪ Planning Act (Lovbekendtgørelse nr. 1529 af 23. november 2015 om planlægning)</li> <li>▪ Act on Environmental Assessment (Lovbekendtgørelse nr. 1225 af 25. oktober 2018 om miljøvurdering af planer og programmer og af konkrete projekter (VVM))</li> </ul>	<p>Danish Enterprise Agency and local municipalities</p> <p>Danish Environmental Protection Agency and local municipalities</p>

	<ul style="list-style-type: none"> <li>▪ Act on Raw Materials (Lovbekendtgørelse nr. 124 on Råstoffer af 26. januar 2017)</li> <li>▪ Nature Protection Act (Lovbekendtgørelse 2019-03-13 nr. 240 om naturbeskyttelse)</li> </ul>	<p>Danish Environmental Protection Agency and the regional authority</p> <p>Danish Environmental Protection Agency and local municipalities</p>
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*Table 1: Overview of Danish acts and responsible authorities relevant to NSWPH activities*

### 3.2 Danish SEA and EIA framework

The framework in Denmark regarding SEA and EIA consists of several Acts and regulations and competent authorities. The application of these depend on the type of plan or project subject to SEA/EIA and whether these are covered by specific sector laws.

As shown above, there might be more than one competent authority regarding SEA and EIA of the NSWPH project, but only one will play the domination and coordinating role. In regard to projects concerning wind power, wave power, pipelines and cabling The Danish Energy Agency will play this role. For other projects at sea listed on the annexes to the Environmental Assessment Act, the Danish Coastal Protection Authority is the competent authority.

The permit given based on and in coherence with the Environmental Assessment Act contains all the environmental conditions connected to the permit, including the characteristics and measures planned to avoid, prevent or limit and, if possible, neutralize significant harmful effects on the environment and any monitoring measures. The competent authority can thereby set out terms for the permit in order to meet the objectives of the Act. If the project is found to have harmful effects on the environment the authority will set out terms for monitoring these effects.

Any plan or project not directly connected with or necessary to the management of a Natura 2000 area site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subjects to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusion of the assessment of the implications for the site and compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public. Prior to this appropriate assessment a screening of whether a significant impact may be expected. Neither an EIA or an SEA can replace the appropriate assessment of the significant impacts of a Natura 2000 area site.

It is assumed in administrative practices in Danish law that the assessment of projects should cover all technically and functionally interdependent elements. Hence, pipelines and interconnectors necessary to transmit energy to and from

e.g. power hub projects or the establishment of wind farms are elements that must be included in the environmental assessment EIA of these infrastructures.

When carrying out more than one project or activity, the assessment of the environmental impacts will however evaluate the cumulative effects regardless of the delimitation of the application project in question. Even though a project is carried out in several phases the EIA may in some instances be required to cover the entire project and not only the partial development of the individual elements. This is, however, an issue that is most often decided in the individual application procedures.

Any changes or extensions of projects listed in Annex I or II in the Environmental Assessment Act, already authorised, executed or in the process of being executed, which may have significant adverse effects on the environment must also be subject to a screening decision covering whether the proposed change or extension of the project shall be made subject to an environmental impact assessment.

Where a plan, a programme or a project is likely to have significant effects on the environment in another state the Ministry of Food and Environment shall be informed. The Ministry will then consult the affected state by sending forward a copy of a draft plan or programme or a description of the project, together with any information available on its possible transboundary impact and information on the nature of the decision which may be taken. The authority cannot decide on the plan or programme nor issue permission to the project before the Ministry gives approval thereof.

In accordance with the EIA Directive, The Environmental Assessment Act includes two annexes containing the project categories; a category listing projects which are mandatory to undertake an EIA (annex 1), and a list of project categories where it is decided on the basis of a screening whether the project is likely to have significant effects on the environment and therefore subject to EIA or not (annex 2).

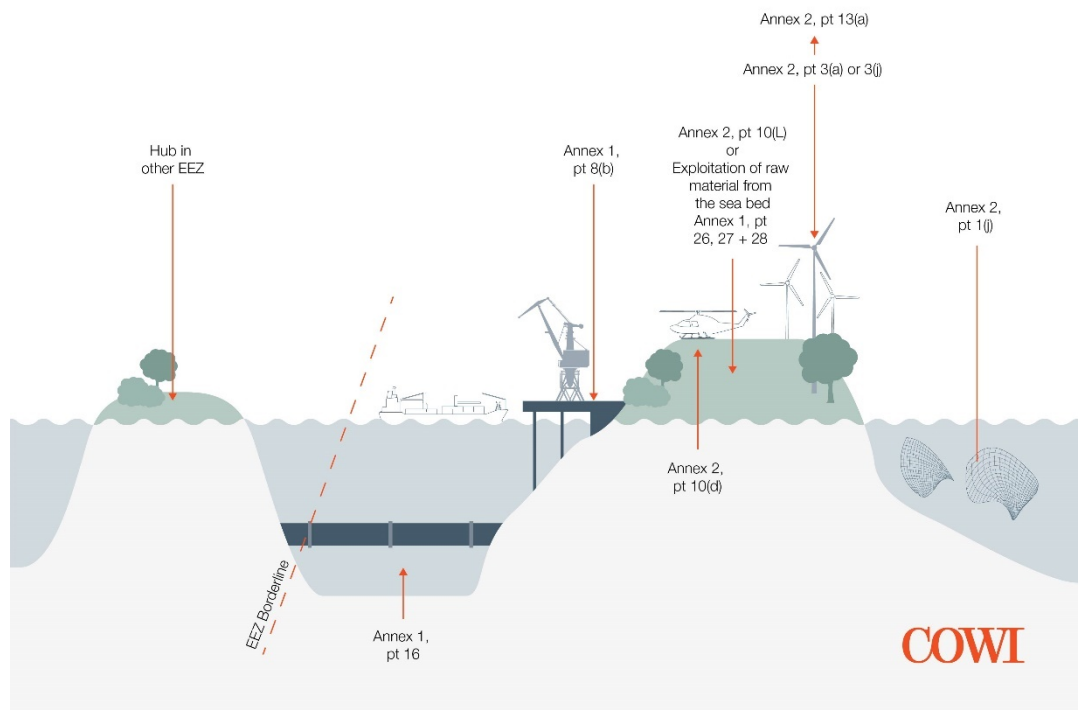
Installations for exploitation of wind power and wave power for energy production- and the technically and functionally linked infrastructures such as pipelines and interconnectors - are listed in annex 2 in the Environmental Assessment Act and is therefore subject to screening. Installations for power-to-gas conversion will be subject to EIA screening, cf. annex 2, pt. 3 of the Environmental Assessment Act.

Several elements involved in the construction of hubs are subject to EIA. If the hub is constructed as an island by sand filling and it is assumed that the sand used is excavated from the seabed the excavation activities are considered technically and functionally interdependent to the construction of the artificial island and the construction therefore listed in annex 1 of the Environmental Assessment Act. The construction will then be subject to a mandatory EIA. If the construction of the island is not covered by annex 1, reclamation of land from

the sea<sup>3</sup> is listed in annex 2 of the act and therefore subject to a screening requirement.

Construction of port facilities on the hub/artificial island will either be subject to mandatory EIA if defined as a port designated for vessels more than 1.350 tonnes or subject to screening as a harbours and port installation (includes fishing harbours). Construction of airfields/heliports are also subject to a screening requirement and potentially a subsequent EIA-procedure (which will be the most likely outcome of the screening procedure). Intensive fish farming projects are also subject to a screening requirement because it is listed in annex 2 in the Environmental Assessment Act.

On the illustration below the respective part of the project listed on the annexes to the Environmental Assessment Act are show.



*Illustration: Overview of project listing points*

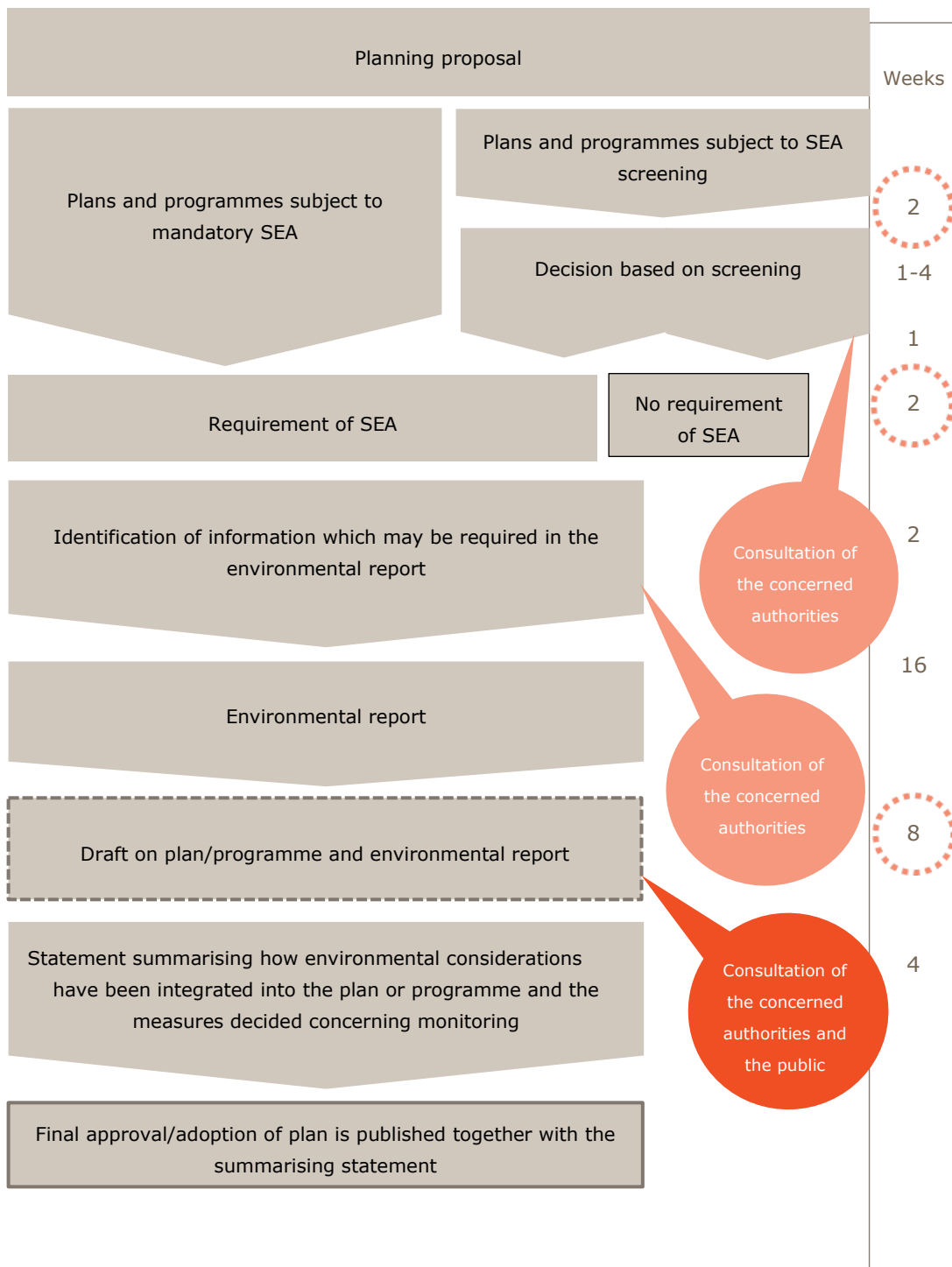
When a developer applies for EIA permit, the developer solely bears the responsibility that formal requirements applicable to the application are met.

The procedures of SEA and EIA of plans and projects are shown below respectively.

<sup>3</sup> The Danish Environmental Assessment Act uses the term "sea territory" whereas the EIA-Directive uses the term "sea". The sea territory is a legally significant concept in Danish law meaning the coastal waters covering the water body that stretches from the shore-line and extending up to 12 nautical miles from the shore-line. In accordance with the EU Court of Justice's broad interpretation of the activity categories it is most likely that the wording "sea-territory" in the Danish EIA Act will be interpreted as meaning the sea at large (covering all waters under Danish jurisdiction).

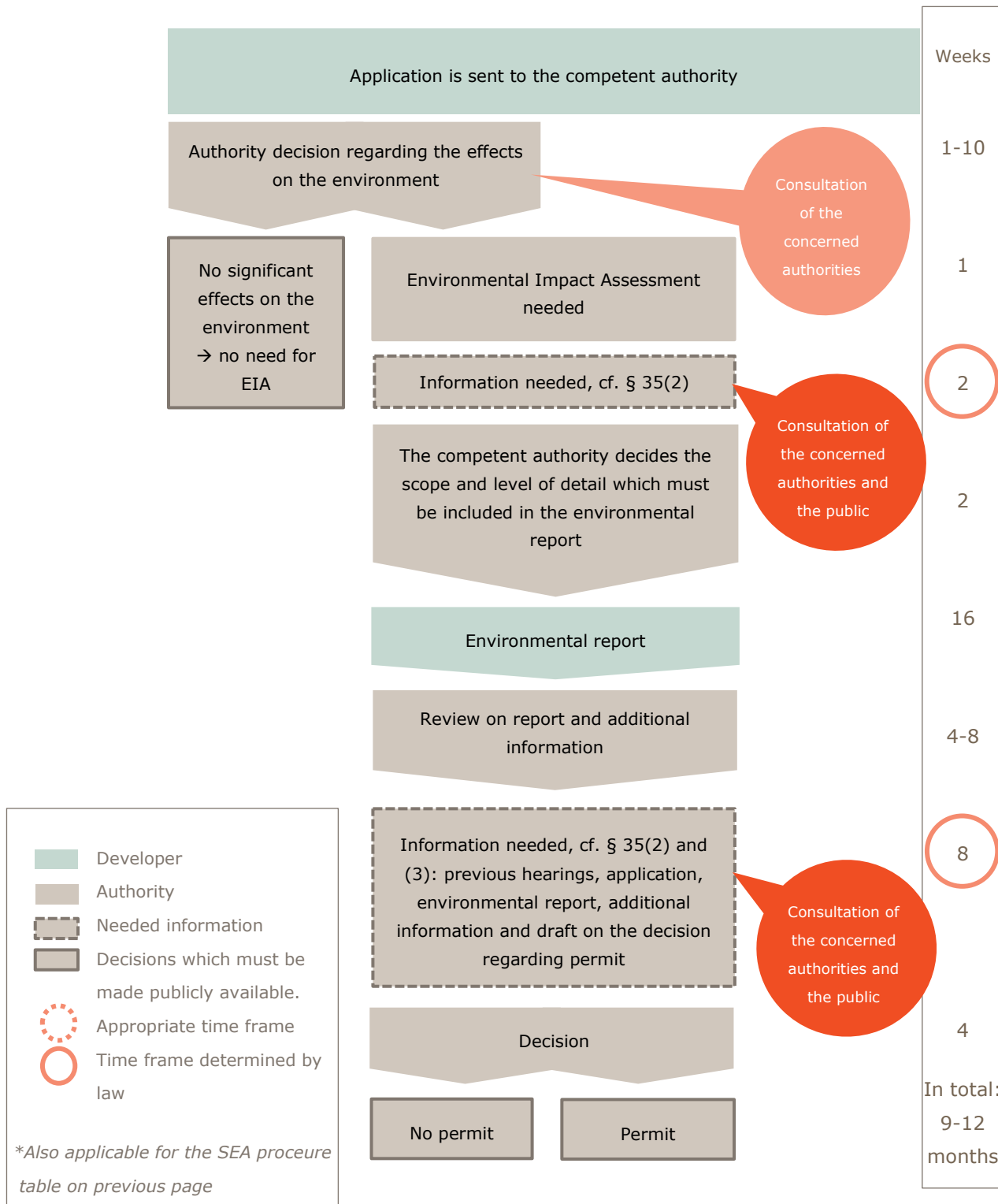
### 3.2.1 SEA procedure

An assessment of the effects of plans and programmes is undertaken with the following process:



### 3.2.3 EIA procedure

The procedure of EIA is carried out as shown in the figure below.



### 3.3 Requirement of planning

The system of planning and dividing lands into different zones is a central part of the use of areas on Danish soil. An important element to the planning system is



the frameworks management principle meaning that a plan on a lower level cannot be contrary to a plan on a higher level.

The Planning Act does not regulate the area usage of sea territory but will be relevant if the project includes land-based installations and activities.

However, the Act on Maritime Spatial Planning sets out the frameworks for establishing maritime spatial plans for the Danish sea areas. The first Danish maritime spatial plan is currently being established by the Danish Maritime Agency and will apply from 2021.

### 3.4 Permits for interconnectors and pipelines

The establishment of new transmission systems and significant changes in the existing in the inshore and offshore waters requires permission from The Ministry of Energy, Utility and Climate. The granting authority within the organisation of the MEUC is The Danish Energy Agency.

The permission can be granted under certain terms of location, design and disposal of installations as well as technical, environmental and security related conditions in connection to establishment and operation.

When considering the assessment of the likely impacts on the environment and the extent to which an EIA-report will be required to interconnects and pipelines this will to a large degree depend on the application for permit. If the interconnectors and pipelines are established as a combined development comprising both interconnects/transmission infrastructure and power generators (wind turbines) all elements will be a required part of the project to be assessed in the respective EIA-report. However, other approached will be required where some elements are not sufficiently developed at the time of application for one permit (major interconnectors between hubs will very likely not be established before local wind power parks are established). The conclusion in general will therefore most likely be drawn on the aspect that any interconnector or pipeline project might be viewed as the development of necessary infrastructure required to make the other elements to a project functional and therefore included as part of the project definition applied in the EIA-report (no wind power park or wave power plant without a transmission cable to the grid network). The competent authority for screening and issuing EIA permits for interconnectors and pipelines is The Danish Energy Agency.

### 3.5 Permits and licence for production of wind power

The conditions for offshore wind farms are defined in the Promotion of Renewable Energy Act. Three licenses are required to establish an offshore wind farm in Denmark. The three licenses are granted by the Danish Energy Agency, which serves as a "one-stop-shop" for the project developer.

The three licenses are stated below:

- > License to carry out preliminary investigations.

- > License to establish the offshore wind turbines (only given if preliminary investigations show that the project is compatible with the relevant interests at sea).
- > License to exploit wind power for a certain number of years, and an approval for electricity production (given if conditions in license to establish project are kept).

The establishment of offshore wind turbines can follow two different procedures:

- > a tender procedure run by the Danish Energy Agency or
- > an open-door-procedure.

The NSWPH project is expected to be following the open-door-procedure, as there are no plans for tendering licenses for the involved activities at this stage. In the open-door-procedure the project developer takes the initiative to establish an offshore wind farm. The project developer submits an unsolicited application for a license to carry out preliminary investigations within a defined area. The application must as a minimum include a description of the project, the anticipated scope of the preliminary investigations, the overall capacity established, the size and number of turbines, and the geographical boundaries of the site/water area proposed for project development.

An application submitted under the open-door-procedure cannot expect to obtain approval in the areas that are designated and submitted for a tendering procedure for establishing offshore wind farms in the updated report on Future Offshore Wind Power Sites from 2011. The open-door-procedure works from a temporal aspect of about 3-4 years depending on the time spent on working out the different applications, consultation of the concerned authorities and the public and other influences on the time line.

The other option is that a political energy agreement decides on a tender for establishing new offshore wind farms. According to this procedure, The Danish Energy Agency announces a tender for an offshore wind farm for a specific site and of a specific size. The offshore wind farm has to be established within a geographical area which is defined in the tender. As Energinet is responsible for the electricity infrastructure in Denmark and act as an independent system operator (TSO), Energinet constructs, owns and maintains both the transformer station and the underwater cable that carries the electricity to land from the offshore wind farm in tenders for large scale offshore wind farms.

Regardless of the procedure, the project developer must obtain all three licenses listed above.

As part of the one-stop shop concept, Danish Energy Agency initiates a hearing of other government bodies to clarify whether there are other major public interests that could block the implementation of the project before the Danish Energy Agency begins processing the application. Based on the result of the hearing, the Danish Energy Agency decides whether the area in the application can be developed, on the basis of an assessment of potential water space use

conflicts. The designation of space area uses will from 2021 be regulated by the National Maritime Spatial Plan. In the event of a finding of no conflicts The Energy Agency issues an approval for the applicant to carry out preliminary investigations, including an EIA.

If the results of the preliminary investigations show that the suggested project can be approved, the project developer can obtain a license to establish the project<sup>4</sup>.

The permitting regimes for offshore wind farms do not differ depending on the foundation technology used.

The competent authority for issuing EIA permits for wind turbines and OWF is also The Danish Energy Agency.

### 3.6 Power-to-gas (P2G)

When establishing a power-to-gas converter plant on the power hub, the plant will use the Danish state-of-the-art natural gas infrastructure to store wind energy. A permit from Energinet is therefore needed to connect to the existing grid.

This technology is still under development, hence parts of the legal regimes for P2G remain unresolved and under development.

The competent authority for screening and issuing EIA permits for establishing a P2G plant is The Danish Energy Agency as they are the competent authorities for issuing EIA permits for projects listed on the annexes of the Environmental Assessments Act related to power and gas.

### 3.7 Permits and license for production of wave power

When establishing a wave power plant, the developer is the one taking the initiative. The conditions regarding location and size is therefore also chosen by the developer and not a given authority.

Production of wave power in the Danish EEZ is required to obtain a permit under the frameworks of the Promotion of Renewable Energy Act. The Danish Energy Agency then decides whether the project has a significant impact on the environment and therefore requires an environmental report.

As stated regarding the production of wind power, production of wave power requires three licenses granted by The Danish Energy Agency, respectively:

- > License to carry out preliminary investigations.

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<sup>4</sup> Electricity produced by wind farms under the open-door-procedure currently will receive a price premium at the same level as onshore wind turbines. The premium is 25 øre/kWh on top of the market price. If the market price added to the subsidy exceeds 58 øre/kWh the subsidy will be reduced accordingly.

- > License to establish the wave power plant.
- > License to exploit wave power for a certain number of years, and an approval for electricity production (given if conditions in license to establish project are kept).

The competent authority for issuing EIA permits for projects for exploiting wave power is also The Danish Energy Agency.

#### 4 Regimes for the construction of a hub

According to the TOR<sup>5</sup> the considered construction technologies for the hub include:

- > Sand filled island
- > Caisson/gravity based
- > Jacket structure

In accordance with the principle of state sovereignty a formal permit is required for installations, dams and fillings on the inshore sea territory (within 12 nautical miles from the coast). The power to issue this permit is vested in the Danish Coastal Protection Authority.

The objective of the Continental Shelf Act is to create a detailed foundation for the Danish administration of the sovereignty of mineral resources and living organisms attributed to Denmark as a coastal state. The act regulates the research and exploitation of raw materials within the Danish EEZ that are not covered by the regulatory regime covered in the Raw Materials Act.

The Underground Act regulates the investigation, extraction of the hydrocarbon resources in the Danish subsoil and seabed.

The objective of the Protection of Sea Environment Act is to protect the nature and environment for the development of society to be based on a sustainable foundation in respect to human conditions of life and to the conservation of animals and plants.

These acts, however, do not cover the activities connected to establishing a hub. Instead the principle of State Sovereignty becomes the starting point of determining the regime for construction of a hub in the Danish EEZ.

Within the EEZ of Denmark, the Danish state has the jurisdiction regarding establishment and use of artificial islands and installations as well as the protection and preservation of the sea environment. Permits for dams, fillings, construction of installations or permanent or temporary designs, vessels for other purposes than sailing, deepening or digging at sea are issued by The

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<sup>5</sup> Terms of reference, Planning and permitting study, North Sea Wind Power Hub

Danish Coastal Authority<sup>6</sup>. When issuing permits for these activities, The Coastal Protection Authority can set forth terms and conditions for obtaining the permit in compliance with Danish regulations. The principle of State Sovereignty is, however, supplementary to the Danish Maritime Spatial Plan<sup>7</sup> which is in the process of being drawn up by The Danish Maritime Agency, applicable from 2021.

If the hub is established as one of the first element in a combined development comprising both hub, interconnects/transmission infrastructure and power generators (wind turbines) all elements will be a required part of the project to be assessed in an EIA-report. There are, however, many possible combinations where some elements are not sufficiently developed at the time of application for one permit why any project must be viewed in combination with the development of necessary infrastructure required to make the project functional. Hence, several elements can be included as part of the project definition applied in the EIA-report. The competent authority for issuing EIA permits for projects listed on the appendixes to the Environmental Assessments Act is The Danish Coastal Authority. See examples on such projects under chapter 3.2.

It is assumed that the construction of a harbour on the hub is covered by the Danish Act on Harbours which applies to harbours used for business activities. The competent permitting authority for establishment is the Ministry of Transport and the competent authority for issuing EIA permit is the Danish Transport, Construction and Housing Authority.

When establishing and operating a private airstrip a notification must be submitted to the Transport, Construction and Housing Authority<sup>8</sup>. On the basis of these notifications, the Authority will notify whether the area can be registered as an airfield and under which conditions (if any) and then issue a permit. Before a helideck is taken into use, an official technical approval from the Transport, Construction and Housing Authority must also be achieved<sup>9</sup>. The establishment of an airstrip and/or heliport is subject to the requirement of approval in accordance with § 33 in the Danish Environmental Protection Act.

Chapter 6 provides an overview of the information needed for carrying out and an EIA for permitting the project applied for. This chapter can provide an insight in the elements needed assessed in an EIA-report.

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<sup>6</sup> A project of the magnitude of the NSWPH project has never been carried out in the Danish EEZ before. Therefore, there does not exist legislation in Denmark that cover all aspects of the NSWPH project. The general principle of State Sovereignty becomes, in the event of no relevant legislation found, the outset for permitting projects within the EEZ. The exercise of the powers vested in the State Sovereignty principle is delegated to the Coastal Protection Authority by way of § 16a in the Coastal Protection Act in 2006.

<sup>7</sup> <https://www.dma.dk/Vaekst/Havplan/pages/default.aspx>

<sup>8</sup> Ministry of Transport, Construction and Housing: Rules on notification, registration and deregistration of private airfields (BL 3-7, edition 2, 24th of November 2009)

<sup>9</sup> Ministry of Transport, Construction and Housing: Rules on helidecks on offshore installations (BL 3-5, edition 4, 18th of December 2006)

## 5 Potentially predominant aspects for the NSWPH project

The predominant aspects for the NSWPH project can be enlightened by the results of existing national SEAs and other projects, respectively:

- > Locations for future offshore wind turbines 2025 – Inter-ministerial Committee for location of future offshore wind turbines, April 2007. (Fremtidens havmølleplaceringer – 2025. Udvalget for fremtidens havmølleplaceringer, april 2007).  
[http://www.ens.dk/sites/ens.dk/files/dokumenter/publikationer/downloads/fremtidens\\_havvind\\_final\\_240407.pdf](http://www.ens.dk/sites/ens.dk/files/dokumenter/publikationer/downloads/fremtidens_havvind_final_240407.pdf)
- > Locations for wind turbines in coastal waters of Denmark, October 2012. (Kystnære Havmølleplaceringer, oktober 2012).  
<http://www.ens.dk/sites/ens.dk/files/undergrund-forsyning/vedvarende-energi/vindkraft-vindmoeller/havvindmoeller/planlaegning-fremtidens/screening%20af%20kystn%C3%A6re%20havm%C3%B8ller%20oktober%202012.pdf>
- > SEA of Renewable Energy Infrastructures in North Sea and Irish Sea (BEAGINS project)
- > Review of the environmental aspects of the sea-based and EIA of the land-based part of the COBRA-cable, October 2014. (Miljøreddegørelse for den havbaserede del og VVM-reddegørelse for den landbaserede del af COBRA-cable projektet)
- > Establishment of the Danish Maritime Spatial Plan including SEA, **ongoing**. (Tilvejebringelse af den danske havplan inklusive miljøvurdering)

<b>1. Locations for future offshore wind turbines 2025 – Inter-ministerial Committee for location of future offshore wind turbines, April 2007.</b>	
Was an SEA or AA undertaken on the Plan?	A SEA was undertaken on the plan: <a href="http://www.ens.dk/info/publikationer/miljovurdering-fremtidens-havmølleplaceringer-2025">http://www.ens.dk/info/publikationer/miljovurdering-fremtidens-havmølleplaceringer-2025</a>  No AA was undertaken on the plan, see objectives.
Scope	The Committee for location of future offshore wind turbines has prepared a mapping report on location for the future offshore wind turbines in Denmark. The committee was composed from members of the Ministry for Environment, Ministry for Energy and Climate (chair), Ministry for Defence, Ministry for Agriculture and Fisheries, and the Maritime Agency. COWI was the Secretary for Committee in the SEA procedure.
Objectives	The report is part of the Danish government's implementation of Energy Strategy 2025. The government

	<p>has decided to establish two wind turbine parks at sea consisting of wind turbines with a collected capacity of 200 MW each. The mapping report resulted in the designation of 7 priority areas, which may contain wind turbine expansions with a total capacity of 4600 MW. This will ultimately result in a production of approximately 18 TWh a year, i.e. approximately 8 % of the total energy consumption or 50 % of the electricity consumption in Denmark.</p> <p>In the designation of the 7 priority areas the main objective has been to ensure that the following factors were taken into account:</p> <ul style="list-style-type: none"> <li>- Raw materials</li> <li>- Defence purposes</li> <li>- Fishing</li> <li>- Shipping</li> <li>- Nature protection (including Nature 2000 areas)</li> <li>- Visual impacts (only inshore locations)</li> </ul> <p>Thus, the SEA has provided a mapping of areas and locations, where these factors have been accommodated. Because of this "maritime strategic planning" it has for instance not been necessary to undertake an AA on the plan, since Nature 2000 areas have been avoided.</p> <p>Three of the designated priority areas have by now/are by now subjected to the implementation of up to 200 MW Wind turbines.</p>
Specific Mitigation	None. However, the need for specific mitigation will be assessed and determined in the assessment of each of the future applications for establishing wind turbines in the designated areas in order to ensure that possible negative environmental impacts were avoided or kept to a minimal. This will be a part of individual applications based on an EIA-procedure.
Data Gaps	None recorded.
Overall Conclusion	<p>Over all the SEA has shown that the mapping has a positive impact on the environment, which likely outweighs the possible negative impacts.</p> <p>The SEA emphasizes that the mapping itself will not reduce the CO<sub>2</sub>-emissions, however it will contribute to a change in the composition of Denmark's energy consumption in the direction of a use of renewable resources.</p> <p>The SEA ultimately confirms the list of priority areas set out in the mapping report based on different environmental and economical parameters.</p>

<b>2. SEA for In-shore Wind Turbines (2012)</b>	
Was a SEA or AA undertaken on the Plan?	<p>A SEA was undertaken on the plan:  <a href="http://www.ens.dk/sites/ens.dk/files/undergrund-forsyning/vedvarende-energi/vindkraft-vindmoeller/havvindmoeller/planlaegning-fremtidens/Strategisk%20milj%C3%B8vurdering%20af%20kystn%C3%A6re%20placeringer%20juni%202012.pdf">http://www.ens.dk/sites/ens.dk/files/undergrund-forsyning/vedvarende-energi/vindkraft-vindmoeller/havvindmoeller/planlaegning-fremtidens/Strategisk%20milj%C3%B8vurdering%20af%20kystn%C3%A6re%20placeringer%20juni%202012.pdf</a></p> <p>No AA was undertaken on the plan, see objectives.</p>
Scope	<p>A Committee chaired by the Danish Energy Agency identified up to 15 sites in the inshore areas of Denmark. The committee was composed from members of the Ministry for Environment, Ministry for Energy and Climate (chair), Ministry for Defence, Ministry for Agriculture and Fisheries, and the Maritime Agency. COWI was the Secretary for Committee in the SEA procedure.</p>
Objectives	<p>The purpose of the designation was to identify suitable locations for future wind turbines within 20 km from the coastline.</p> <p>In the designation the main objective has been to ensure that the following factors were taken into account:</p> <ul style="list-style-type: none"> <li>- Areas for raw materials dredging</li> <li>- Areas reserved for defence purposes</li> <li>- Areas for fisheries</li> <li>- Shipping lanes</li> <li>- Nature protection (including Nature 2000 areas)</li> <li>- Visual impacts</li> </ul> <p>Thus, the SEA has provided an assessment of the likely significant impacts on the environment of developing the locations, where these factors were accommodated. Based on this early "maritime strategic planning" it has for instance not been necessary to undertake an AA of the plan, since Nature 2000 areas were avoided.</p> <p>EIA procedures were initiated for six of the 15 locations as part of tendering process run by Energinet Only two of the areas have resulted in a bid from a developer – in these two instances from Vattenfall A/S. However, the permit to establish one of the two wind power parks was quashed by the Energy Appeal Board in December 2018. A process for amending the EIA is now in development by Vattenfall A/S.</p>
Specific Mitigation	<p>The environmental impact was considered to be minimal. However, the need for specific mitigation will be assessed and determined in the assessment of each of the future</p>



	applications for establishing wind turbines in the designated areas in order to ensure that possible negative environmental impacts were avoided or kept to a minimal. This will be a part of individual applications based on an EIA-procedure.
Data Gaps	None, however there was specific focus on including the most recent knowledge on the impact of establishing wind turbines on marine mammals. A general study based on several geographic positions where Wind Turbines were established on sea formed the basis of a targeted collection of baseline knowledge on the impact on marine mammals.
Overall Conclusion	The SEA found that it would not conflict with adopted environmental objectives to establish the wind turbines within the identified locations.

### 3. SEA of Renewable Energy Infrastructures in North Sea and Irish Sea

Was a SEA or AA undertaken on the Plan?	An SEA of a consolidated plan on renewable energy infrastructures in the North Sea and Irish Sea was undertaken
Scope	The Baseline Environmental Report was prepared as part of the Baseline Environmental Study, which set out the effects (positive and negative) of future energy and grid scenarios for 2030 which were developed as part of the study in the form of a regional concept.
Objectives	<p>The key objectives of the Baseline Environmental Study were to: Describe, identify and assess the likely significant effects on the environment of implementing the regional concept; Assess reasonable alternatives to implementing the regional concept; Provide decision-makers, the EU and other stakeholders with relevant information (quantitative and qualitative) to assess the adequacy of environmental considerations when supporting the implementation of the regional concept; and Provide recommendations at strategic level on how potential negative effects could be minimized and how positive effects can be optimized.</p> <p>The project focused on pulling together a consolidated plan for existing and known future renewable energy infrastructures adopted by member states around the North Sea and Irish Sea. The project involved establishing a consolidated plan on the basis of nationally implemented and planned infrastructures, based on input from existing protected areas within the territorial waters of the involved member states. Mapping of protected areas in the marine</p>

	environment. A strategic Environmental Assessment was drawn up for the consolidated plan.
Specific Mitigation	The baseline study considered several elements to the plan, including infrastructural elements; the impact on biodiversity, flora and fauna; population and human health; soils, geology and sediments; water; air quality and climatic factors; material assets; cultural heritage; landscape and seascape.
Data Gaps	
Overall Conclusion	The overall results of the Impact Assessment indicated that while the High Renewables Scenario has the greatest footprint under the regional concept, the grid solution applied has greater potential for environmental impacts. Considering the radial versus meshed solutions in this case, the radial presents the greater potential for impact. Ultimately this is down to the greater lengths of cable which would need to be installed in creating individual connections from wind farms, with a greater number of landfall points and with little to no integration with existing grid structures. The meshed grid may require a more localised concentration of infrastructure (e.g. hubs, connectors) however the meshed grid takes advantage of the ability to tee-in to existing grid options or presents an opportunity to group renewable source connections with the need for less cabling. This has knock-on positive impacts in terms of reduced environmental footprint and disruption or exclusion to other maritime users (e.g. shipping, military activity, fishing etc.).

#### 4. Review of the environmental aspects of the sea-based and EIA of the land-based part of the COBRA-cable

Was an EIA undertaken on the project?	An EIA was undertaken on the land-based part of the project as well as a review of the environmental aspects of the sea-based COBRA-cable: <a href="https://naturstyrelsen.dk/media/168373/sammenfattende-redegoerelse.pdf">https://naturstyrelsen.dk/media/168373/sammenfattende-redegoerelse.pdf</a>
Scope	The COBRA-cable is carried out by Energinet in collaboration with TenneT and has been pointed out by the European Commission as a Project of Common Interest (PCI).
Objectives	The COBRA-cable project consists of 300 km sub marina cable between The Netherlands and Denmark (through German EEZ) and 20 km cable on Danish soil. The cables will be connected to converters at the west coast of Denmark, north from The Netherlands.

	The purpose of the review and EIA was to identify the environmental aspects of the project.
Specific Mitigation	The EIA considered the impacts on landscape, visualizations, nature (flora and fauna), Natura 2000 areas, waters, air, emissions, climate, cultural heritage, resources and waste, noise, radiation and populations et. al.
Data Gaps	
Overall Conclusion	The Danish Nature Agency considered the environmental impact of the project to be minimal. The project was therefore granted EIA permit.

As a conclusion to the overall overview of predominant aspects of environmental impacts from existing national SEAs and other projects it is given that offshore installations such as OWFs and sea-based cables have positive impacts in terms of reduced environmental footprint and disruption or exclusion to other maritime users. Common for the SEAs and EIAs above is that the impacts of the plans or projects are considered minimal and therefore approved/permited.

When considering the assessment of the likely impacts on the environment and the extent to which an EIA-report will be required to include both the hub (itself) and interconnects and Wind Power Parks this will to a large degree depend on the application for permit. If the hub is established a one of the first element in a combined development comprising both hub, interconnects/transmission infrastructure and power generators (wind turbines) all elements will be a required part of the project to be assessed.

However, there are many other possible combinations where some elements are not sufficiently developed at the time of application for one permit (e.g. a wind power park with relevant interconnector – but no hub). Furthermore, it is also possible to imagine that some major interconnectors between hubs very likely will not be established before local wind power parks are established. In general, the conclusion most likely drawn on this aspect is that any project must be viewed in combination with the development of necessary infrastructure required to make the project functional must be included as part of the project definition applied in the EIA-report (no wind power park without a transmission cable to the grid network). See also chapter 3.2.

The elements most likely to be affected by NSWPH projects include flora and fauna, waters, noise and seascape.

## 5.1 Existing pipelines and cables relevant to the considerations of the NSWPH project

Several cables and hubs have been constructed or are under construction in the contribution of establishing a transmission grid in the North Sea to support the expansion of wind power and enforce the European transmission grid.

In practice the transmission cables and pipelines mentioned have been considered a project in the individual EIA procedures as comprising all elements/components of the transmission cable/pipeline from grid connection point to grid connection point.

Within the Danish EEZ these pipelines and cables include:

- > The COBRA-cable between the two conversion facilities in Endrup, Denmark and Eemshaven, The Netherlands. AC/DC conversion stations between the COBRA-cable and the two national grids.
- > The Viking Link between Revsing in the southern part of Denmark and Bicker Fen in Lincolnshire in the UK. The connection link is based on HVDC.
- > Export cable transmission lines in Denmark - West Coast Line from German border to Endrup and Endrup-Idomlund.
- > Skagerak – 3 HVDC transmission facility between Denmark and Norway.
- > Europipe 1 and 2 - natural gas pipeline

However, despite the aim to establish a trans-Europe power grid, transmission lines are met with obstacles when crossing borders on land as perceiving national grids do not have the optimal capacity. Thus, the connection hubs are faced with bottleneck situations. e.g. when crossing the border to Germany.

An approval from the Danish TSO, Energinet is required to connect new power or gas installations to the existing distribution and transmission grid.

## 5.2 Existing harbour, airstrip, and heliport facilities

The west coast of Denmark has several harbour, airstrip and heliport facilities which would be relevant in connection to the NSWPH projects both before and after the construction phases.

Of primary relevance, Port of Esbjerg<sup>10</sup>, is linked to all parts of Denmark, Northern Germany and Scandinavia by motorway and railway. The port has a modern heliport serving the offshore installations in the North Sea and is located nearby Esbjerg Airport. Furthermore, the port has a significant hinterland area making it possible to handle large wind turbine constructions.

Port Romo<sup>11</sup> is a medium sized port under development. The port's geographical position makes it an ideal choice for wind farms in the North Sea. The port is now working on the permission for establishing a heliport for offshore services.

Thyborøn Port<sup>12</sup> is located on the Danish North Sea coast and an east-facing approach in the Limfjord. The port infrastructure is developing by leaps and

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<sup>10</sup> <https://port esbjerg.dk/en>

<sup>11</sup> <https://portromo.dk/en/>

<sup>12</sup> <http://www.thyboronport.com/>

bounds. With the opening of Limfjordskaj II, the Port of Thyborøn is a fully equipped service base and installation harbour for offshore projects.

Port of Hanstholm<sup>13</sup> is currently undergoing a large expansion through a development project that will be finished during 2020. The expansion project includes e.g. a new entry to the port towards the north east, a deepening of its waters and new, larger quays as well as hinterland areas. The port already has large hinterland areas making it possible to handle large wind turbine constructions.

Port of Frederikshavn<sup>14</sup> also offers a large hinterland area making it possible to handle large wind turbine constructions. The port is currently expanding and increasing the number of quay facilities and hinterland areas.

Port of Aalborg<sup>15</sup> is located in the east of Jutland mainly serves the inner seas like Skagerrak and Kattegat. However, the port owns a large hinterland area offering the possibility to handle large wind turbine constructions.

Airport of Stauning<sup>16</sup> is placed between Skjern and Ringkøbing with airstrip and heliport. The airport already bases some offshore operations.

### 5.3 The Search and Rescue System in Denmark

Joint Rescue Coordination Centre (JRCC) Denmark is a part of the Danish Defence and is responsible for the coordination of all Search and Rescue (SAR) operations associated with aeronautical and maritime emergencies in Denmark<sup>17</sup>. The JRCC is located in the headquarters of Joint Operations Centre in the city of Aarhus. Authority for the control of SAR is vested in the Ministry of Defence (MOD).

JRCC Denmark is the focal point of all aeronautical and maritime SAR activity within Danish SRR. The staff collects and distributes essential information concerning a distress situation, arranges the dispatch of rescue assets to aircraft or ships in distress and coordinates the efforts of all responding resources.

To achieve this, JRCC is manned 24 hours a day, seven days a week by one air force officer, one air force non-commissioned officer, one naval officer and one naval non-commissioned officer.

Danish regimes provide legal frameworks safety offshore in connection to oil- and gas activities and safety on Danish and foreign ships, respectively, but it does not provide a framework for safety nor search and rescue regimes under

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<sup>13</sup> <http://www.hanstholmhavn.dk/en/>

<sup>14</sup> <https://pof.dk/frontpage.aspx>

<sup>15</sup> <https://aalborghavn.dk/frontpage.aspx>

<sup>16</sup> <http://stauning-lufthavn.dk/>

<sup>17</sup> <https://www2.forsvaret.dk/eng/Organisation/Search-and-Rescue/Pages/SAR-Denmark.aspx>

which the company itself can or shall carry out certain duties and procedures for activities such as those of the NSWPH project.

## 5.4 Nature monitoring

To make sure that Denmark meets its obligations under national law, EU directives and international conventions of monitoring the environment of waters, nature and air, the Environmental Protection Agency has initiated a national programme for monitoring water environment and nature (NOVANA<sup>18</sup>).

The objective of the monitoring programme is to gather information about the nature and environmental conditions in maritime areas. The data collected includes knowledge about the conditions and development in the maritime types of nature as well as the dissemination of species in accordance to the assessment of the conservation status of the designated species.

Ships arriving and departing from the harbour of the hub as well as platforms created in connection the OWFs within the Danish EEZ are covered by the Maritime Protection Act. According to this, The Danish Minister for Environment and Foods can issue legislation on emissions in the sea of substances and materials from certain installations offshore. However, the installations covered by this framework do most likely not include installations which could be included in the NSWPH project and is most likely not relevant. As described in chapter 4, The Danish Coastal Authority can set out terms and conditions when issuing permits for activities and installations at sea.

## 5.5 Sea farming

The sea farming in the Danish EEZ is limited and mostly carried out in the inner seas of Denmark.

The co-existence of sea farming (ex. production of mussels) and the NSWPH project activities on the hub depends on whether the aquaculture can be issued permits for establishment and facilitation. The competent authority for issuing permits for new aquacultures is the Danish Agricultural Agency. Depending on whether fishery is conducted inside or outside a Natura 2000 area, special rules apply. Outside Natura 2000 areas, fishing for blue mussels and oysters must be sustainable for the blue mussel and oyster populations and take into account the environmental goals for the area set out in the water management plans (protection of eelgrass)<sup>19</sup>. Fishing for blue mussels and European oyster is only allowed in the appointed production areas outside Natura 2000 areas, if a permit is issued.

The establishment of aquacultures located further than one nautical mile from the coast is also subject to the requirement of approval in accordance with § 33 in the Danish Environmental Protection Act. In this approval, the Environmental

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<sup>18</sup> NOVANA project description in Danish: <https://mst.dk/media/141463/novana-2017-21-programbeskrivelse.pdf>

<sup>19</sup> The Danish Ministry of Foreign Affairs, Danish Fisheries Agency: <https://fiskeristyrelsen.dk/english/commercial-fisheries/shellfish-fisheries/>

Protection Agency can determine terms for the establishment and facility of the aquaculture, including terms of monitoring and control that the responsible company must carry out. As mentioned in chapter 3.2, intensive fish farming projects are subject to EIA screenings it is listed in annex 2 in the Environmental Assessment Act. The discharge of some waste connect to sea farming on the sea requires a permit from the Danish Environmental Protection Agency.

Certain prohibitions exist within the Danish EEZ for discharging waste from ships and platform under the framework of the Discharge of Waste from Ships and Platforms Act.

## 6 Assessment of information needed for planning and permitting

When carrying out a strategic assessment in accordance with the SEA directive of the NSWPH development plan an environmental report must be drawn up. On the basis on this report the authority will assess the environmental impact of the completion to the development plan or reasonable alternative under the considerations of the objectives and the geographical area of the plan.

The information required in the environmental report includes:

- > An outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;
- > The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;
- > The environmental characteristics of areas likely to be significantly affected;
- > Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;
- > The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;
- > The likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors;
- > The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;

- > An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;
- > A description of the measures envisaged concerning monitoring in accordance with Article 10 of the SEA directive;
- > A non-technical summary of the information provided under the above headings.

When carrying out an EIA of the NSWPH project, the following information is needed:

- > A description of the project, including in particular: a description of the physical characteristics of the whole project and the land-use requirements during the construction and operational phases; a description of the main characteristics of the production processes, for instance, the nature and quantity of the materials used and; an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed project.
- > An outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects.
- > A description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.
- > A description of the likely significant effects of the proposed project on the environment resulting from: the existence of the project; the use of natural resources; the emission of pollutants, the creation of nuisances and the elimination of waste.
- > The description by the developer of the forecasting methods used to assess the effects on the environment referred to in the former point.
- > A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- > A non-technical summary of the information.
- > An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the developer in compiling the required information.

Information needed for the appropriate assessment of the significant impacts of a Natura 2000 area site depends on the screening and respective context. It is



therefore not possible currently to elaborate the need for information in this regard.

## 7 Specific national points of attention

One specific point must be subject to attention in connection the NSWPH project. Vesterhav Syd Havvindmøllepark – an offshore wind farm close to the coast of the southern North Sea – is currently under establishment but has met multiple complaints.

In the late 2018 the Danish Energy Board of appeal decided to repeal the part of the license to establish the offshore wind turbines, which concerned the assessment of the environmental impacts and The Danish Energy Agency was then forced to handle the case again<sup>20</sup>. The complaint concerned the adequacy of the EIA.

The judgement showed some of the challenges faced when the license procedure is carried out in several stages. The current license procedure regarding establishment of offshore wind turbines consist of two licenses: a license of establishment and a license to onset the establishment. These two together poses the consent needed in accordance with the EIA regulations.

According to the rulings of the Court of the EU, an environmental impact assessment must be carried out before consent is given. In this regard the competent authority is to take account of the environmental effects of the project in question at the earliest possible stage in the decision-making process.

However, where the consent procedure is carried out in two stages, one involving a principal decision and the other involving an implementing decision which cannot extend beyond the parameters set by the principal decision, the effects which the project may have on the environment are identified and assessed at the time of the procedure relating to the principal decision. It is only if those effects are not identifiable until the time of the procedure relating to the implementing decision that the assessment should be carried out in the course of that procedure.

In this case, the final and implementing decision (the onset license) had not yet been issued at the time of the complaint, hence the consent in accordance with the EIA regulations had not been given.

The decision show that the current procedure - in some regards - is inexpedient. Questions regarding when and how an efficient and adequate consent procedure is carried out is therefore currently under consideration in the Danish Energy Agency. The considerations among others implies advantages of implementing two SEAs of the developing plans creating the basis of the offshore wind turbine project. These two SEAs will assess, firstly the appointment of the area of the

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<sup>20</sup> The Danish Energy Board of appeal, case no. 18/00219 (1131-17-157), 18/00222 (1131-17-170) and 18/00225 (1131-17-185), decision on 20th of December 2018

windfarm, and secondly, the appointment of the specific sites for the windfarm projects.

The considerations and possible changes in the consent procedure in connection to the EIA Regulations is therefore considered of national point of attention in connection to the NSWPH project.

## 8 Transmission system operator

The future transmission system operator (TSO) of the NSWPH project will be the entity entrusted with transporting electrical power in the respective region. The TSO operates the transmission of electrical power and is defined as "*a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the transmission system in a given area and, where applicable, its interconnections with other systems, and for ensuring the long-term ability of the system to meet reasonable demands for the transmission of electricity*" in article 2(4) of the EU Directive concerning common rules for the internal market in electricity<sup>21</sup>.

In connection to the NSWPH project it must be considered whether the TSO is to be considered an authority according to the SEA Directive. The concept of an 'authority' has been given a large scope in the case law of the European Court of Justice<sup>22</sup>. An authority can be defined as a body, whatever its legal form and regardless of the extent (national, regional or local) its powers, which has been made responsible, pursuant to a measure adopted by the State, for providing a public service under the control of the State, and it has for that purpose special powers beyond those which result from the normal rules applicable in relations between individuals, cf. C-188/89, *Foster and others v British Gas*.

A privatised utility company within the wind power sector may be required to carry out some tasks or duties – such as preparing long-term plans for ensuring wind power resources – which in non-privatised regimes would be carried out by public authorities. In respect of those functions they would be considered falling under the concept of authority within the meaning of this concept in the SEA Directive. As a consequence, the NSWPH consortium should consider preparing an SEA for the combined infrastructure plan to which they are committed in their co-operation.

Both public and purely private company are subject to the SEA directive when responsible for providing a public service under the control of the State. Hence, even though the consortium is not a TSO the consortium might be required to undertake an SEA of the combined planning of the NSWPH-activities under the SEA Directive

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<sup>21</sup> Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC

<sup>22</sup> Guidance on the implementation of Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment, para. 3.12

## 9 Suggested project planning

On the basis of this desk study COWI suggests the following planning of the overall NSWPH project:

Firstly, the final desk studies will be collected from the respective parties to create a basis for the further developments of the overall plan.

Secondly, the NSWPH consortium should be formed to act as a united entity.

Thirdly, the NSWPH consortium should compile an overall plan for the vision of the power hub as well as the identification of different projects under the plans vision of future developments. This plan will based on COWI's assessment require an SEA, cf. chapter 9 to this study.

Fourthly, under the framework for future developments of the overall plan, project designs will be developed in an order suitable to the visions of the consortium. EIAs will be carried out on these projects in accordance to the Danish EIA regime.