

Hornsea Project Three
Offshore Wind Farm



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Environmental Statement:
Volume 4, Annex 5.4 - Transboundary Impacts Screening

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Hornsea 3
Offshore Wind Farm

 **Orsted**

Environmental Impact Assessment

Environmental Statement

Volume 4

Annex 5.4 – Transboundary Impacts Screening

Liability

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This report is also downloadable from the Hornsea Project Three offshore wind farm website at:
www.hornseaproject3.co.uk

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Acronyms

Acronym	Description
DCO	Development Consent Order
ECR	Export Cable Route
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMF	Electromagnetic Field
EU	European Union
HRA	Habitat Regulations Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
HSC	Historic Seascape Character
IROPI	Imperative Reasons of Overriding Public Interest
IMO	International Maritime Organisation
LAT	Lowest Astronomical Tide
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
NSIP	Nationally Significant Infrastructure Project
PINS	Planning Inspectorate
REWS	Radar Early Warning Systems
SAC	Special Area of Conservation
SCI	Site of Community Importance
SPA	Special Protection Area
UK	United Kingdom

Units

Unit	Description
km	kilometre
nm	nautical mile
MW	megawatt

1. Introduction

1.1 Background

- 1.1.1.1 Orsted Hornsea Project Three (UK) Ltd., on behalf of Orsted Power (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, which is proposed to have a capacity of up to 2.4 GW (2,400 MW).
- 1.1.1.2 The Hornsea Three array area (i.e. the area in which the offshore turbines are located) is approximately 696 km², and is located approximately 160 km east from the coast of Yorkshire, 121 km northeast from the coast of Norfolk and 10 km from the median line between UK and Dutch waters (Figure 1.1). Hornsea Three lies to the east of Hornsea Project One and Hornsea Project Two offshore wind farms, and is located within the former Hornsea Zone.
- 1.1.1.3 Transboundary impacts relate to those impacts that may arise from an activity within one European Economic Area (EEA) state, that significantly affect the environment or other interests of another EEA state. This transboundary impacts screening document sets out the screening assessment of the potential for such effects to occur on the environment or interests of other EEA member states as a result of Hornsea Three, based on what is currently known of the likely spatial scale of effects arising from the development and the economic interests of other member states in the vicinity.
- 1.1.1.4 This transboundary impacts screening document evaluates the likelihood of significant transboundary effects occurring and the transboundary consultation with other member states which has been undertaken during the pre-application period.

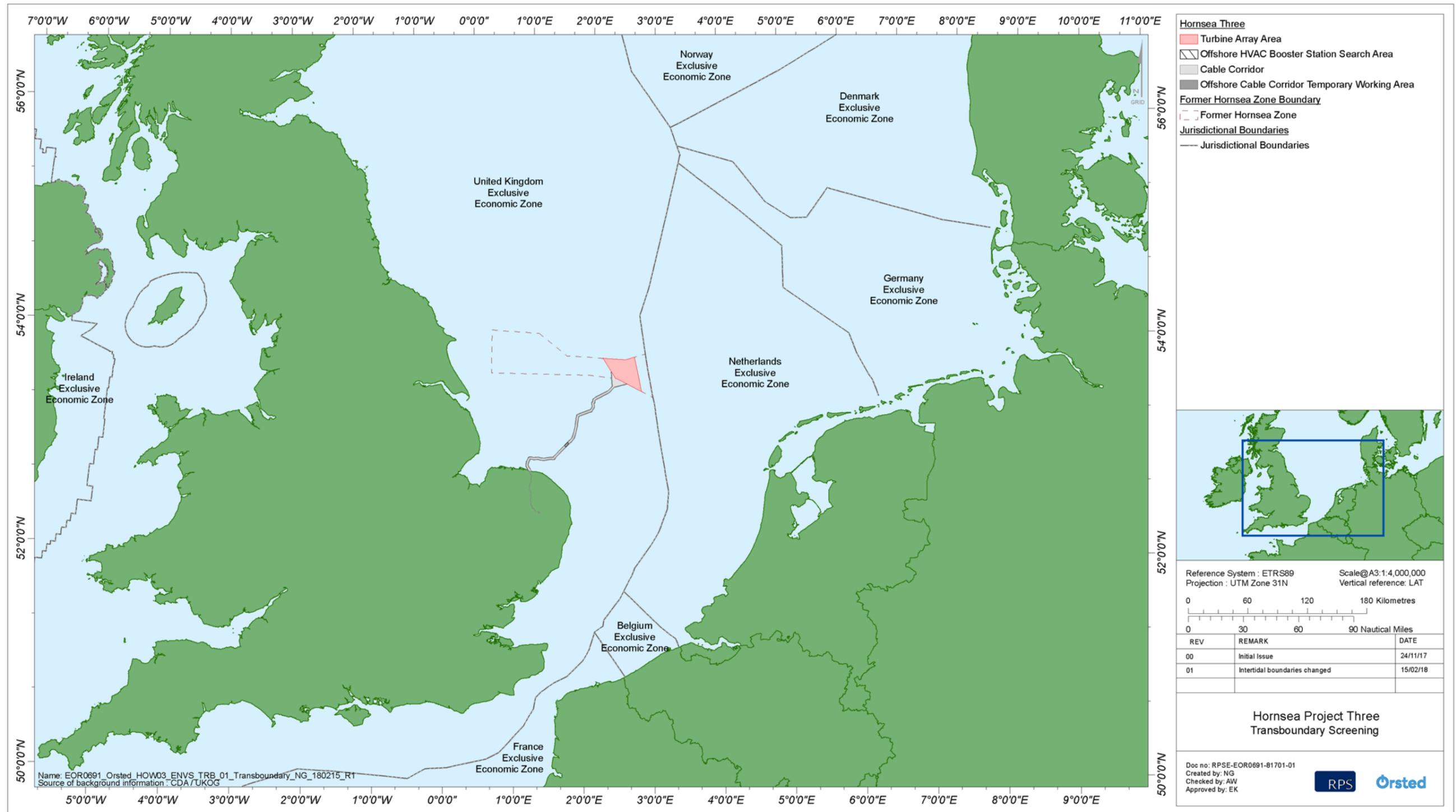


Figure 1.1: Location of the proposed Hornsea Three within the former Hornsea Zone and relevant jurisdictional boundaries.

2. Legislative context

2.1 Environmental Impact Assessment

2.1.1.1 The need to consider transboundary impacts has been embodied by The United Nations Economic Commission for Europe Convention on Environmental Impact Assessment (EIA) in a Transboundary Context, adopted in 1991 in the Finnish city of Espoo and commonly referred to as the 'Espoo Convention'. The Convention requires that assessments are extended across borders between Parties of the Convention when a planned activity may cause significant adverse transboundary impacts.

2.1.1.2 The Espoo Convention has been implemented by the European Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment, which was amended by Directive 97/11/EC, Directive 2003/35/EC and Directive 2009/31/EC and was transposed into UK law by the Infrastructure Planning (Environmental Impact Assessment) 2009 Regulations, as amended (hereafter referred to as the 2009 EIA Regulations (as amended)). In 2011, the initial 1985 Directive and its three amendments were codified by Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. In 2014 the 2011 Directive was replaced with 2014/52/EU which is implemented by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (hereafter referred to as the 2017 EIA Regulations). On 16 May 2017, the 2017 EIA Regulations entered into force. The transitional measures set out in these regulations provide that the provisions of the 2009 EIA Regulations (as amended) remain applicable to projects for which an application has been submitted or for which a Scoping Opinion has been sought before 16 May 2017. A Scoping Opinion was sought for Hornsea Three in October 2016. Therefore, for the purposes of Hornsea Three, the 2009 EIA Regulations (as amended) remain the relevant regulations. However, as a matter of good practice, the measures required by the 2017 EIA Regulations have been considered where appropriate in this Environmental Statement.

2.1.1.3 The 2009 EIA Regulations (as amended) requires that where the Secretary of State is of a view that an EIA application is likely to have significant effects on the environment in another EEA state, or the Secretary of State receives a request for involvement from another EEA state that is likely to be significantly affected, it must undertake a prescribed process of consultation and notification.

2.1.1.4 The Planning Inspectorate (PINS) Advice Note Twelve: Transboundary Impacts (PINS, 2015) advises on the procedures for consultation in association with an application for a Development Consent Order (DCO), where a Nationally Significant Infrastructure Project (NSIP) may have significant transboundary impacts. The note sets out the roles of PINS, other EEA states and developers. In respect of the latter, developers have no formal role under the Regulation 24 process, as the duties prescribed by Regulation 24 in notifying and consulting with other EEA States on potential transboundary impacts are the responsibility of the Secretary of State. However, developers are advised to:

- Consider, when preparing documents for consultation and application, that PINS may notify the relevant EEA State of their particular project;
- Provide information to enable a view to be reached by the Secretary of State regarding whether the development is likely to have significant transboundary effects on other EEA states. Such information should be provided with the Scoping Request and with the DCO application.

2.1.1.5 This transboundary impacts screening document is provided in response to Advice Note Twelve and the bullet points noted in paragraph 2.1.1.4. It provides information about Hornsea Three and sets out information relating to the likely significant effects and the interests of the other member states in the vicinity, in order to assist the Secretary of State in forming a view on the likelihood of significant transboundary effects arising from Hornsea Three. The information contained within the Annex to Advice Note Twelve, which sets out the criteria and relevant considerations that will be taken into account during screening, have also been used in the preparation of this transboundary impacts screening document.

2.2 Habitats Regulations Assessment

2.2.1.1 Article 6(3) of the Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the 'Habitats Directive'), requires an 'appropriate assessment' to be prepared where a plan or project is likely to have a significant effect upon the network of European (Natura 2000) designated sites. These include Special Areas of Conservation (SACs), candidate SACs, Special Protection Areas (SPAs), potential SPAs, Sites of Community Importance (SCIs) and also Ramsar sites. These sites may be located within the UK or in another EEA state.

2.2.1.2 The Habitats Directive is transposed into UK law by the Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007 (as amended) (the 'Offshore Habitats Regulations') for offshore sites beyond 12 nm and the Conservation of Habitats and Species Regulations 2010 (as amended) (the 'Habitats Regulations') for sites onshore and offshore sites lying within 12 nm.

2.2.1.3 Regulation 61 of the Habitats Regulations sets out the procedure for the assessment of the implications of plans and projects on European sites. The Offshore Habitats Regulations contain broadly similar statutory provisions to Regulation 61 of the Habitats Regulations. Under Regulation 61, if the proposed development is not directly connected with or necessary to the management of a European site and is likely to significantly affect the site, the competent authority must undertake an appropriate assessment of the implications for that site in view of that site's conservation objectives (Regulation 61(1)). PINS Advice Note Ten, Habitat Regulations Assessment (PINS, 2016) recommends a four-stage process:

- Stage 1 Screening - Test of Likely Significance: Determining whether the plan or project "either alone or in-combination with other plans and projects" is likely to have a significant effect upon a European site(s);
- Stage 2 Appropriate Assessment - Where likely significant effects are identified during screening, determining whether, in view of the European site's conservation objectives, the plan or project would have an adverse effect on the integrity of the site. If not, the plan can proceed;
- Stage 3 Alternatives - Where the plan or project cannot be shown to avoid an adverse effect on the integrity of a site, there should be an examination of alternative solutions; and
- Stage 4 Assessment of "imperative reasons of overriding public interest" (IROPI) - If it is not possible to identify alternative solutions that would avoid an adverse effect on integrity, it will be necessary to establish that IROPI exist. In the event of a negative appropriate assessment (stage 2 above), compensatory measures must also be included with the Habitats Regulations Assessment (HRA) report, which are considered during Stage 4 if there are no alternatives identified during Stage 3.

2.2.1.4 The stages of the process are collectively referred to as the HRA to clearly distinguish from the appropriate assessment, which is a single step within the whole HRA process.

2.2.1.5 Advice Note Ten also describes the information which is required to be submitted with the DCO application, and highlights the requirement for consultation and engagement with relevant bodies. Where significant effects are likely upon European sites in other EEA states, consultation is required with the competent authorities of those states. It follows therefore that developers should commence engagement with these authorities at the screening stage of the HRA.

2.2.1.6 A Report to Inform Appropriate Assessment (document reference number A5.2) is presented alongside the Environmental Statement. The Report to Inform Appropriate Assessment considers all terrestrial, marine and coastal European Sites that are potentially affected by onshore and offshore activities associated with Hornsea Three, and provides the information required for a HRA to be undertaken by the Secretary of State and informs the Secretary of State regarding whether Hornsea Three is likely to have significant transboundary effect on other EEA states.

3. Consultation

3.1.1.1 Hornsea Three has conducted pre-application consultation in accordance with the Planning Act 2008 plus associated guidance and Regulations, which includes the aforementioned 2009 EIA Regulations (as amended). As part of this consultation, the following EU ministries and industries have been contacted:

- Belgian ministries/representatives:
 - Flemish Government - Environment Nature and Energy Department;
 - Ministère de la Santé Publique et de l'Environnement;
 - Ministry of Brussels;
 - Federale Overheidsdienst Mobiliteit en Vervoer;
 - Royal Belgian Ship-owners Association;
 - Ministry of Wallonia;
 - Federal Public Service Health, Food Chain Safety and Environment;
 - Sydvestjysk Fiskeriforening; and
 - Rederscentrale.
- Danish ministries/representatives:
 - Danish Ministry of the Environment;
 - Danish Maritime Authority;
 - Danish Environmental Protection Agency;
 - Danish Nature Agency;
 - Danish Agency for Water and Nature Management;
 - Danmarks Rederiforening; and
 - Danmarks Fiskeriforening/ Danish Fishermen's Association.
- German ministries/representatives:
 - Federal Ministry for the Environment Nature Conservation and Nuclear Safety;
 - Wasser-und Schifffahrtsverwaltung des Bundes;
 - Verband der Deutschen Kutter Und Kusterenfischer;
 - Verband Deutscher Reeder; and
 - BSH Bundesamt für Seeschifffahrtund Hydrographie.
- French ministries/representatives:
 - Ministère des Affaires étrangères;
 - Armateurs de France;
 - Préfecture Maritime de la Manche et de la Mer du Nord;
 - Secrétariat Général de la Mer;

- CRPMEM Nord;
 - Copeche;
 - FROM Nord; and
 - CME Organisation de Producteur.
 - Dutch ministries/representatives:
 - Ministry of Infrastructure and the Environment – Directorate General for Spatial Development and Water Affairs;
 - Rijkswaterstaat - Dutch Ministry of Infrastructure and Environment;
 - Rijkswaterstaat - Ministerie van Verkeer en Waterstaat;
 - Royal Association of Netherlands Ship Owners;
 - Ministry of Transport, Public Works and Water Management;
 - Nederlandse Visserbond;
 - Policy Officer Nature and Spatial Planning - Dutch Fish Product Board; and
 - Vis Ned.
 - Norwegian ministries/representatives:
 - Norwegian Ministry of Climate & the Environment;
 - Norges Rederiforbund;
 - Norwegian Environment Agency;
 - Norwegian Maritime Directorate;
 - Norwegian Finishing Industry Representative; and
 - Norwegian Fishing Vessel Owners Union.
 - Republic of Ireland ministry/representatives;
 - Department of Housing, Planning, Community and Local Government.
 - Swedish ministries/representatives:
 - Implementation and Enforcement Department;
 - Marine Standards Department;
 - Swedish Environmental Protection Agency, Implementation & Enforcement Department; and
 - Swedish Fishing Industry Representative.
- 3.1.1.2 A summary of the key issues raised during consultation for Hornsea Three relating to transboundary matters and how these have been addressed in the production of this Environmental Statement are set out in Table 3.1 below. Further information on the consultation activities undertaken for Hornsea Three can be found in the Consultation Report (document reference number A5.1) that accompanies the application for Development Consent.

Table 3.1: Summary of key issues raised during Hornsea Three consultation undertaken to date relating to transboundary impacts.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this Environmental Statement
December 2016	Planning Inspectorate – Scoping Opinion	The Secretary of State notes that the Scoping Report has acknowledged the potential for transboundary impacts and recommends that the Applicant should provide to the Secretary of State, as soon as possible, any additional available information about potential significant transboundary effects and identify the affected state(s). In order to ensure the efficient and effective examination of applications within the statutory timetable under Section 98 of the Planning Act 2008, it is important that this information is made available at the earliest opportunity to facilitate timely consultations, if required, with other EEA States in accordance with Regulation 24.	This transboundary screening document presents an update, based upon the latest available information for Hornsea Three, to the transboundary screening presented in Appendix A of the Hornsea Three Scoping Report (DONG Energy (now Ørsted), 2016a) and volume 4, Annex 5.3 to the Preliminary Environmental Information Report (PEIR) (DONG Energy (now Ørsted), 2017).
		The Environmental Statement will need to address transboundary matters in each topic area and summarise the position on transboundary effects of the proposed development, taking into account inter-relationships between any impacts in each topic area.	The screening assessment and matrices presented in section 4 below considers the potential for significant transboundary matters for each chapter/topic of the Environmental Statement. Where transboundary effects have been screened into the EIA process, the assessment is presented in the relevant Environmental Statement topic chapter.
		The Secretary of State recommends that consideration should be given in the Environmental Statement to any likely significant effects on the environment of another Member State of the European Economic Area. In particular, the Secretary of State recommends consideration should be given to discharges to the air and water and to potential impacts on migratory species and to impacts on shipping and fishing areas.	
		The Applicant's attention is also drawn to the Planning Inspectorate's Advice Note twelve 'Development with significant transboundary impacts consultation' which is available on the Advice Notes Page of the National Infrastructure Planning website.	PINS Advice Note Twelve: Transboundary Impacts (PINS, 2015) has been considered and is referred to in the compilation of this transboundary screening document.
	Marine Management Organisation (MMO) – Scoping Opinion	The MMO does not agree with screening out transboundary impacts based upon the information provided, given the array area is only 10 km from the Dutch Exclusive Economic Zone (EEZ) and the zone of influence for marine processes impacts from the wind farm may go beyond the boundary between EEZ waters. The array area is also 10 km from the Dutch Klaverbank SCI designated site.	The screening assessment and matrices presented in section 4 below considers the potential for significant transboundary matters for each chapter/topic of the Environmental Statement. In addition, the consultation responses received have been considered, together with ongoing evaluation of transboundary matters. As a result specific potential transboundary impacts have been screened in for marine processes, specifically in relation to potential changes to the wave regime. The rationale for this is explained further in Section 4 below. The Report to Inform Appropriate Assessment (document reference number A5.2) considers the potential impacts upon European Sites. The MMO's comments are noted. The screening assessment and matrices presented in section 4 below considers the potential for significant transboundary matters for fish and shellfish, and marine mammals. The transboundary assessment is presented in the relevant EIA topic chapter. The Report to Inform Appropriate Assessment (document reference number A5.2) considers the potential impacts upon European Sites.
		The Dutch coast lies approximately 150 km from the Hornsea Three array area. Cumulative impacts of Hornsea Project One and Hornsea Project Two have been assessed for the Yorkshire and Norfolk coasts, which lie approximately 160 km and 120 km from the Hornsea Three array area. Since transboundary marine processes impacts were screened out from the assessment of Hornsea Project One and Hornsea Project Two, there is no sufficient baseline information to inform transboundary impacts. The meteocean analysis carried out for Hornsea Project One and Hornsea Project Two has, for example, only considered the UK EEZ and the UK coastline and the proposed approach for the Hornsea Three EIA may not be appropriate to assess transboundary impacts. The MMO recommends that a review of hydrodynamic and sediment dynamic data is undertaken in order provide an overview of the information available from EIA assessments of Hornsea Project One and Hornsea Project Two. This would provide information as to whether sufficient data is available to adequately inform the EIA for Hornsea Three.	
		The information presented in section 8.1.20 of the Scoping Report suggests that suspended sediment from the construction phase of the development may extend up to 16 km from the source. The MMO suggests that transboundary effects on benthic ecology are screened into the EIA process considering the proximity of Klaverbank SCI (11 km) to the Hornsea Three array area.	
		The Scoping Report has identified the potential for transboundary impacts upon fish, shellfish and marine mammals due to construction, operational and decommissioning impacts of Hornsea Three, particularly for underwater noise (Appendix A). The MMO supports the proposal that such impacts on marine mammals and their nature conservation interests are screened into the EIA process. Potential impacts upon European Sites with marine mammals as a qualifying feature will be assessed within the Habitats Regulations Assessment (HRA).	

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this Environmental Statement
	Trinity House	Risk mitigation measures: Any possible National transboundary issues should be assessed, through consultation with the Dutch authorities.	The screening assessment and matrices presented in section 4 below considers the potential for significant transboundary matters for shipping and navigation matters. Where transboundary effects have been screened into the EIA process, the assessment is presented in the relevant Environmental Statement topic chapter.
January 2017	Belgian stakeholders, specifically: <ul style="list-style-type: none"> • Rederscentrale; • Sydvestjysk Fiskeriforening; • Federal Public Service Health, Food Chain Safety and Environment; • Ministry of Wallonia; • Royal Belgian Ship-owners Association; • Federale Overheidsdienst Mobiliteit en Vervoer; • Ministry of Brussels; • Ministère de la Santé Publique et de l'Environnement; and • Flemish Government - Environment Nature and Energy Department. Email correspondence	The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the aforementioned stakeholders. The Federal Public Service Health, Food Chain Safety and Environment responded acknowledging receipt of the email.	Noted.
26 January 2017	Danish stakeholders, specifically: <ul style="list-style-type: none"> • Danish Maritime Authority; • Danish Environmental Protection Agency; • Danish Ministry of the Environment; • Danish Nature Agency; and • Danish Agency for Water and Nature Management. Email correspondence.	The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the aforementioned stakeholders. The Danish Maritime Authority responded to request that all correspondence is directed instead to the Danish Nature Agency or Danish Agency for Water and Nature Management. The Danish Environmental Protection Agency undertook a five week consultation period with relevant Danish authorities and organisations on the Scoping Report. To date, no comments have been received by Hornsea Three on the Scoping Report or HRA Screening Report.	Noted.
26 January 2017	French stakeholders, specifically: <ul style="list-style-type: none"> • Ministère des Affaires étrangères; • CME Organisation de Producteur; • FROM Nord; • Secrétariat Général de la Mer; • Préfecture Maritime de la Manche et de la Mer du Nord; and • Armateurs de France. Email correspondence.	The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the aforementioned stakeholders. Préfecture Maritime de la Manche et de la Mer du Nord responded stating that it is pertinent to examine what impacts on French maritime activities, particularly in terms of professional fishing and the relocation of fishing grounds currently frequented, are from Hornsea Three. It is likely that there will be an increase in traffic and interference between professional fishing activities and maritime traffic. It would be appropriate to identify and quantify the actual impacts of the movement of fishing areas with maritime traffic in the Hornsea Three array area. It would also be beneficial to determine precisely what the impact of Hornsea Three on communications systems, and meteorological and military radar systems. Furthermore Préfecture Maritime de la Manche et de la Mer du Nord requested to be kept informed of further Hornsea Three consultations.	The potential effects of Hornsea Three on commercial fisheries are considered in volume 2, chapter 6: Commercial Fisheries. The potential effects of Hornsea Three on shipping and navigation are considered in volume 2, chapter 7: Shipping and Navigation. The potential effects of Hornsea Three on communication systems and meteorological and military radar systems are considered in volume 2, chapter 8: Aviation, Military and Communications. On-going consultation with the Préfecture Maritime de la Manche et de la Mer du Nord will continue in line with requirements set out in the Planning Act 2008.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this Environmental Statement
26 January 2017	<p>German stakeholders, specifically:</p> <ul style="list-style-type: none"> • BSH Bundesamt für Seeschifffahrt und Hydrographie; • Verband Deutscher Reeder; • Wasser- und Schifffahrtsverwaltung des Bundes; and • Federal Ministry for the Environment Nature Conservation and Nuclear Safety. <p>Email correspondence.</p>	<p>The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the aforementioned stakeholders.</p> <p>BSH Bundesamt für Seeschifffahrt und Hydrographie responded to confirm that, following a review of the Transboundary Screen Matrix (Appendix A) of the Scoping Report (DONG Energy (now Ørsted), 2016a), they do not see any need to provide further information or the need for a meeting.</p> <p>Furthermore BSH Bundesamt für Seeschifffahrt und Hydrographie requested to be kept informed of further Hornsea Three consultations.</p>	<p>On-going consultation with the BSH Bundesamt für Seeschifffahrt und Hydrographie will continue in line with requirements set out in the Planning Act 2008.</p>
26 January 2017	<p>Irish stakeholders, specifically:</p> <ul style="list-style-type: none"> • Department of Housing, Planning, Community and Local Government. <p>Email correspondence.</p>	<p>The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the Department of Housing, Planning, Community and Local Government.</p> <p>Department of Housing, Planning, Community and Local Government responded to confirm that they have examined the Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) and have decided to wait until the Environmental Statement and final Appropriate Assessment screening is available before making comments.</p> <p>Furthermore the Department of Housing, Planning, Community and Local Government requested to be kept informed of further Hornsea Three consultations.</p>	<p>Noted.</p> <p>On-going consultation with the Department of Housing, Planning, Community and Local Government will continue in line with requirements set out in the Planning Act 2008.</p>
26 January and May 2017	<p>Dutch stakeholders, specifically:</p> <ul style="list-style-type: none"> • Ministry of Infrastructure and Environment; • Policy Officer Nature and Spatial Planning - Dutch Fish Product Board; • Ministry of Transport, Public Works and Water Management; • Royal Association of Netherlands Ship Owners; • Dutch Fish Product Board; and • Nederlandse Visserbond. <p>Email correspondence.</p>	<p>The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the aforementioned stakeholders.</p> <p>An introductory meeting was held with the Ministry of Infrastructure and Environment on 22 May 2017. No issues with Hornsea Three were raised during this meeting.</p> <p>The Royal Association of Netherlands Ship Owners responded to say that they were interested in the Transboundary Screen Matrix (Appendix A) of the Scoping Report (DONG Energy (now Ørsted), 2016a) and would like to be kept informed of the results of the EIA.</p>	<p>Noted.</p> <p>On-going consultation with the Ministry of Infrastructure and Environment and the Royal Association of Netherlands Ship Owners will continue in line with requirements set out in the Planning Act 2008.</p>
26 January 2017	<p>Norwegian stakeholders, specifically:</p> <ul style="list-style-type: none"> • Norwegian Fishing Vessel Owners Union; • Norwegian Ministry of Climate & the Environment; • Norwegian Maritime Directorate; • Norges Rederiforbund; • Ministry of Environment; • Fishingvessel Owners Union; • Norway Fishing Industry Representative; and • Norwegian Environment Agency. <p>Email correspondence.</p>	<p>The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the aforementioned stakeholders.</p> <p>The Norwegian Environment Agency responded stating that they would like to be kept informed on baseline and monitoring of seabirds, ducks, migrating birds, and their geographical use of the study area.</p> <p>Furthermore the Norwegian Environment Agency requested to be kept informed of the Hornsea Three EIA process.</p>	<p>The potential effects of Hornsea Three on offshore ornithology are considered in volume 2, chapter 5: Offshore Ornithology.</p> <p>On-going consultation with the Norwegian Environment Agency will continue in line with requirements set out in the Planning Act 2008.</p>

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this Environmental Statement
26 January 2017	Swedish stakeholders, specifically: <ul style="list-style-type: none"> Marine Standards Department; Implementation and Enforcement Department; Swedish Fishing Industry Representative; and Ministry of Transport, Public Works and Water management. Email correspondence.	The Scoping Report (DONG Energy (now Ørsted), 2016a) and HRA Screening Report (DONG Energy (now Ørsted), 2016b) was sent to the aforementioned stakeholders. The Marine Standards Department responded stating that these matters are handled by the Swedish Environmental Protection Agency, Implementation & Enforcement Department and that all consultation should be directed to them.	Noted. Hornsea Three will consult with the Swedish Environmental Protection Agency in line with requirements set out in the Planning Act 2008.
12 June 2017	PINS Transboundary screening based on Hornsea Project Three, Environmental Impact Assessment Scoping Report, October 2016	Under Regulation 24 of the 2009 EIA Regulations (as amended) and on the basis of the current information available from the Applicant, the Secretary of State is of the view that the proposed development is likely to have a significant effect on the environment in another EEA State. In reaching this view the Secretary of State has applied the precautionary approach (as explained in the Planning Inspectorate's Advice Note 12: Transboundary Impacts Consultation (PINS, 2015)); and taken into account the information currently supplied by the Applicant. Actions: Transboundary issues notification under Regulation 24 of the 2009 EIA Regulations (as amended) is required. States to be notified include Denmark, France, the Netherlands, Germany, Iceland, Sweden and Norway.	Transboundary consultation has been carried out with the relevant EEA states (see paragraph 3.1.1.1).
29 June 2017	Belgium - Regulation 24 email correspondence	Belgium intends to participate in the EIA procedure under Regulation 24 of the 2009 EIA Regulations (as amended). Belgium notes that they will not send contributions in every stage of the process, but would like to be kept informed and get the opportunity to intervene, where appropriate.	Noted. Hornsea Three will consult with Belgium in line with requirements set out in the Planning Act 2008.
12 July 2017	Netherlands - Regulation 24 email correspondence	The Netherlands would appreciate to be involved in the EIA procedure for Hornsea Three.	Noted. Hornsea Three will consult with the Netherlands in line with requirements set out in the Planning Act 2008.
4 August 2017 and 26 September 2017	French - Regulation 24 email correspondence	France wishes to participate to the consultation concerning Hornsea Project Three.	Noted. Hornsea Three will consult with France in line with requirements set out in the Planning Act 2008.
16 August 2017	Belgium Civil Aviation Authority – email correspondence	Since this project is situated outside the Belgium airspace, there is from an aeronautical perspective, no objection against this project.	Noted.
16 August 2017	Norway – Regulation 24 email correspondence	The Norwegian fisheries authorities want to take part in the transboundary process and receive correspondence. The Norwegian Environment Agency does not want to take an active part in the process, but wants to be informed on relevant studies. Receiving copies of the correspondence with the fisheries authorities would probably be sufficient for this purpose.	Noted. Hornsea Three will consult with Norway in line with requirements set out in the Planning Act 2008.
28 August 2017	Denmark, specifically: <ul style="list-style-type: none"> Ministry of Foreign Affairs Denmark, Unit for EU and Fisheries Policy. Regulation 24 email correspondence	<u>Commercial fisheries</u> The Scoping Report only includes fisheries data regarding foreign vessels if the catches have been landed in the UK. UEF would like to draw attention to the considerable Danish fishery interests in the concerned areas and which are not reflected in the report since the catches are landed in Denmark. In order to give a fair representation of the fisheries activities in the area, Danish and other countries' fishery data should be included in the Environmental Statement.	Landings data has been collated for all EU Member States for all ICES statistical rectangles that overlap with the regional commercial fisheries study area (see volume 2, chapter 6: Commercial Fisheries).
		<u>Markham's Triangle</u> Denmark would like to understand the future conservation status of Markham's Triangle before the Hornsea Three project gets clearance with regards to the overlapping areas. This viewpoint is also expressed in the light of the fact that Denmark might be a part of the decision making process concerning possible fishery protection measures concerning Markham's Triangle.	The impact of the construction, operation and maintenance, and decommissioning of Hornsea Three on Markham's Triangle is assessed in volume 5, annex 2.3: Marine Conservation Zone Assessment.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this Environmental Statement
	Denmark, specifically: <ul style="list-style-type: none"> • Danish Pelagic Producers Organisation (DPPO). Regulation 24 email correspondence	<u>Commercial fisheries</u> DPPO is concerned about the future where fishing areas gradually are set aside for purposes that excludes fishing activities from the area, and destroys spawning and nursery habitats for species that are highly important to the ecosystem and the fisheries sector. DPPO recommended that a strategy be developed in order to ensure that fishery interests are not compromised as more and more areas are made exclusive for other purposes.	The cumulative impact of Hornsea Three, together with other projects and plans, is assessed in volume 2, chapter 6: Commercial Fisheries.
		<u>Fish and shellfish ecology</u> Figure 8.6 of the Hornsea Three Scoping Report illustrates that the placement of the project coincides with an area of great importance to sandeels. Sandeel is considered a fairly non-migratory species and therefore the negative impact of Hornsea Three on the sandeel population must be considered to be severe as the sandeel is unable to adapt by relocating to another habitat. The planned construction on top of a sand eel habitat is of great concern to us and we therefore recommend that another location is found for Hornsea Three. DPPO highlighted ICES' advice concerning the North Sea herring sock advice: "ICES advises that, under precautionary considerations, activities that have an impact on the spawning habitat of herring should not occur, unless the effects of these activities have been assessed and shown not to be detrimental." ICES advice concerning mackerel states: "ICES advises that the existing measures to protect the North Sea spawning component should remain in place." DPPO therefore recommend that the Hornsea Three is relocated out of spawning grounds for herring and mackerel.	The impact of the construction, operation and maintenance, and decommissioning of Hornsea Three on sandeels, as well as mackerel spawning grounds, is considered in volume 2, chapter 3: Fish and Shellfish Ecology. The Hornsea Three array area does not coincide with herring spawning grounds (see volume 2, chapter 3: Fish and Shellfish Ecology).
	Denmark, specifically: <ul style="list-style-type: none"> • Danish Fishermen's Association (DFPO). Regulation 24 email correspondence	<u>Commercial fisheries</u> Especially in 2005 and 2006, there was a great deal of sandeel fished by Danish vessels in the Hornsea Three array area. During the last ten years, the sandeel fishery has primarily taken place on the Dogger Bank but before this the banks in the southern parts of the North Sea were of great importance.	The impact of the construction, operation and maintenance, and decommissioning of Hornsea Three leading to displacement or disruption of commercially important fish and shellfish resources is considered in volume 2, chapter 6: Commercial Fisheries.
	Denmark, specifically: <ul style="list-style-type: none"> • Danish Environmental Protection Agency. Regulation 24 email correspondence	<u>European designated sites</u> The shortest distance to the two nearest Danish SAC's are 300 and 380 km from Hornsea Three. The Danish Environmental Protection Agency find it unlikely that a significant effect on Danish nature sites will be observed due to the construction of Hornsea Three, especially with reference to the substantial distance from Hornsea Three to the designated sites.	Noted.
11 September 2017	Dutch Ministry of Infrastructure and Environment – email correspondence	<ul style="list-style-type: none"> • Are the ferries allowed to pass through the Hornsea Three array area, all sizes or limited to a maximum length? • Are the adverse weather condition routes analysed before the installation of HSIII or after? • Are alternative routes provided through the farms, e.g. by means of a "channel"? • Is the routing of ferries different through the park and in the vicinity of the HVAC station? 	As per the requirements of Marine Guidance Notice (MGN) 543, a Navigational Risk Assessment (NRA) and a marine traffic survey, for both the Hornsea Three array area and the offshore HVAC booster station search area has been undertaken (see volume 5, annex 7.1: Navigational Risk Assessment). Section 15.2.8 of volume 5, annex 7.1: Navigational Risk Assessment specifically identifies any commercial ferry activity in normal conditions and section 16 in adverse weather conditions. This data was identified via the assessment of the marine traffic surveys but also direct consultation with DFDS Seaways and P&O Ferries, the key operators of commercial ferry traffic (both passenger and Roll on Roll off freight) within the area.
19 September 2017	Dutch Ministry of Infrastructure and Environment – email correspondence	The impact of offshore wind farms on birds in the Netherlands, Belgium and Germany are not taken into consideration. For bird populations which have an international habitat as the area of the southern part of the North Sea, an international approach to accumulation is required.	The ornithology assessment (see volume 2, chapter 5: Offshore Ornithology) has incorporated national guidance on distribution and source populations (e.g. Furness, 2015). In the breeding season foraging range and other sources of connectivity have been investigated with no connectivity with transboundary SPAs identified.

4. Screening of transboundary impacts

- 4.1.1.1 In accordance with the requirements of Advice Note Twelve (PINS, 2015), a series of screening matrices for potential transboundary impacts associated with Hornsea Three are presented in Table 4.2, Table 4.3 and Table 4.4 for offshore biological, offshore human and onshore activities, respectively. These screening matrices have been based upon the assessment of impacts, as presently known, from the project description presented in volume 1, chapter 3: Project Description and follow the suggested format set out in the Annex to the PINS Advice Note Twelve.
- 4.1.1.2 The screening matrices consider all potential transboundary impacts that may occur from all phases of Hornsea Three (i.e. construction, operation and maintenance, and decommissioning). The matrices also address the predicted spatial and temporal scale of potential transboundary impacts for those interests that are assessed within this Environmental Statement.
- 4.1.1.3 Potential effects upon European designated sites within other EEA states (as well as those in the UK) are considered separately within the screening process for the HRA.
- 4.1.1.4 The distance of Hornsea Three from the boundary of the EEZ or 'median line' of other EEA states considered is presented in Table 4.1 and shown on Figure 1.1.

Table 4.1: Summary of approximate distance to nearest Exclusive Economic Zone (EEZ) (median line) of other European Economic Area (EEA) states.

EEZ	Distance from Hornsea Three to nearest marine border (km)
The Netherlands	10
Germany	164
Belgium	117
Denmark	205
Norway	235
France	141

4.2 Offshore transboundary impacts

4.2.1 Physical and biological environment

4.2.1.1 Hornsea Three have completed a transboundary screening matrix for offshore transboundary effects for the physical and biological environment, in line with the suggested format set out in the Annex to PINS Advice Note Twelve. This screening matrix is set out in Table 4.2.

4.2.1.2 The conclusions of the transboundary screening for each physical environment topic are presented, together with additional justification, in the following sections. Where transboundary effects have been screened into the EIA process, the assessment is presented in the relevant Environmental Statement topic chapter.

Marine processes

4.2.1.3 The marine processes baseline for the Hornsea Three array area and the offshore cable corridor are outlined in full in volume 2, chapter 1: Marine Processes.

4.2.1.4 There is the potential for transboundary impacts upon marine processes due to operation and maintenance phase changes to the wave climate. More specifically, the interaction between the waves and the foundations of the wind farm infrastructure may result in a reduction in wave energy locally that may also extend into the far-field. This in turn has the potential to impact on marine processes receptors (namely the shorelines) of other EEA states.

4.2.1.5 In addition, there is potential for transboundary impacts to also occur due to changes to the wave climate arising from the presence of Hornsea Three cumulatively with Hornsea Project One and Hornsea Project Two.

4.2.1.6 There is not considered to be potential for transboundary impacts on marine processes receptors in relation to the construction or decommissioning phase impacts of Hornsea Three. Any potential changes to suspended sediment concentrations and subsequent deposition are considered in the context of transboundary impacts in the respective receptor topics below (for example: Benthic subtidal and intertidal ecology and fish and shellfish ecology).

4.2.1.7 Therefore, it is proposed that transboundary impacts on marine processes are screened into the EIA process. As such, a transboundary assessment has been completed and is included in volume 2, chapter 1: Marine processes. This assessment draws on the wider assessment of potential changes to the wave regime including both a Hornsea Three assessment and a cumulative assessment.

Benthic ecology

- 4.2.1.8 The extent of any predicted impacts upon benthic intertidal and subtidal ecological receptors are likely to be limited in extent to the:
- Hornsea Three offshore footprint (i.e. the Hornsea Three array area and the proposed offshore cable corridor) for temporary/long term habitat loss and habitat modification (i.e. from the introduction of hard substrates); and
 - The spatial extent over which changes to suspended sediments / deposition may occur due to construction / decommissioning phase activities.
- 4.2.1.9 Through the second point above, there is a potential pathway through which Hornsea Three could impact the benthic subtidal ecology of another EEA state due to the proximity of the array area to the Dutch EEZ (see Table 4.1). However, based on an understanding of the baseline environment (e.g. sediment types and the tidal regime) combined with assessment work completed and presented within volume 2, chapter 1: Marine Processes, impacts from sediment disturbance due to construction (and decommissioning) related activities are likely to be of temporary duration and low magnitude. Significant transboundary effects on benthic subtidal ecology are therefore not expected.
- 4.2.1.10 However, the proximity of Klaverbank SCI to the Hornsea Three array area is acknowledged and it is noted that potential impacts upon European Sites with benthic ecology as a qualifying feature have been assessed within the Report to Inform Appropriate Assessment (document reference number A5.2).

Fish and shellfish ecology

- 4.2.1.11 There is the potential for transboundary impacts upon fish and shellfish ecology due to construction, operational and maintenance, and decommissioning impacts of Hornsea Three.
- 4.2.1.12 These include direct impacts due to underwater noise from piling operations and indirect impacts caused by loss of fish and shellfish habitat or disturbance to habitat due to increased suspended sediments and deposition from the placement/removal of foundations and cables in or on the seabed.
- 4.2.1.13 These activities have the potential to directly affect Annex II migratory fish species that are listed as features of European Sites in other EEA states, or species that are of commercial importance for fishing fleets of other EEA states. Indirect effects could include loss of or disturbance to fish spawning and nursery habitats in the North Sea that are important for migratory fish species either designated as Annex II species or of commercial importance to other EEA states. The fish and shellfish receptors likely to be present within Hornsea Three fish and shellfish study area are outlined in full in volume 2, chapter 3: Fish and Shellfish Ecology and include a number of commercially important species as well as diadromous species likely to be found in the area. Volume 2, chapter 3: Fish and Shellfish Ecology also identifies the spawning and nursery grounds located within and around the Hornsea Three array area and offshore cable corridor.

4.2.1.14 An assessment of the impacts occurring during construction, particularly as a result of underwater noise from piling, is presented in volume 2, chapter 3: Fish and Shellfish Ecology (including both a Hornsea Three assessment and a cumulative assessment). The majority of impacts during construction are however considered to be short term and temporary. The operation and maintenance phase is considered less likely to result in significant effects although the effects associated with EMF and long term habitat loss are, by nature, longer term effects which may be reversible depending on the decommissioning strategy.

4.2.1.15 Therefore, it is proposed that transboundary impacts on fish and shellfish ecology and their nature conservation interests are screened into the EIA process. As such, a transboundary assessment has been completed and is included in volume 2, chapter 3: Fish and Shellfish Ecology. Potential impacts upon European Sites with fish as a qualifying feature have been assessed within the Report to Inform Appropriate Assessment (document reference number A5.2).

Marine mammals

4.2.1.16 There is the potential for transboundary impacts upon marine mammals due to the mobile nature of marine mammal species and the proximity of Hornsea Three to the border of other EEA states. The marine mammal species likely to be present in the Hornsea Three marine mammal study area are outlined in full in section 4.8 of volume 2, chapter 4: Marine Mammals and include harbour porpoise, minke whale, white-beaked dolphin, grey seal and harbour seal.

4.2.1.17 Direct impacts may occur due to underwater noise generated during construction and decommissioning, particularly construction piling during the installation of foundations. Direct impacts may also occur as a result of increased vessel movements during construction, operation and decommissioning leading to increased disturbance and collision risk to marine mammals. Indirect impacts may cause disturbance to prey (fish) species from loss of fish spawning and nursery habitat and suspended sediments and deposition. The operation and maintenance phase is considered less likely to result in significant effects although the effects associated with the operational noise of turbines and EMF are, by nature, longer term effects which will be reversible depending on the decommissioning strategy.

4.2.1.18 An assessment of the impacts to marine mammals occurring during construction, particularly as a result of underwater noise from piling, is presented in volume 2, chapter 4: Marine Mammals (including both a Hornsea Three assessment and a cumulative assessment). The majority of impacts during construction are however considered likely to be short term and temporary.

4.2.1.19 Therefore, it is proposed that transboundary impacts upon marine mammals and their nature conservation interests are screened into the EIA process. As such, a transboundary assessment has been completed and is included in chapter 4: Marine Mammals. Potential impacts upon European Sites with marine mammals as a qualifying feature have been assessed within the Report to Inform Appropriate Assessment (document reference number A5.2).

Offshore ornithology

- 4.2.1.20 There is the potential for transboundary impacts upon ornithological receptors (up to the MHWS mark) due to the wide foraging and migratory ranges of typical bird species in the North Sea. In addition, a number of bird species that have been recorded during previous surveys include those that are listed as qualifying features of European Sites in other EEA states. The bird species likely to be present in the Hornsea Three array area and offshore cable corridor are outlined volume 2, chapter 5: Offshore Ornithology and include true pelagic seabirds (e.g. gannet, fulmars and auks), other species that spend part of their annual life cycle at sea (e.g. divers, gulls and seaducks) as well as non-seabird migrants (e.g. wildfowl, waders and passerines).
- 4.2.1.21 The key direct impacts for ornithological receptors are likely to arise during the operation and maintenance phase as a result of potential collisions with rotating turbine blades which may result in direct mortality of individuals and barrier effects caused by the physical presence of structures which may prevent clear transit of birds between foraging and breeding sites, or on migration. Direct impacts to ornithological receptors may, however, also occur due to temporary habitat loss/disturbance across all phases of Hornsea Three and permanent habitat loss during the operation and maintenance phase. Indirect impacts may cause disturbance to prey (fish) species from important bird feeding areas or changes to prey availability due to changes to physical processes and habitat as a result of the presence of operational infrastructure.
- 4.2.1.22 It is likely that there will be impacts to ornithological receptors occurring during operation and maintenance, particularly as a result of displacement and collision risk. Unlike the majority of impacts during construction, which are considered likely to be short term and temporary, impacts during the operation and maintenance phase are likely to be long term, continuous and of varying spatial extent depending on the species, although it is likely that they will be reversible following the decommissioning of Hornsea Three.
- 4.2.1.23 Therefore, it is proposed that transboundary impacts upon birds and their nature conservation interests are screened into the EIA process. As such, a transboundary assessment has been completed and is included in volume 2, chapter 5: Offshore Ornithology. Potential impacts upon European Sites with birds as a qualifying feature have been assessed within the Report to Inform Appropriate Assessment (document reference number A5.2).

Table 4.2: Offshore transboundary screening matrix for Hornsea Three – physical and biological environment.

Screening Criteria	Marine Processes	Benthic Ecology	Fish and Shellfish Ecology	Marine Mammals	Offshore Ornithology
Characteristics of the development	<p>For a detailed description, see volume 1, chapter 3: Project Description.</p> <p>The proposed development is for an offshore generating station (wind farm) comprising up to 300 wind turbines with an overall generating capacity of up to 2,400 MW.</p> <p>Turbines will have a maximum rotor diameter of 265 m and a maximum blade tip height of 325 m relation to Lowest Astronomical Tide (LAT) (highest point of the structure). The minimum distance between the bottom of the blade and the water surface will be 35.97 m LAT. Foundation design has not yet been determined, with options under consideration including steel monopile, steel jackets supported on piles or suction piles, mono suction buckets, concrete gravity based systems and floating foundations. Scour protection including rock and gravel dumping, protective aprons, mattresses and sand bags is being considered as part of the Project Description (volume 1, chapter 3: Project Description).</p> <p>Offshore platforms will be installed which, depending on the transmission system, may include up to 12 offshore transformer substations, up to four offshore HVDC substations and up to six offshore HVAC booster stations (located in the Hornsea Three offshore cable corridor) Up to three offshore platforms supporting accommodation facilities for operation and maintenance may also be required. Array cables, offshore interconnector cables and export cables will be installed to connect the turbines to the substations and to connect the substations to the onshore transition pits at the Hornsea Three intertidal area. Cable protection may also be installed.</p>				
Geographical area	The Hornsea Three array area is located approximately 160 km east from the coast of Yorkshire, 120 km northeast from the coast of Norfolk and 10 km from the Dutch EEZ.				
Location of development (including existing use)	The Hornsea Three array area is located within the former Hornsea Zone, which covers approximately 4,735 km ² . The Hornsea Three array area lies approximately 160 km east from the coast of Yorkshire, 120 km northeast from the coast of Norfolk and 10 km from the median line between UK and Dutch waters.				
Cumulative impacts	<p>✓ See volume 2, chapter 1: Marine processes.</p>	<p>✓ See volume 2, chapter 2: Benthic Ecology.</p>	<p>✓ See volume 2, chapter 3: Fish and Shellfish Ecology.</p>	<p>✓ See volume 2, chapter 4: Marine Mammals.</p>	<p>✓ See volume 2, chapter 5: Offshore Ornithology.</p>
Carrier					
Environmental importance					
Extent					
Magnitude					
Probability					
Duration					
Frequency					
Reversibility					

4.2.2 Human environment

4.2.2.1 Hornsea Three have completed a transboundary screening matrix for offshore transboundary effects for the human environment, in line with the suggested format set out in the Annex to PINS Advice Note Twelve (PINS, 2015). This screening matrix is set out in Table 4.3.

4.2.2.2 The conclusions of the transboundary screening for each offshore human environment topic are presented, together with additional justification, in the following sections. Where transboundary effects have been screened into the EIA process, the assessment is presented in the relevant Environmental Statement topic chapter.

Commercial fisheries

4.2.2.3 The commercial fisheries likely to be operating in the Hornsea Three commercial fisheries study area are outlined in full in volume 2, chapter 6: Commercial Fisheries and include a number of fleets from EEA states.

4.2.2.4 Due to the highly mobile nature of both commercial fish species and fishing fleets and the proximity of the Hornsea Three array area to Dutch, German and Danish waters, and the presence of Belgian, Dutch, Danish, French and German fishing vessels within the Hornsea Three area (both array area and offshore cable corridor), there is the potential for transboundary effects as follows:

- Effects on commercial fishing fleets as a result of impacts from Hornsea Three on commercial fish stocks in the waters of other EEA states; and
- Effects on commercial fishing fleets from all EEA countries that utilise the Hornsea Three area as a result of constraints on foreign commercial fishing activities operating in the Hornsea Three area (both array area and offshore cable corridor), including demersal trawling, beam trawling, demersal seining and other gears. These effects may include reduction in access to fishing grounds and potential displacement of fishing effort from the Hornsea Three area to alternative fishing grounds in other EEA states, which will have direct implications to that fishing ground.

4.2.2.5 An assessment of the impacts occurring during operation is presented in volume 2, chapter 6: Commercial Fisheries (including both a Hornsea Three assessment and a cumulative assessment). It is likely that any impacts from the final installed design would be reversible after decommissioning, as it is anticipated that all structures above the seabed will be completely removed and fishing activity would be able to resume once decommissioning is completed. The construction phase is considered less likely to result in significant impacts although the effects associated with the interference caused by the presence of infrastructure will progressively increase as the development is progressed.

4.2.2.6 Therefore, it is proposed that transboundary impacts upon commercial fisheries are screened into the EIA process. As such, a transboundary assessment has been completed and is included in volume 2, chapter 6: Commercial Fisheries.

Shipping and navigation

4.2.2.7 Hornsea Three is situated in the southern North Sea where busy shipping routes presently operate. The shipping and navigation baseline for the Hornsea Three array area and the offshore cable corridor are outlined in full in volume 2, chapter 7: Shipping and Navigation. Therefore, there is the potential for transboundary impacts upon shipping routes which transit to/from other EEA countries including the potential effects on shipping routes to/from The Netherlands, Denmark, Sweden, Iceland and Germany. Transboundary effects could also arise from impacts upon international ports, other international shipping routes and/or routes affected by other international offshore renewable energy developments.

4.2.2.8 Routes transiting between Humber and Germany will have to align with proposed traffic routing being developed by the German government for its own offshore renewable energy development. However due to the presence of International Maritime Organisation (IMO) routing measures (in particular the Off Botney Ground Traffic Separation System), traffic will already have to align prior to the approach to German waters.

4.2.2.9 An assessment of the impacts occurring during operation, particularly as a result of the presence of the offshore infrastructure associated with Hornsea Three, is presented in volume 2, chapter 7: Shipping and Navigation (including both a Hornsea Three assessment and a cumulative assessment). Although such impacts would be long term, it is likely that they would be reversible after decommissioning, as it is anticipated that all structures above the seabed will be completely removed. The construction phase is considered less likely to result in significant effects although the effects associated with the interference caused by the presence of infrastructure on shipping and navigation will progressively increase as the development is progressed.

4.2.2.10 Therefore, it is proposed that transboundary impacts upon shipping and navigation are screened into the EIA process. As such, a transboundary assessment has been completed and is included in volume 2, chapter 7: Shipping and Navigation.

Aviation, military and communication

4.2.2.11 The aviation, military and communication baseline for the Hornsea Three array area and the offshore cable corridor are outlined in full in volume 2, chapter 8: Aviation, Military and Communication.

4.2.2.12 Potential impacts upon aviation during the operation and maintenance phase include potential disturbance to commercial helicopters transiting to oil and gas installations in the southern North Sea from UK airports. There are a number of platforms within the vicinity of Hornsea Three that are located in the Dutch EEZ, however, these platforms are serviced from The Netherlands (i.e. from the east) and therefore no transboundary effects are predicted in relation to disruption to transit routes to these platforms and use of available airspace. Hornsea Three is entirely within the UK Flight Information Region and therefore no transboundary effects are predicted in relation to aviation airspace.

- 4.2.2.13 There is the potential for transboundary impacts to arise from the presence of the wind turbines during the operation and maintenance phase, affecting helicopter access to offshore platforms in the Dutch sector of the southern North Sea which are located within 9 nm of the Hornsea Three array area. There is also the potential for transboundary impacts to arise in the event that temporary drilling rigs in the Dutch sector of the southern North Sea are located within 9 nm of the Hornsea Three array area. Although such impacts would be long term, it is likely that they would be reversible after decommissioning, as it is anticipated that all structures above the seabed will be completely removed.
- 4.2.2.14 The potential for transboundary impacts may also arise from the presence of the wind turbines during the operation and maintenance phase disrupting civil and military radar coverage from The Netherlands. An assessment of the impacts occurring during the operation and maintenance phase as a result of the presence of the offshore infrastructure associated with Hornsea Three is presented in volume 2, chapter 8: Aviation, Military and Communication (including both a Hornsea Three assessment and a cumulative assessment). Although such impacts would be long term, it is likely that they would be reversible after decommissioning, as it is anticipated that all structures above the seabed will be completely removed.
- 4.2.2.15 Therefore, it is proposed that transboundary impacts upon aviation, military and communication during the operational and maintenance phase are screened in to the EIA process. As such, a transboundary assessment has been completed and is included in volume 2, chapter 8: Aviation, Military and Communication.

Marine archaeology

- 4.2.2.16 The marine archaeology baseline for the Hornsea Three array area and the offshore cable corridor are outlined in full in volume 2, chapter 9: Marine Archaeology.
- 4.2.2.17 The extent of any predicted impacts upon marine archaeology receptors are likely to be limited in extent to the:
- Hornsea Three offshore footprint (i.e. the Hornsea Three array area and the proposed offshore cable corridor) for impacts associated with direct physical seabed disturbance; and
 - The spatial extent over which changes to suspended sediments / deposition may occur due to construction / decommissioning phase activities.
- 4.2.2.18 Whilst there is a potential pathway through the second point above, through which Hornsea Three could interact with the marine archaeology of another EEA, any changes to suspended sediment concentrations and deposition due to construction (and decommissioning) related activities are likely to be of temporary duration and low magnitude.
- 4.2.2.19 Therefore no potential transboundary impacts upon marine archaeology are anticipated and it is proposed that transboundary impacts on marine archaeology are scoped out of the EIA process.

Seascape and visual resources

- 4.2.2.20 The seascape and visual resource baseline for the Hornsea Three array area and the offshore cable corridor are outlined in full in volume 2, chapter 10: Seascape and Visual Resources.
- 4.2.2.21 Visual receptors are limited to passenger ferries and shipping vessels transiting between the UK and other EEA states. This effect is not considered to be significant due to the industrial nature of the existing seascape (significant numbers of oil and gas infrastructure and other offshore wind farms).
- 4.2.2.22 The extent of any predicted impacts upon the HSC is likely to be largely focused on the Hornsea Three offshore footprint (i.e. the Hornsea Three array area and the proposed offshore cable corridor).
- 4.2.2.23 Therefore, no potential transboundary impacts upon seascape and visual resources are anticipated and it is proposed that transboundary impacts on seascape and visual resources are scoped out of the EIA process.

Infrastructure and other users

- 4.2.2.24 The baseline for infrastructure and other users for the Hornsea Three array area and the offshore cable corridor are outlined in full in volume 2, chapter 11: Infrastructure and Other Users.
- 4.2.2.25 Potential impacts upon infrastructure and other users of other EEA states are limited to activities surrounding oil and gas operations. Any impacts from piling would be short term and would be reversible after construction activities are complete. Therefore, no transboundary effects are predicted in relation to piling noise and interference with oil and gas operations in the Dutch EEZ.
- 4.2.2.26 There is the potential for transboundary impacts to arise during the operation and maintenance phase, from the presence of the Hornsea Three wind turbines causing interference with the performance of REWS (Radar Early Warning Systems) located on gas platforms in the Dutch sector of the southern North Sea. An assessment of the impacts occurring during the operation and maintenance phase as a result of the presence of the offshore infrastructure associated with Hornsea Three is presented in volume 2, chapter 11: Infrastructure and Other Users (including both a Hornsea Three assessment and a cumulative assessment). Although such impacts would be long term, they would be reversible after decommissioning, as it is anticipated that all structures above the seabed will be completely removed.
- 4.2.2.27 Therefore, it is proposed that transboundary impacts upon infrastructure and other users for the construction, and operation and maintenance phase are screened in to the EIA process. As such, a transboundary assessment has been completed and is included in volume 2, chapter 11: Infrastructure and Other Users.

Table 4.3: Offshore transboundary screening matrix for Hornsea Three – human environment.

Screening Criteria	Commercial Fisheries	Shipping and Navigation	Aviation, Military and Communication	Marine Archaeology	Seascape and Visual Resources	Infrastructure and Other Users
Characteristics of the development	See Table 4.2.					
Geographical area	See Table 4.2.					
Location of development (including existing use)	See Table 4.2.					
Cumulative impacts	✓ See volume 2, chapter 6: Commercial Fisheries.	✓ See volume 2, chapter 7: Shipping and Navigation.	✓ See volume 2, chapter 8: Aviation, Military and Communication.	No potential transboundary impacts are anticipated and so transboundary impacts are scoped out.	No potential transboundary impacts are anticipated and so transboundary impacts are scoped out.	✓ See volume 2, chapter 11: Infrastructure and Other Users.
Carrier						
Environmental importance						
Extent						
Magnitude						
Probability						
Duration						
Frequency						
Reversibility						

4.3 Onshore transboundary impacts

- 4.3.1.1 Hornsea Three have completed a transboundary screening matrix for onshore transboundary effects, in line with the suggested format set out in the Annex to PINS Advice Note Twelve (PINS, 2015). This screening matrix is set out in Table 4.4.
- 4.3.1.2 The conclusions of the transboundary screening for each onshore topic are presented, together with additional justification, in the following sections. Where transboundary effects have been screened into the EIA process, the assessment is presented in the relevant Environmental Statement topic chapter.
- 4.3.1.3 Impacts on onshore receptors arising from the construction, operation and maintenance and decommissioning of Hornsea Three will primarily be confined to a localised area within, or in close proximity to, the footprint of the onshore elements of Hornsea Three (and a localised area of the UK road infrastructure). In these instances, there is no pathway by which direct or indirect effects arising from Hornsea Three could significantly affect onshore receptors of another member state. This applies to the following onshore Environmental Statement topic chapters:
- Geology and ground conditions;
 - Hydrology and flood risk;
 - Onshore ecology and nature conservation (including those that are listed as qualifying features of European Sites in other EEA states);
 - Traffic and transport.
 - Historic environment;
 - Landscape and visual resource;
 - Land use, agriculture and recreation;
 - Noise and vibration; and
 - Air quality and health.
- 4.3.1.4 It is therefore proposed that transboundary impacts on the above onshore topics are scoped out of the EIA process.
- 4.3.1.5 The conclusions of the transboundary screening for the remaining Environmental Statement topic, socio-economics, is presented in the following section.

Socio-economics

- 4.3.1.6 The socio economics baseline for the Hornsea Three array area, offshore cable corridor and onshore cable corridor are outlined in full in volume 3, chapter 10: Socio-economics.
- 4.3.1.7 There is the potential for transboundary impacts arising from the activities of foreign shipping and navigation and foreign commercial fishing. In addition, potential transboundary impacts upon the economies of other EEA states may arise through the purchase of project components, equipment and the sourcing of labour from companies based outside the UK.
- 4.3.1.8 An assessment of the impacts occurring during both construction and operation and maintenance is presented in volume 3, chapter 10: Socio-economics. Although impacts associated with construction would be temporary and short term, there is the potential for long term impacts associated with operation and maintenance for the lifetime of Hornsea Three.
- 4.3.1.9 It is therefore proposed that transboundary impacts on socio economics are screened in to the EIA process. As such, a transboundary assessment has been completed and is included in volume 3, chapter 10: Socio-economics.

Table 4.4: Onshore transboundary screening matrix for Hornsea Three.

Screening Criteria	Geology and Ground Conditions	Hydrology and Flood Risk	Onshore Ecology and Nature Conservation	Traffic and Transport	Historic Environment	Landscape and Visual Resources	Land Use, Agriculture and Recreation	Noise and Vibration	Air Quality and Health	Socio Economics	
Characteristics of the development	For a detailed description, see volume 1, chapter 3: Project Description. Onshore export cables, which will be up to 55 km in length at its fullest extent, will connect the onshore transition pits to the substation and then to the Norwich Main Substation, an existing 400 kV substation located to the south of Norwich, which is owned by National Grid. Depending on the transmission system, an onshore HVAC booster station may also be required.										
Geographical area	N/A ^a									The Hornsea Three array area is located approximately 160 km east from the coast of Yorkshire, 120 km northeast from the coast of Norfolk and 10 km from the Dutch EEZ.	
Location of development (including existing use)	The offshore export cable will make landfall on the North Norfolk coast with the onshore cable route extending to Norwich Main Substation located south of Norfolk.										
Cumulative impacts	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	No significant transboundary impacts are predicted.	✓ See volume 3, chapter 10: Socio-economics.
Carrier											
Environmental importance											
Extent											
Magnitude											
Probability											
Duration											
Frequency											
Reversibility											
^a 'Geographical Area' here refers to the geographical area(s) within the jurisdiction of other EEA member states that will suffer potential impacts from the development. This transboundary impacts review note concludes that there will be no significant transboundary impacts from Hornsea Three on onshore receptors.											

5. Conclusions

- 5.1.1.1 This transboundary impacts screening document has been prepared in accordance with PINS Advice Note Twelve and associated Annex (PINS, 2015). The primary purpose of this note is to provide a screening assessment of potential transboundary impacts which have the potential to affect other EEA states.
- 5.1.1.2 Transboundary impacts have generally been screened out except in relation to the following offshore and onshore topics where, based on current information available, Hornsea Three has the potential to have significant effects on the environment in other EEA States:
- Marine Processes (offshore);
 - Benthic Ecology (offshore)
 - Fish and Shellfish Ecology (offshore);
 - Marine Mammals (offshore);
 - Offshore Ornithology (offshore);
 - Commercial Fisheries (offshore);
 - Shipping and Navigation (offshore);
 - Aviation, Military and Communication (offshore);
 - Infrastructure and Other Users (offshore); and
 - Socio Economics (onshore).
- 5.1.1.3 These topics have been screened in to the transboundary assessment and likely significant effects will be reported in the topic specific chapters of the Environmental Statement (volume 2, chapters 1 to 8 and 11, and volume 3, chapter 10).

6. References

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