

Hornsea Project Three  
Offshore Wind Farm



## Hornsea Project Three Offshore Wind Farm

Preliminary Environmental Information Report:  
Chapter 1 – Introduction and Overarching Glossary

Date: July 2017

Environmental Impact Assessment

Preliminary Environmental Information Report

Volume 1

Chapter 1 – Introduction and Overarching Glossary

**Liability**

This report has been prepared by RPS, with all reasonable skill, care and diligence within the terms of their contracts with DONG Energy Power (UK) Ltd.

Report Number: P6.1.1

Version: Final

Date: July 2017

This report is also downloadable from the Hornsea Project Three offshore wind farm website at:

[www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3)

DONG Energy Power (UK) Ltd.

5 Howick Place,

London, SW1P 1WG

© DONG Energy Power (UK) Ltd, 2017. All rights reserved

Front cover picture: Kite surfer near one of DONG Energy's UK offshore wind farms © DONG Energy Hornsea Project Three (UK) Ltd., 2016.

Prepared by: RPS

Checked by: Jennifer Brack and Emily Woolfenden

Accepted by: Sophie Banham

Approved by: Stuart Livesey

## Table of Contents

1. Introduction.....	1
1.1 Introduction to Hornsea Three .....	1
1.2 Purpose of the Preliminary Environmental Information Report .....	1
1.3 DONG Energy .....	1
1.4 Project overview .....	2
1.5 Consultation process .....	4
1.6 Structure of the Phase Two consultation documentation.....	7
1.7 Responding to consultation on the PEIR .....	7
1.8 Next steps.....	11
1.9 References .....	12

## List of Tables

Table 1.1: Hornsea Three Preliminary Environmental Information Report (PEIR) structure and authors.....	9
Table 1.2: Hornsea Three other supporting documentation and authors of the documents.....	11

## List of Figures

Figure 1.1: Location of the proposed Hornsea Three offshore wind farm project within the former Hornsea Zone.3	
Figure 1.2: Main components of High Voltage Direct Current (HVDC) and High Voltage Alternating Current (HVAC) transmission options for Hornsea Three.....	5
Figure 1.3: Schematic representation of the extent of offshore and onshore assessments.....	8

## Overarching PEIR Glossary

Term	Definition
Bathymetry	The measurement of water depth in oceans, seas and lakes.
Cable corridor	The specific corridor of seabed (seaward of Mean High Water Springs (MHWS)) and land (landward of MHWS) from the Hornsea Three array area to the Norwich Main National Grid substation, within which the export cables will be located.
Cable Specification and Installation Plan	A document detailing the technical specification of the offshore electrical system, including a cable burial risk assessment, cable protection specification and installation risk mitigation measures.
Code of Construction Practice (CoCP)	A document detailing the overarching principles of construction, contractor protocols, construction-related environmental management measures, pollution prevention measures, the selection of appropriate construction techniques and monitoring processes
Construction Traffic Management Plan	A plan managing all construction traffic, including protocols for delivery of Abnormal Indivisible Loads to site, personnel travel, measures for road cleaning and sustainable site travel measures.
Cumulative effects	The combined effect of Hornsea Project Three in combination with the effects from a number of different projects, on the same single receptor/resource.
Cumulative impact	Impacts that result from changes caused by other past, present or reasonably foreseeable actions together with Hornsea Project Three.
Decommissioning Plan	A document confirming the geographic scope/spatial extent of decommissioning activities, process for seeking approval for decommissioning, and standards/objectives for the decommissioning process. A Decommissioning Plan is to be referred to for all decommissioning activities landward of Mean High Water Springs (MHWS).
Decommissioning Programme	A document confirming the geographic scope/spatial extent of decommissioning activities, process for seeking approval for decommissioning, and standards/objectives for the decommissioning process. A Decommissioning Programme is to be referred to for all decommissioning activities seaward of MHWS.
Design Envelope	A description of the range of possible elements that make up the Hornsea Project Three design options under consideration, as set out in detail in the project description. This envelope is used to define Hornsea Project Three for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is also often referred to as the "Rochdale Envelope" approach.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Projects (NSIP).
DONG Energy Hornsea Project Three (UK) Ltd	The company promoting the development of the Hornsea Project Three offshore wind farm. DONG Energy Hornsea Project Three (UK) Ltd is owned by DONG Energy Power (UK) Limited, who is owned by DONG Energy Vind A/S, who is owned by DONG Energy VE A/S, who is owned by DONG Energy Wind Power A/S, and who is owned by DONG Energy A/S.
Ecological Management Plan	A document detailing the ecological surveys to be undertaken prior to and during construction, and during the operational phase of Hornsea Project Three, where required. The plan will include relevant survey and land or landscape reinstatement procedures, habitat mitigation and habitat enhancement.
Effect	Term used to express the consequence of an impact. The significance of an effect is determined by correlating the magnitude of the impact with the importance, or sensitivity, of the receptor or resource in accordance with defined significance criteria.

Term	Definition
EIA Directive	European Union Directive 85/337/EEC, as amended by Directives 97/11/EC, 2003/35/EC and 2009/31/EC and then codified by Directive 2011/92/EU of 13 December 2011 (as amended in 2014 by Directive 2014/52/EU).
EIA Regulations	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.
Emergency Response and Cooperation Plan (ERCoP)	A document detailing the emergency co-operation plans for the construction, operation and decommissioning phases of Hornsea Project Three.
Environmental Impact Assessment (EIA)	A statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the EIA Directive and EIA Regulations, including the publication of an Environmental Impact Assessment (EIA) Report.
European conservation site	A Special Area of Conservation (SAC) or candidate SAC, a Special Protection Area (SPA) or potential SPA, a site listed as a site of community importance or a Ramsar site.
Flood Risk Assessment (FRA)	An evaluation of the baseline onshore flood risk and effect as a result of Hornsea Project Three. The FRA will set out flood risk mitigation measures, as may be required.
Former Hornsea Zone	The Hornsea Zone was one of nine offshore wind generation zones around the UK coast identified by The Crown Estate (TCE) during its third round of offshore wind licensing. In March 2016, the Hornsea Zone Development Agreement was terminated and project specific agreements, Agreement for Leases (A/Ls), were agreed with The Crown Estate for Hornsea Project One, Hornsea Project Two, Hornsea Project Three and Hornsea Project Four. The Hornsea Zone has therefore been dissolved and is referred to throughout the Hornsea Project Three Scoping Report as the former Hornsea Zone.
Habitats Regulations Assessment (HRA)	A process which helps determine likely significant effects and (where appropriate) assesses adverse impacts on the integrity of European conservation sites and Ramsar sites. The process consists of up to four stages of assessment: screening, appropriate assessment, assessment of alternative solutions and assessment of imperative reasons of over-riding public interest (IROPI).
High Voltage Alternating Current (HVAC)	High voltage alternating current is the bulk transmission of electricity by alternating current (AC), whereby the flow of electric charge periodically reverses direction.
High Voltage Direct Current (HVDC)	High voltage direct current is the bulk transmission of electricity by direct current (DC), whereby the flow of electric charge is in one direction.
Hornsea Project Four	The fourth offshore wind farm project within the former Hornsea Zone. Referred to as Hornsea Four throughout the Preliminary Environmental Information Report (PEIR).
Hornsea Project One	The first offshore wind farm project within the former Hornsea Zone. It has a maximum capacity of 1.2 gigawatts (GW) or 1,200 MW and includes all necessary offshore and onshore infrastructure required to connect to the existing National Grid substation located at North Killingholme, North Lincolnshire. Referred to as Project One throughout the PEIR.
Hornsea Project Three	The third offshore wind farm project within the former Hornsea Zone. It has a maximum capacity of 2.4 GW (2,400 MW) and includes offshore and onshore infrastructure to connect to the existing National Grid substation located at Norwich Main, Norfolk. Referred to as Hornsea Three throughout the PEIR.
Hornsea Project Two	The second offshore wind farm project within the former Hornsea Zone. It has a maximum capacity of 1.8 GW (1,800 MW) and includes offshore and onshore infrastructure to connect to the existing National Grid substation located at North Killingholme, North Lincolnshire. Referred to as Project Two throughout the PEIR.
Impact	Change that is caused by an action; for example, land clearing (action) during construction which results in habitat loss (impact).

Term	Definition
Inter-related effects	Multiple effects on the same receptor arising from Hornsea Project Three. These occur either where a series of the same effect acts on a receptor over time to produce a potential additive effect or where a number of separate effects, such as noise and habitat loss, affect a single receptor, for example marine mammals.
Landfall Area	The area between (MHWS) and (MLWS) in which all of the export cables will be landed and is the transitional area between the offshore export cabling and the onshore export cabling.
Landscape Management Plan	A document detailing the proposed onshore landscape planting and landscape enhancement measures.
Lowest Astronomical Tide (LAT)	The minimum tidal level (under average meteorological conditions) which can be reached
Magnitude	A combination of the extent, duration, frequency and reversibility of an impact.
Marine Conservation Zone (MCZ)	Marine Conservation Zones (MCZs) are a new type of Marine Protected Area (MPA) brought in under the UK Marine and Coastal Access Act 2009. MCZs will form a key part of the UK MPA network.
Marine Mammal Mitigation Protocol (MMMP)	A document detailing the protocol to be implemented in the event that driven or part-driven pile foundations are proposed to be used. The protocol identifies the methods for detection, potential mitigation and monitoring/reporting protocols for marine mammals.
Marine Pollution Contingency Plan (MPCP)	A document addressing the risks, methods and procedures to deal with spills and collusion incidents during the construction, and operation and maintenance phase.
Marine Strategy Framework Directive (MSFD)	The Directive 2008/56/EC on establishing a framework for community action in the field of marine environmental policy (MSFD) outlines a transparent, legislative framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services. The overarching goal of the Directive is to achieve 'Good Environmental Status' (GES) by 2020 across Europe's marine environment.
Mean High Water Neaps (MHWN)	The height of mean high water neaps is the average throughout the year (when the average maximum declination of the moon is 23.5°) of two successive high waters during those periods of 24 hours when the range of the tide is at its least.
Mean High Water Spring (MHWS)	The height of mean high water springs is the average throughout the year (when the average maximum declination of the moon is 23.5°) of two successive high waters during those periods of 24 hours when the range of the tide is at its greatest.
Mean Low Water Neaps (MLWN)	The height of the mean low water neaps is the average height obtained by the two successive low waters during the same period as mean high water neaps.
Mean Low Water Spring (MLWS)	The height of the mean low water springs is the average height obtained by the two successive low waters during the same period as mean high water springs.
Measures adopted as part of the project	Enhancement, mitigation or monitoring commitment (which may include process or design measures) intended to avoid, reduce and where possible, remedy significant adverse impacts of a development.
National Policy Statement (NPS)	A document setting out national policy against which proposals for NSIPs will be assessed and decided upon.
Nationally Significant Infrastructure Project (NSIP)	Large scale development including power generating stations which requires development consent under the Planning Act 2008. An offshore wind farm project with a capacity of more than 100 MW constitutes an NSIP.
Norwich Main National Grid Substation	The existing National Grid Norwich Main substation which Hornsea Project Three will ultimately connect to.

Term	Definition
Offshore Habitats Regulations	The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended), which applies to marine habitats extending beyond 12 nautical miles (NM).
Onshore cable corridor search area	The broad 200 m wide cable corridor search area within which the refined onshore export cable corridor (80 m width) will be located. The refined onshore cable corridor will be defined via a site selection process considering technical, physical and environmental constraints.
Planning Act 2008	The key legislation providing for national policy guidance to assist in the delivery of Nationally Significant Infrastructure Projects (NSIPs). The 2008 Act led to the development of National Policy Statements (NPSs) to guide the decision making processes for NSIPs.
Planning Inspectorate (PINS)	The executive agency of the Department for Communities and Local Government responsible for operating the planning process for NSIPs.
Project Description	A summary of the engineering design elements of Hornsea Three.
Project Environmental Management and Monitoring Plan (PEMMP)	In conjunction with the MPCP, this plan provides environmental risk analysis covering waste management, offshore maintenance plans, details of Archaeological Exclusion Zones (AEZ), seasonal and working restrictions, and protocol for the appointment of Fisheries and Environmental Liaison Officers.
Receptor	A component of the natural or man-made environment that is affected by an impact, including people.
Scour Protection Management Plan (SPMP)	A document detailing the need, type, sources, quantity, location and installation methods for scour protection and cable armouring.
Sensitivity	The extent to which a receptor can accept a change, of a particular type and scale
Significance	The significance of an effect combines the evaluation of the magnitude of an impact and the sensitivity of the receptor.
Special Area of Conservation (SAC)	A site designation specified in the Habitats Directive (Council Directive 92/43/EEC). Each site is designated for one or more of the habitats and species listed in the Directive. The Directive requires a management plan to be prepared and implemented for each SAC to ensure the favourable conservation status of the habitats or species for which it was designated. In combination with Special Protection Areas (SPAs), these sites contribute to the Natura 2000 Sites network.
Special Protection Area (SPA)	A site of European Community importance designated under the Birds Directive (Directive 2009/147/EC), classified for rare and vulnerable birds (as listed on Annex I of the Directive), and for regularly occurring migratory species. SPAs contribute to the Natura 2000 Sites network.
Surface Water Management Plan	A document that identifies the surface water management/drainage strategy for the onshore HVAC booster station and HVAC/HVDC substation sites.
Suspended sediments	Particulates in suspension in the water column, often comprising fine material such as clays and silts.
Transboundary	Crossing into other European Economic Association (EEA) States.
Waste Management Plan	A plan setting out a framework for the management and mitigation of waste arising from Hornsea Project Three construction works, and protocols for the recording of waste arisings, waste minimisation measures and protocols that will be further developed and implemented by the construction teams.
Written Scheme of Investigation (WSI)	A plan detailing the protocol for any archaeological investigation to be carried out prior to the construction of Hornsea Project Three, including procedures for field survey and watching briefs, as may be required.

Term	Definition
Zone Appraisal and Planning (ZAP)	A framework intended to rationalise and balance the commercial aim of maximising development capacity aspirations with the practicalities of deliverability.
Zone Characterisation (ZoC)	A broad description of the physical, biological, socio-economic and cultural heritage characteristics of the former Hornsea Zone, at a resolution sufficient to support zonal layout and subsequent Hornsea Three identification. This does not take the form of a tangible output, but reflects the increase in understanding of the former Hornsea Zone over time.
Zone Development Agreement (ZDA)	A contractual arrangement for a Round 3 wind farm development zone, between a developer and TCE and, in the context of this document, the Agreement between The Crown Estate and SMart Wind Limited dated 22 December 2009.

## Units

Unit	Description
km	kilometre
MW	megawatt

## Acronyms

Acronym	Description
AfL	Agreement for Lease
AC	Alternating Current
DC	Direct Current
DCO	Development Consent Order
ECR	Export Cable Route
EIA	Environmental Impact Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
MHWS	Mean High Water Springs
NSIP	Nationally Significant Infrastructure Project
PEI	Preliminary Environmental Information
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
SoCC	Statement of Community Consultation
TCE	The Crown Estate
UK	United Kingdom
ZDA	Zone Development Agreement

## 1. Introduction

### 1.1 Introduction to Hornsea Three

1.1.1.1 DONG Energy Power (UK) Ltd. (hereafter referred to as DONG Energy), on behalf of DONG Energy Hornsea Project Three (UK) Ltd., is promoting the development of the Hornsea Project Three Offshore Wind Farm (hereafter referred to as Hornsea Three). Hornsea Three is a proposed offshore wind farm located in the southern North Sea, with a total generating capacity of up to 2,400 MW.

1.1.1.2 Hornsea Three is a project that will consist of an offshore generating station(s) with a capacity of greater than 100 MW and therefore is a Nationally Significant Infrastructure Project (NSIP), as defined by Section 15(3) of the Planning Act 2008. As such, there is a requirement to submit an application for a Development Consent Order (DCO) to the Planning Inspectorate (PINS) to be decided by the Secretary of State for Business, Energy and Industrial Strategy. The application for a DCO will contain full details of the development proposal and will be accompanied by an Environmental Statement prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, as amended (the 'EIA Regulations').

1.1.1.3 This document comprises the Preliminary Environmental Information Report (PEIR) for Hornsea Three and sets out the preliminary findings of the EIA undertaken to date. The PEIR forms the basis of the statutory consultation undertaken pursuant to Section 42 of the Planning Act 2008 (the 2008 Act), which is the final statutory stage of pre-application consultation. The Section 42 consultation commences on 27 July 2017 and concludes on 20 September 2017. At this point, comments received on the PEIR will be collated and considered when finalising the Environmental Statement. The Environmental Statement will be submitted with the application for a DCO under Section 37(3) of the 2008 Act and Regulation 14 of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations). The DCO application is anticipated to be submitted in Quarter 2 of 2018.

### 1.2 Purpose of the Preliminary Environmental Information Report

1.2.1.1 The purpose of the PEIR is to provide the preliminary environmental information which has been gathered in order to carry out an assessment of the likely environmental effects of Hornsea Three, to enable consultees to understand the likely environmental effects of Hornsea Three and to help inform consultation responses. This affords an opportunity to engage with PINS, statutory and non-statutory consultees during the pre-application process, inviting them to review those assessments undertaken to date and to provide comment, which in turn will inform the EIA process and associated Environmental Statement. Hornsea Three welcomes comments from all stakeholders on the findings to date of the EIA (see section 1.7) and will continue to engage with relevant stakeholders throughout the pre-application consultation period on any updates or changes to the assessments presented within this PEIR.

1.2.1.2 The PEIR specifically:

- Provides statutory and non-statutory consultees with technical information to enable an understanding of the proposed development;
- Presents the existing environmental baseline information, established from desktop studies, offshore and onshore surveys and consultation undertaken to date;
- Describes the methodology used within the EIA process;
- Presents the potential environmental impacts arising from Hornsea Three, based upon the baseline information and data gathered, and the analysis and impact assessments completed to date;
- Indicates any difficulties encountered during the compilation of the environmental information, including the acknowledgement of any data gaps or deficiencies and confidence in the information gathered;
- Puts forward potential mitigation measures that could prevent, minimise, reduce or offset potential negative environmental impacts identified during the EIA process undertaken to date;
- Provides an outline of the main project alternatives considered for Hornsea Three and an indication of the reasons for the project selection made by DONG Energy;
- Outlines the work that will be undertaken between publication of the PEIR and the finalising of the Environmental Statement, including any further survey work required; and
- Forms the basis for discussions about the proposed Hornsea Three project with statutory and non-statutory stakeholders, in order to facilitate agreement on the provisions and requirements within the DCO and Marine Licences.

1.2.1.3 It is intended that the PEIR is read alongside the Non-Technical Summary, which provides a brief non-technical overview of the information presented in the PEIR. Both the PEIR and the Non-Technical Summary are available for download from the DONG Energy website: [www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3)

### 1.3 DONG Energy

1.3.1.1 DONG Energy A/S (owner of DONG Energy Power (UK) Ltd. and DONG Energy Hornsea Project Three (UK) Ltd.) specialises in procuring, producing, distributing and trading energy and related products in Northern Europe. DONG Energy A/S is the world leader in the development, construction and operation of offshore wind farms, with more than 25 years' experience and a strong track record delivering successful projects, with approximately 3,849 MW of operational offshore wind farms worldwide, and a further 3,582 MW under construction in the lead up to 2020.

- 1.3.1.2 The Danish state owned energy company Dansk Naturgas A/S was founded in 1972 to manage Denmark's growing oil and gas resources industry in the Danish territories of the North Sea. The company was eventually renamed as Danish Oil and Natural Gas (DONG). DONG established itself in the electricity markets in the early 2000s by investing in Danish electricity companies. DONG Energy A/S, in its current form today, was established in 2006 by the merging of six Danish Energy Companies (DONG, Elsam, Energi E2, Nesa, Københavns Energi and Frederiksborg Forsyning). Through these acquisitions, DONG Energy A/S has been involved with offshore wind since the very start of the offshore wind energy industry.
- 1.3.1.3 DONG Energy A/S is involved in consenting, construction and operation of a number of Round 1, Round 2, Round 2.5 and Round 3 offshore wind projects in the UK, specifically:
- Barrow – operational (90 MW);
  - Burbo Bank – operational (90 MW);
  - Burbo Bank Extension – operational (258 MW);
  - Gunfleet Sands I, II and III (Demonstration) – operational (totalling 184 MW);
  - Hornsea Project One (hereafter referred to as Project One) – in construction (1,200 MW);
  - Hornsea Project Two (hereafter referred to as Project Two) – consent granted in August 2016 (1,800 MW);
  - Hornsea Project Four (hereafter referred to as Project Four) – proposed project but not yet taken forward for development;
  - Lincs – operational (270 MW);
  - London Array – operational (630 MW);
  - Race Bank – in construction (580 MW);
  - Walney I and II – operational (367 MW);
  - Walney Extension – in construction (660 MW);
  - West of Duddon Sands – operational (389 MW); and
  - Westermost Rough – operational (210 MW).

## 1.4 Project overview

### 1.4.1 The Hornsea Zone

- 1.4.1.1 The former Hornsea Zone was one of nine offshore wind generation zones around the UK coast identified by The Crown Estate (TCE) during its third round of offshore wind energy licensing. The former Hornsea Zone was located in the southern North Sea, approximately 31 km east of the Yorkshire coast and 1 km from the median line between UK and Dutch waters (Figure 1.1).

- 1.4.1.2 As part of a competitive tender process, SMart Wind Ltd. (a 50/50 joint venture between International Mainstream Renewable Power (Offshore) Limited and Siemens Project Ventures GmbH; hereafter referred to as SMart Wind) was awarded the rights to the development of the former Hornsea Zone by entering into a Zone Development Agreement (ZDA) with the TCE in 2009. The subsequent development agreement between SMart Wind and TCE established a target capacity of 4,000 MW of generating capacity within the former Hornsea Zone, which was to be met through the development of several offshore wind farms.

- 1.4.1.3 The first project to be proposed within the former Hornsea Zone was Hornsea Project One. Hornsea Project One comprises up to three offshore wind farms with a maximum generating capacity of 1,200 MW. The Secretary of State granted Development Consent for Hornsea Project One on 10 December 2014.

- 1.4.1.4 The second project to be proposed within the former Hornsea Zone was Hornsea Project Two. Hornsea Project Two comprises up to two offshore wind farms with a maximum generating capacity of 1,800 MW. The Secretary of State granted Development Consent for Hornsea Project Two on 16 August 2016.

- 1.4.1.5 DONG Energy Wind Power A/S acquired the development rights to Hornsea Project One in February 2015 and, in August 2015, DONG Energy Power (UK) Ltd. acquired SMart Wind and the former Hornsea Zone, together with the development rights for Hornsea Project Two, Hornsea Three and Hornsea Project Four (hereafter referred to as Hornsea Four). Subsequently in March 2016, the Hornsea Zone Development Agreement was terminated and project specific agreements, called Agreement for Leases (Afls), were agreed with TCE for Hornsea Project One, Hornsea Project Two, Hornsea Three and Hornsea Four. The Hornsea Zone has therefore been dissolved and is referred to throughout the Hornsea Three PEIR as the former Hornsea Zone.

### 1.4.2 Hornsea Three

- 1.4.2.1 Hornsea Three will have a total capacity of up to 2,400 MW and will include all associated offshore (including up to 342 turbines) and onshore infrastructure.

- 1.4.2.2 The key components of Hornsea Three include:

- Turbines;
- Turbine foundations;
- Array cables;
- Offshore substation(s), and platform(s);
- Offshore accommodation platform/s;
- Offshore export cable/s;
- Onshore cabling; and
- Onshore HVDC converter/HVAC substation.

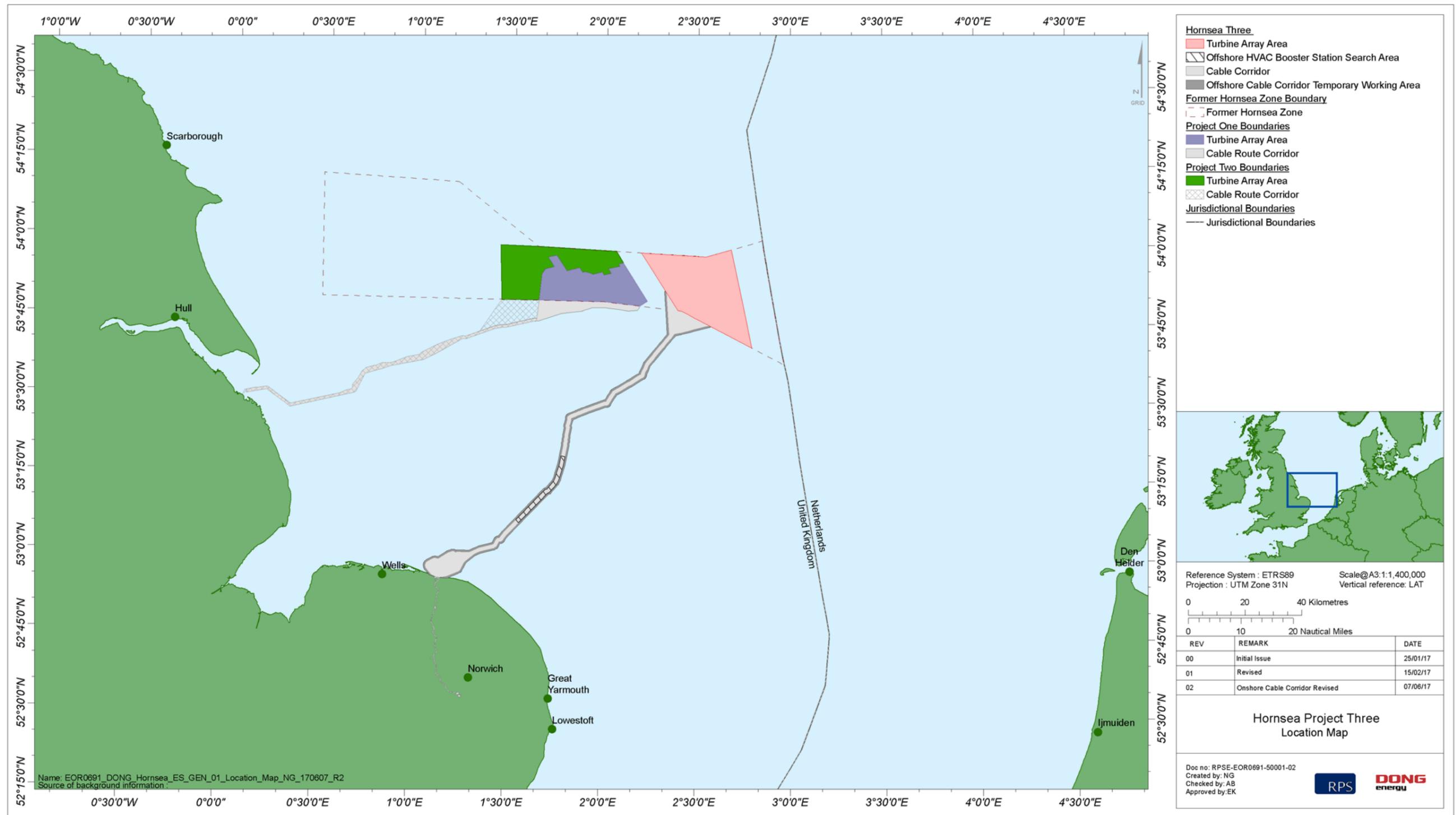


Figure 1.1: Location of the proposed Hornsea Three offshore wind farm project within the former Hornsea Zone.

- 1.4.2.3 The Hornsea Three array area (i.e. the area in which the turbines are located) is approximately 696 km<sup>2</sup>, and is located approximately 121 km northeast off the Norfolk coast and 160 km east of the Yorkshire coast (Figure 1.1). The Hornsea Three array area lies to the east of Hornsea Project One and Hornsea Project Two offshore wind farms. The proposed Hornsea Three array area has similarities, both in terms of the nature of the development and its location to Hornsea Project One and Hornsea Project Two array areas. As such, where matters have been raised during consultation on Hornsea Project One and Hornsea Project Two, and are relevant to the Hornsea Three EIA, they have been considered within the Hornsea Three PEIR where appropriate. A summary of the matters raised, together with how they have been considered in Hornsea Three, are set out in volume 4, annex 1.1: Hornsea Project One and Hornsea Project Two Consultation of Relevance to Hornsea Three.
- 1.4.2.4 The Hornsea Three offshore cable corridor extends from the Norfolk coast, offshore in a north-easterly direction to the western and southern boundary of the Hornsea Three array area (Figure 1.1). The Hornsea Three offshore cable corridor is approximately 145 km in length. Hornsea Three has a different onshore and offshore cable corridor, as well as grid connection, to Hornsea Project One and Hornsea Project Two (see Figure 1.1).
- 1.4.2.5 From the Norfolk coast, underground onshore cables will connect the offshore wind farm to an onshore HVDC converter/HVAC substation, which will in turn, connect to an existing National Grid substation. Hornsea Three will connect to the Norwich Main National Grid substation, located to the south of Norwich. The onshore cable corridor search area is 55 km in length at its fullest extent.
- 1.4.2.6 The electricity generated from Hornsea Three will be transmitted via buried High Voltage (HV) cables using either Direct Current (DC) or Alternating Current (AC), or a combination of the two. Depending on the transmission option, HVAC, HVDC or a combination of the both, Hornsea Three will have slightly different key components. Figure 1.2 shows a schematic drawing of the key components associated with the HVDC and HVAC electrical transmission options. The difference between the HVAC and HVDC transmission options are explained further in Chapter 3: Project Description.
- 1.4.2.7 Under the AC transmission option only, a HVAC booster station will be required located along the Hornsea Three cable corridor, located onshore and/or offshore. This is not required under a DC transmission option. The potential location for the onshore HVAC booster station are presented in the PEIR, along with an offshore HVAC booster station search area (see Figure 1.1).
- 1.4.2.8 The Hornsea Three boundaries, including both onshore and offshore components, were selected through a review of engineering and environmental constraints, as well as feedback from stakeholders, including members of the public. Further details regarding the site selection of Hornsea Three is provided in chapter 4: Site Selection and Consideration of Alternatives.
- 1.4.2.9 Further details of the Hornsea Three project design are provided in Chapter 3: Project Description.

## 1.5 Consultation process

### 1.5.1 Statement of Community Consultation

- 1.5.1.1 Under Section 47 of the 2008 Act, the Applicant has a duty to prepare a Statement of Community Consultation (SoCC), which sets out how it plans to consult local communities on the proposed development, and must conduct its consultation in line with this statement. The Applicant must consult on and agree the contents of the SoCC with each of the Local Authorities, in whose area the proposed development is situated (as prescribed in section 43(1) of the 2008 Act).
- 1.5.1.2 In the case of Hornsea Three, land potentially affected by the onshore works may (depending on the actual onshore cable corridor) come under the following Local Authority jurisdictions:
- North Norfolk District Council;
  - Broadland District Council;
  - South Norfolk Council; and
  - Norfolk County Council.
- 1.5.1.3 The above organisations were consulted on the contents of a draft SoCC in July 2016.
- 1.5.1.4 In addition to those organisations listed above, the following Local Authorities adjoining the Hornsea Three onshore cable corridor were consulted on the draft SoCC:
- Norwich City Council;
  - Breckland District Council;
  - Broads Authority; and
  - Great Yarmouth Borough Council.
- 1.5.1.5 The SoCC in its final format was published on 30 September 2016 and copies were issued in local newspapers the following week. The Hornsea Three SoCC (DONG Energy, 2016a) can be downloaded from the DONG Energy website: [www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3).
- 1.5.1.6 The Hornsea Three SoCC sets out the two phase consultation programme for Hornsea Three. The phased approach allows for an iterative process in which consultees are able to observe the project changes in response to their feedback. As well as the two main phases of consultation as outlined in the SoCC, further engagement will take place throughout the pre-application period with a number of technical consultees who have specialist knowledge within the EIA topic areas.

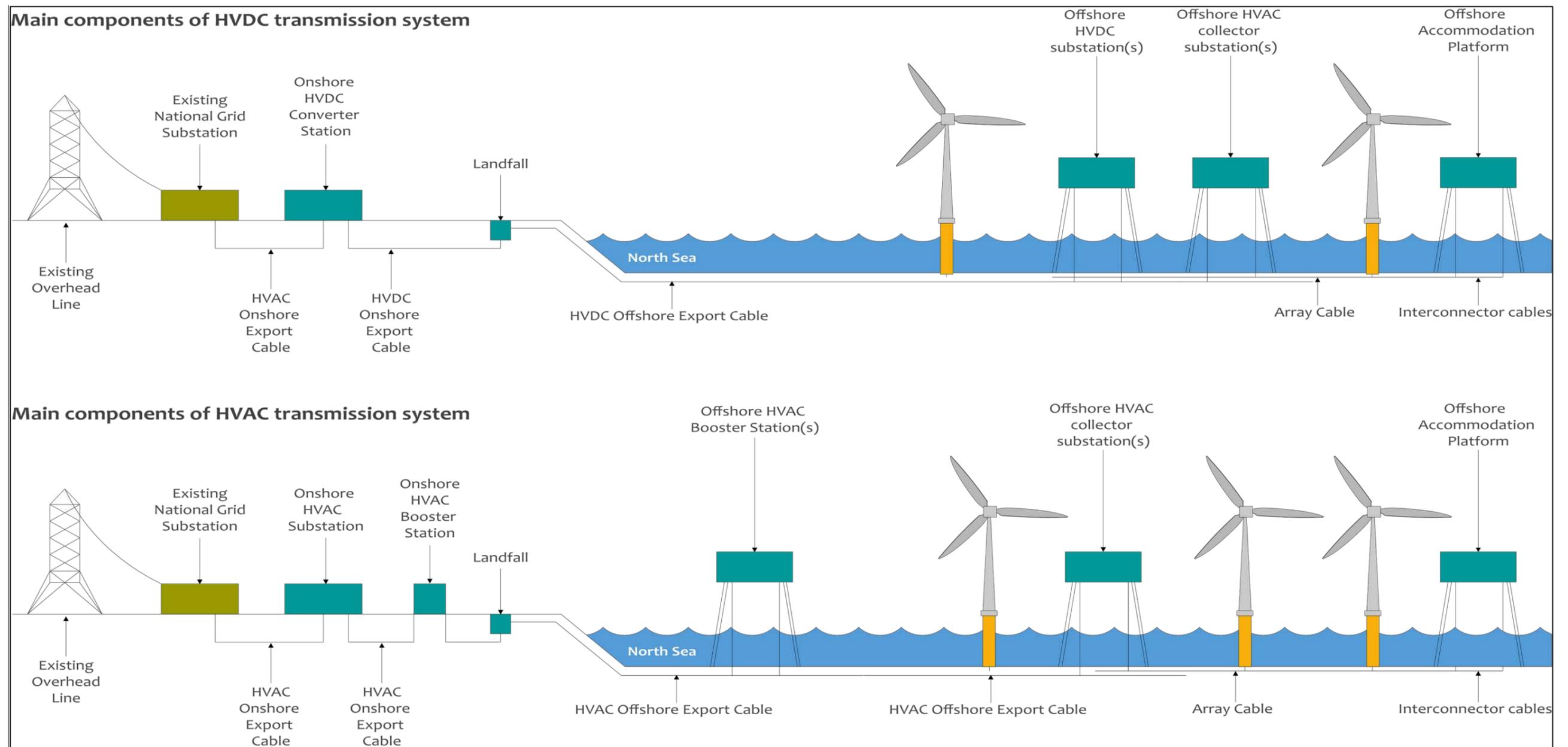


Figure 1.2: Main components of High Voltage Direct Current (HVDC) and High Voltage Alternating Current (HVAC) transmission options for Hornsea Three.

## 1.5.2 Phase One consultation

### *Overview*

1.5.2.1 The publication of the Hornsea Three SoCC (DONG Energy, 2016a) marked the start of the first phase of consultation for Hornsea Three, hereafter referred to as Phase One consultation. During Phase One consultation, Hornsea Three published and received feedback on its Scoping Report and held two rounds of Community Consultation Events (Phase 1.A and Phase 1.B).

### *Scoping Report*

1.5.2.2 The Scoping Report for Hornsea Three was submitted to the Secretary of State in October 2016 (DONG Energy, 2016b). Hornsea Three received the Scoping Opinion from the Secretary of State in December 2016 and in Quarter 1 2017, Hornsea Three met with stakeholders informally to discuss their feedback in more detail and to make any necessary amends to the proposal ahead of formal consultation on the PEIR during Phase Two.

### *Phase 1.a Community Consultation Events*

1.5.2.3 In parallel to consultation on the Scoping Report, Hornsea Three held its first round of community consultation events. These events were held at six locations across the Consultation Zone, as defined by the onshore cable corridor search area between 31 October 2016 and 9 November 2016. At these events, members of the public and other interested parties were able to view early information on Hornsea Three, including the proposed infrastructure and onshore cable corridor search area and comment on the proposed development. During and after the events, attendees had the opportunity to complete a feedback form.

1.5.2.4 After the events a Consultation Summary Report (DONG Energy, 2017a) was produced, summarising all of the feedback received during the first round of community consultation events and can be downloaded from the DONG Energy website: [www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3).

### *Phase 1.b Community Consultation Events*

1.5.2.5 Following feedback from the first round of community consultation events (Phase One) and refinement of the onshore cable corridor search area, Hornsea Three held a second round of consultation events ahead of the start of Phase Two consultation on the PEIR (Phase 1.b). The Phase 1.b Community Consultation Events were focused on the refinement of the onshore cable corridor search area, and seeking feedback on this. Hornsea Three held seven events at locations in and near to the refined onshore cable corridor search area between 2 March 2017 and 10 March 2017. At these events, members of the public and other interested parties were able to view the refined proposal and had the opportunity to complete a feedback form and comment on the proposed plans.

1.5.2.6 A second Consultation Summary Report (DONG Energy, 2017b) was produced on all the feedback received during the second round of community consultation events and can be downloaded from the DONG Energy website: [www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3).

## 1.5.3 Phase Two consultation

### *Overview*

1.5.3.1 Phase Two Consultation is marked by the beginning of formal consultation (Section 42 of the 2008 Act) on the PEIR and accompanying documents. The PEIR builds upon and utilises the Scoping Report (DONG Energy, 2016b) and Scoping Opinion (PINS, 2016), as well as comments received from the first two rounds of community events under Phase One consultation. As part of the Phase Two consultation, Hornsea Three will hold a third round of community consultation events in later summer 2017. Phase Two consultation is intended to fully elucidate the proposed Hornsea Three development options and to provide a basis upon which to form discussions with stakeholders.

### *Preliminary Environmental Information Report*

1.5.3.2 The EIA Regulations require Preliminary Environmental Information (PEI) to be provided for public consultation by those seeking a DCO for a NSIP. This PEIR constitutes the PEI for Hornsea Three. The level of detail required in PEI is not defined by the EIA regulations; however, it must include the same categories of information as that being assessed by the Environmental Statement (in accordance with PINS Advice Note 7: Preliminary Environmental Information, Screening and Scoping) (PINS, 2015), which will accompany the application for a DCO.

1.5.3.3 This PEIR is intended to allow those taking part in the consultation to understand the nature, scale, location and likely significant environmental effects of Hornsea Three, such that they can make an informed contribution to the process of pre-application consultation under the 2008 Act and to the EIA process. It is important to note that the PEIR contains preliminary information. DONG Energy will be actively seeking feedback on the PEIR from statutory consultees, local communities and interested parties.

1.5.3.4 DONG Energy plan to further refine the Hornsea Three project proposal, in terms of the final DCO application being submitted, based upon the consultation responses received during Phase One and Phase Two consultation. The final results of the EIA will be presented in an Environmental Statement and a summary of all the consultation responses received will be presented in a final Consultation Report, both of which will accompany the DCO application.

### Phase Two Community Consultation Events

- 1.5.3.5 In parallel to formal consultation with statutory consultees on the contents of the PEIR, DONG Energy will hold a third round of community consultation events in locations across the Consultation Zone. At these events, DONG Energy will specifically consult stakeholders and the local community on the contents of this PEIR. The consultation events are to be held from 4 to 13 September 2017, and their timings and locations are further detailed on the DONG Energy website ([www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3)) and in the June 2017 community newsletter.

## 1.6 Structure of the Phase Two consultation documentation

### 1.6.1 Preliminary Environmental Information Report

- 1.6.1.1 This PEIR contains separate chapters for the offshore and onshore aspects of the EIA. For the purposes of the EIA (including this PEIR) 'offshore' generally refers to the receptors on the seaward side of Mean High Water Springs (MHWS) and 'onshore' refers to the receptors on the landward side of MHWS. Where particular onshore and offshore assessments overlap in the intertidal area, the extent of the study area is defined in Figure 1.3 below.

- 1.6.1.2 The PEIR is divided into six volumes:

- Volume 1 - Introduction;
- Volume 2 - Offshore EIA;
- Volume 3 – Onshore EIA;
- Volume 4 - Introductory Annexes;
- Volume 5 - Offshore Annexes; and
- Volume 6 - Onshore Annexes.

- 1.6.1.3 The team responsible for the production of this PEIR has been led by DONG Energy, with the assistance of lead EIA consultants RPS. RPS is a member of the Institute for Environmental Management and Assessment (IEMA) and abides by the IEMA EIA guidelines. Table 1.1 provides a breakdown of the contents of each of the documents and the organisations that have contributed to them.

### 1.6.2 Other supporting documentation

- 1.6.2.1 As well as the PEIR, a number of other supporting documents have also been included in Phase Two consultation. Table 1.2 provides a breakdown of each of these supporting documents and the organisations that have contributed to them.

## 1.7 Responding to consultation on the PEIR

- 1.7.1.1 There are a number of ways that stakeholders can provide feedback on the PEIR as part of Phase Two consultation. These include the provision of feedback through the public exhibitions and feedback forms, letter or email. All information pertaining to Hornsea Three is available from the DONG Energy website: [www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3).

- 1.7.1.2 Consultees are invited to consider all of the information provided in this PEIR and to advise on whether they agree with the conclusions.

- 1.7.1.3 Comments on the Hornsea Three PEIR should be made in writing and submitted:

- By post to: Hornsea Project Three Offshore Wind Farm, DONG Energy, 5 Howick Place, Victoria, London, SW1P 1WG; and
- By email to: [HornseaProjectThree@dongenergy.co.uk](mailto:HornseaProjectThree@dongenergy.co.uk).

- 1.7.1.4 DONG Energy requests that any responses indicate who is making the representation, and provide an email address, postal address and telephone number to which any correspondence relating to the comments may be sent.

- 1.7.1.5 As already mentioned Hornsea Three will also hold a number of public exhibitions, in Local Authorities in and around the onshore cable corridor search area. At these events, DONG Energy will specifically consult stakeholders and the local community on the contents of this PEIR. Anyone who could potentially be affected by, or may have an active interest in Hornsea Three is encouraged to attend. The consultation events are to be held from 4 to 13 September 2017, and their timings and locations are further detailed on the DONG Energy website ([www.dongenergy.co.uk/hornseaproject3](http://www.dongenergy.co.uk/hornseaproject3)) and in the June 2017 community newsletter.

- 1.7.1.6 The deadline for receipt of comments on this Phase Two consultation is 20 September 2017. Any comments received during Phase Two consultation will be provided to PINS and may be made public.

- 1.7.1.7 Comments received at all stages of the Hornsea Three pre-application consultation phase will be collated and considered prior to finalising the application for a DCO. A separate Consultation Report, in accordance with Section 37(3)(c) of the 2008 Act, will set out the comments and feedback that have been received and describe how the comments raised have been taken into account and dealt with as part of the application. The Consultation Report will also demonstrate how DONG Energy has complied with Sections 42, 47, 48 and 49 of the 2008 Act and relevant best practice documents and guidance published by PINS. The Consultation Report will accompany the final application to the Secretary of State for a DCO.

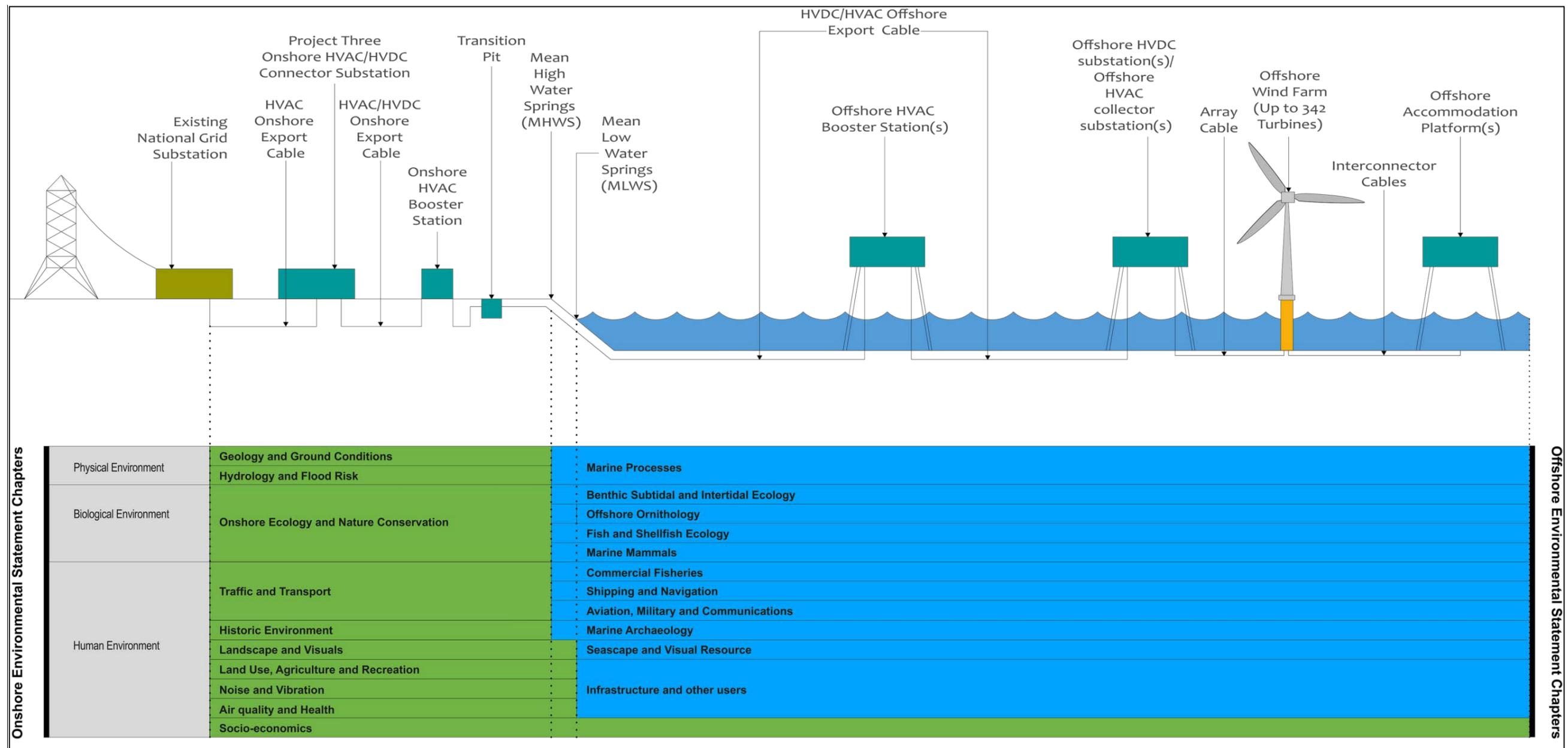


Figure 1.3: Schematic representation of the extent of offshore and onshore assessments.

Table 1.1: Hornsea Three Preliminary Environmental Information Report (PEIR) structure and authors.

Volume	Chapter number	Chapter	Author
-	-	Non-Technical Summary	RPS
Volume 1 – Introductory Chapters	1	Introduction and Overarching Glossary	RPS
	2	Policy and Legislation	RPS
	3	Project Description	DONG Energy
	4	Site Selection and Consideration of Alternatives	DONG Energy and RPS
	5	Environmental Impact Assessment Methodology	RPS
Volume 2 – Offshore EIA	<i>Physical Environment</i>		
	1	Marine Processes	ABPmer
	<i>Biological Environment</i>		
	2	Benthic Ecology	RPS
	3	Fish and Shellfish Ecology	RPS
	4	Marine Mammals	RPS
	5	Offshore Ornithology	Niras
	<i>Human Environment</i>		
	6	Commercial Fisheries	Poseidon
	7	Shipping and Navigation	Anatec
	8	Aviation, Military and Communications	RPS
	9	Marine Archaeology	RPS
	10	Seascape and Visual Resources	RPS
	11	Infrastructure and Other Users	RPS
<i>Overarching (Offshore)</i>			
12	Inter-related Effects (Offshore)	RPS	
Volume 3 – Onshore EIA	<i>Physical Environment</i>		
	1	Geology and Ground Conditions	RPS
	2	Hydrology and Flood risk	RPS

Volume	Chapter number	Chapter	Author
	<i>Biological Environment</i>		
	3	Ecology and Nature Conservation	RPS
	<i>Human Environment</i>		
	4	Landscape and Visual Resources	RPS
	5	Historic Environment	RPS
	6	Land Use and Recreation	RPS
	7	Traffic and Transport	RPS
	8	Noise and Vibration	RPS
	9	Air Quality	RPS
	10	Socio-economics	Regeneris
	<i>Overarching (Onshore)</i>		
11	Inter-related Effects (Onshore)	RPS	
Volume 4 – Introductory Annexes	<i>Introduction Annexes</i>		
	1.1	Hornsea Project One and Hornsea Project Two Consultation of Relevance to Hornsea Three	RPS
	<i>Project Description Annexes</i>		
	3.1	Subsea Noise Technical Report	Subacoustech
	3.2	Dredging and Disposal: Site Characterisation	RPS
	3.3	EMF Compliance Statement	RPS
	<i>Environmental Impact Assessment Methodology Annexes</i>		
	5.1	Cumulative Effects Screening Matrix	RPS
	5.2	Location of Cumulative Schemes	RPS
	5.3	Transboundary Impacts Screening Note	RPS

Volume	Chapter number	Chapter	Author
Volume 5 – Offshore Annexes	<i>Marine Processes Annexes</i>		
	1.1	Marine Processes Technical Report	ABPmer
	<i>Benthic Subtidal and Intertidal Ecology Annexes</i>		
	2.1	Benthic Ecology Technical Report	RPS
	2.2	Water Framework Directive Assessment	RPS
	2.3	Marine Conservation Zone Assessment	RPS
	<i>Fish and Shellfish Ecology Annexes</i>		
	3.1	Fish and Shellfish Technical Report	RPS
	<i>Marine Mammal Annexes</i>		
	4.1	Marine Mammal Technical Report	RPS
	<i>Ornithology Annexes</i>		
	5.1	Baseline Characterisation	Niras
	5.2	Displacement Analysis	Niras
	5.3	Collision Risk Modelling	Niras
	<i>Commercial Fisheries Annexes</i>		
	6.1	Commercial Fisheries Technical Report	Poseidon
	<i>Shipping and Navigation Annex</i>		
	7.1	Hornsea Three Array Area, Offshore Cable Corridor and Offshore HVAC Booster Station Search Area Navigational Risk Assessment	Anatec
	<i>Aviation, Military and Communications Annexes</i>		
	8.1	Aviation, Military and Communication Technical Report	RPS
<i>Marine Archaeology Annexes</i>			
9.1	Marine Archaeology Technical Report	RPS	
9.2	Draft Written Scheme of Investigation	RPS	

Volume	Chapter number	Chapter	Author
Volume 6 – Onshore Annexes	<i>Seascape and Visual Resources Annexes</i>		
	10.1	Seascape and Visual Resources Technical Report	RPS
	10.2	Seascape and Visual Resources Wirelines	RPS
	10.3	Seascape and Visual Resources Cumulative Wirelines	RPS
	<i>Infrastructure and Other Users Annexes</i>		
	11.1	Radar Early Warning Systems Technical Annex	University of Manchester
	<i>Geology and Ground Conditions Annexes</i>		
	1.1	Borehole Logs	RPS
	1.2	Abstraction Licences	RPS
	1.3	Discharge Consents and Licences	RPS
<i>Hydrology and Flood Risk Annexes</i>			
2.1	Flood Risk Assessment	RPS	
2.2	Environment Agency and Internal Drainage Board Watercourses and Flood Zones	RPS	
2.3	Surface Water Abstraction Licences, Discharge Consents and Pollution Incidents	RPS	
<i>Ecology and Nature Conservation Annexes</i>			
3.1	Onshore Ornithology – Wintering Bird Survey	Niras	
3.2	Great Crested Newt and Desmoulines Whorl Snail Habitat Suitability Assessment Survey	Thomson Ecology	
3.3	Hazel Dormouse, Red Squirrel and Freshwater Pearl Mussel Desk Study	Thomson Ecology	

Volume	Chapter number	Chapter	Author
	<i>Landscape and Visual Resources Annexes</i>		
	4.1	Landscape and Visual Impact Assessment Methodology	RPS
	4.2	Key Characteristics of National Seascape and National Landscape Character Areas	RPS
	4.3	Key Characteristics of Local Landscape Character Areas	RPS
	4.4	Key Characteristics of Designated Landscapes	RPS
	4.5	Representative Visual Receptors for Onshore Cable Corridor, Onshore HVAC Booster Station and Onshore HVDC Converter/HVAC Substation	RPS
	4.6	Cumulative Effects Assessment	RPS
	4.7	Photography and Indicative Wirelines	RPS
	4.8	Effects on Landscape and Visual Resources	RPS
	<i>Historic Environment Annexes</i>		
	5.1	Desk Based Assessment	RPS
	5.2	Fieldwalking Report	RPS
	5.3	Site Gazetteer	RPS
	5.4	Screening Assessment – Onshore HVDC/HVAC substation	RPS
	5.5	Screening Assessment - Onshore HVAC Booster Station	RPS
	<i>Land Use, Agriculture and Recreation Annexes</i>		
	6.1	Agricultural Land Classification Published Data	RPS

Volume	Chapter number	Chapter	Author
	<i>Traffic and Transport Annexes</i>		
	7.1	Transport Assessment (Details on Proposed Content for DCO Application)	RPS
	7.2	Transport Figures	RPS
	7.3	Description of Network Links and Sensitivity	RPS
	7.4	Construction Vehicle Trip Generation Assumptions	RPS
	7.5	Identification of Potential Accesses onto Private Land	RPS
	7.6	Summary of Potential Construction Access Points	RPS
	<i>Noise and Vibration Annexes</i>		
	8.1	Baseline Noise Information	RPS

Table 1.2: Hornsea Three other supporting documentation and authors of the documents.

Document	Author
<i>Draft Habitats Regulation Assessment</i>	
Draft Report to Inform Appropriate Assessment	Niras
Draft Evidence Plan	Niras
Habitats Regulation Assessment: Screening Report	Niras
<i>Other Documents and Reports</i>	
Planning Statement	RPS

## 1.8 Next steps

- 1.8.1.1 DONG Energy will further refine the Hornsea Three project design and EIA based upon the consultation responses received during the Phase One and Phase Two consultation. The final results of the EIA will be presented in an Environmental Statement and a summary of all the consultation responses received will be presented in a Consultation Report, both of which will accompany the DCO application to be submitted in Quarter 2 of 2018.

## 1.9 References

Department for Communities and Local Government (DCLG) (2009) Planning Act 2008: Guidance on Pre-Application Consultation. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2009/08/guidancepreapplication.pdf>, accessed 6th October 2016.

DONG Energy (2016a) Hornsea Project Three Proposed Offshore Wind Farm Statement of Community Consultation (SoCC), September 2016, prepared by DONG Energy, Available at: <http://www.dongenergy.co.uk/en/Pages/Hornsea-Project-Three-Documents-Library.aspx>, accessed 18th January 2017.

DONG Energy (2016b) Hornsea Project Three Offshore Wind Farm, Environmental Impact Assessment: Scoping Report, October 2016. Prepared by DONG Energy and RPS. Available at: <http://www.dongenergy.co.uk/en/Pages/Hornsea-Project-Three-Documents-Library.aspx>, accessed 18th January 2017.

DONG Energy (2017) Hornsea Project Three Phase One Consultation Summary Report, January 2017. Prepared by DONG Energy. Available at: <http://www.dongenergy.co.uk/en/Pages/Hornsea-Project-Three-Documents-Library.aspx>, accessed 18th January 2017.

Planning Inspectorate (PINS) (2015), Advice note seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping. Version 5, March 2015. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/03/Advice-note-7v4.pdf>, accessed 13th February 2017.