

Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three Offshore Wind Farm

Other Documents:
Planning Statement

PINS Document Reference: A8.3
APFP Regulation 5(2)(q)

Date: May 2018

Hornsea 3
Offshore Wind Farm

Orsted

Other Documents:

Planning Statement

Report Number: A8.3

Version: Final

Date: May 2018

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

www.hornseaproject3.co.uk

Ørsted 5 Howick Place,

London, SW1P 1WG

© Ørsted Power (UK) Ltd, 2018. All rights reserved

Front cover picture: Kite surfer near a UK offshore wind farms © Orsted Hornsea Project Three (UK) Ltd., 2018.

Liability

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

Prepared by: RPS

Checked by: Andrew Guyton

Accepted by: Sophie Banham

Approved by: Stuart Livesey

Table of Contents

1. Introduction.....	1
1.1 Introduction.....	1
2. Project Description (Summary) and Project Location	2
2.1 Project description summary	2
2.2 Project location	3
3. Relevant Legislation and Decision-Making Framework	4
3.1 Introduction.....	4
3.2 International obligations on climate change and National climate change and energy legislation	4
3.3 Relevant legislation and decision-making framework	4
3.4 Relevant national policy.....	5
4. Site Selection and Consideration of Alternatives	12
4.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009	12
4.3 National Policy Statements EN1 and EN-5.....	13
5. Planning assessment.....	14
5.1 Offshore.....	14
5.2 Onshore.....	33
6. Balance of Considerations and Overall Conclusions	60
7. References	61

Figures

Figure 3.1: Cable Corridor Search Area in relation to the Local Authority boundaries.....	11
---	----

Glossary

Term	Definition
Development Plan Document (DPD)	Strategic planning documents prepared by Planning Authorities that make up part of the Development Plan. Development Plan Documents set out detailed planning policies used by Planning Authorities to aid decision making on planning applications.
Landfall Area	The area between (MHWS) and (MLWS) in which all of the export cables are landed and is the transitional area between the offshore export cabling and the onshore export cabling.

Acronyms

Acronyms	Description
AEZ	Archaeological Exclusion Zones
ALC	Agricultural Land Classification
AONB	Area of Outstanding Natural Beauty
APFP Regulations	the Infrastructure Planning (Application: prescribed Forms and Procedures) Regulations 2009
BEIS	Department for Business, Energy and Industrial Strategy
BMV	Best and Most Versatile
CNS	Communication, Navigation and Surveillance
CoCP	Code of Construction Practice
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment and Rural Affairs
DMRB	Design Manual for Roads and Bridges
DPD	Development Plan Document
ECR	Export cable route
EIA	Environmental Impact Assessment
EMF	Electro-Magnetic Fields
EMP	Ecological Management Plan
EWG	Expert Working Group
ES	Environmental Statement
FID	Final Investment Decision
FRA	Flood Risk Assessment

Acronyms	Description
GNLP	Greater Norwich Local Plan
GVA	Gross Value Added
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HRA	Habitats Regulations Assessment
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
JCS	Joint Core Strategy for Broadland, Norwich and South Norfolk
LEP	Local Enterprise Partnership
LLFA	Local Lead Flood Authority
LMP	Landscape Management Plan
MMO	Marine Management Organisation
MPS	Marine Policy Statement
NATS	National Air Traffic Services
NETS	National Energy Transmission System
NOTAM	Notice to Airmen
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OEEWG	Onshore Ecology Expert Working Group
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
REWS	Radar Early Warning System
RIAA	Report to Inform Appropriate Assessment
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SoCC	Statement of Community Consultation
SPD	Supplementary Planning Document
SSSI	Site of Special Scientific Interest
SVIA	Seascape and Visual Impact Assessment

Acronyms	Description
TCE	The Crown Estate

Units

Unit	Description
GW	Gigawatt (power)
kV	Kilovolt (electrical potential)
kW	Kilowatt (power)
MW	Megawatt (power)

1. Introduction

1.1 Introduction

1.1.1.1 This Planning Statement has been prepared on behalf of Hornsea Project Three Limited. The Planning Statement is submitted as part of the Development Consent Order (DCO) application.

1.1.1.2 This Planning Statement is one of a series of documents which accompany the application to the Secretary of State for a DCO ('the application') submitted in accordance with Section 37 of the Planning Act 2008 and Regulations 5 and 6 of the Infrastructure Planning (Application: prescribed Forms and Procedures) Regulations 2009 (the 'APFP Regulations'). The APFP Regulations do not require a Planning Statement to support applications for Development Consent; however, in order to assist the Secretary of State to determine the application, it is considered helpful to bring all the principal matters together into one statement in order to consider them in the context of relevant policy.

1.1.1.3 This Planning Statement is structured as follows:

1.1.2 Section 2: Project description and location

1.1.2.1 This section summarises the project description (as set out in detail at volume 1, chapter 3: Project Description, of the Environmental Statement), describing all main onshore and offshore project components necessary to deliver Hornsea Three and connect the project to the National Electricity Transmission System (NETS). This section of the Planning Statement does not replace volume 1, chapter 3: Project Description, of the Environmental Statement, which remains the main reference point for confirmation of the Project Description.

1.1.2.2 This section also confirms the location and spatial extent of the onshore and offshore project components.

1.1.3 Section 3: Relevant legislation and decision-making framework

1.1.3.1 This section confirms the legislation and policy context for Hornsea Three, which is considered to be relevant to the determination of the application.

1.1.3.2 This section of the Planning Statement also sets out the need case for Hornsea Three, in the context of national European and international policy and legislation.

1.1.4 Section 4: Project site selection and consideration of alternatives

1.1.4.1 Section 4 summarises the site selection and alternatives process that has been followed by Ørsted, leading to the final proposals for which Development Consent is now sought. This section considers the approach to that process and how it aligns with relevant guidance and policy requirements.

1.1.5 Section 5: Planning assessment

1.1.5.1 This section considers the relationship with Hornsea Three against the topic specific guidance set out in National Policy Statement EN-1, EN-3 and EN-5, along with the development plan (as identified and confirmed in Section 3), and other matters of policy, as may be relevant.

1.1.6 Section 6: Balance of considerations and overall conclusions

1.1.6.1 Section 5 concludes the Planning Statement and whether, on balance, it is considered there is sufficient planning merit through policy support, project benefits, and overall lack of harm, for the project to succeed.

2. Project Description (Summary) and Project Location

2.1 Project description summary

2.1.1.1 The full Project Description is provided in volume 1, chapter 3: Project Description of the Environmental Statement, providing a detailed explanation of all onshore and offshore project components, and matters relevant to the construction, operation and maintenance, and decommissioning of Hornsea Three.

2.1.1.2 The Planning Statement provides a high-level summary of the project components, and the following paragraphs in this section should not be relied upon as a definitive Project Description.

2.1.1.3 Hornsea Three will have a maximum of 300 turbines. The ultimate capacity of the project will be determined based on available technology as constrained by the project envelope and maximum design scenarios presented in volume 1, chapter 3: Project Description of the Environmental Statement.

2.1.1.4 Further to consultation, and subsequent discussions with relevant stakeholders, the maximum proposed number of turbines has been reduced from the 342 proposed in the Preliminary Environmental Information Report (PEIR). This will reduce impacts on several receptors including, but not limited to, those associated with the following Environmental Statement chapters;

- Offshore Ornithology;
- Commercial Fisheries;
- Marine Mammals; and
- Shipping and Navigation.

2.1.1.5 Hornsea Three may use High Voltage Alternating Current (HVAC) or High Voltage Direct Current (HVDC) transmission, or could use a combination of both technologies in separate electrical systems. Hornsea Three is applying for both HVAC and HVDC transmission. This is to allow for suitable flexibility to ensure a low cost of energy to the UK consumer and to facilitate successful completion of Hornsea Three in a competitive market. If a combination of the two technologies is used, the total infrastructure installed will not exceed the maximum values assessed within this application.

2.1.1.6 The key components of Hornsea Three for which consent is sought, includes:

- Offshore turbines;
- Foundations (for turbines, offshore substation platforms, and offshore accommodation platforms);
- Scour protection;
- Offshore accommodation platform(s);
- Array cables linking the individual turbines to offshore substations;
- Connection works to existing Norwich Main Substation;
- Temporary construction compounds, including soil storage areas;
- Permanent and temporary access roads; and

• HVAC or/and HVDC transmission system including either:

○ HVAC:

- Offshore transformer substation(s);
- Offshore interconnector cables(s);
- Offshore export cable(s);
- Offshore HVAC booster station(s) (unless specified otherwise this refers to both Surface and Subsea designs);
- Onshore export cable(s);
- Onshore HVAC booster station (either instead of, or as well as offshore HVAC booster station(s));
- Onshore HVAC substation; and
- Grid connection export cable(s).

○ HVDC:

- Offshore transformer substation(s);
- Offshore interconnector cables(s);
- Offshore HVDC converter substation(s);
- Offshore export cables(s);
- Onshore export cables(s);
- Onshore HVDC converter substation; and
- Grid connection export cable(s).

2.1.1.7 Further information is presented in volume 1, chapter 3: Project Description of the Environmental Statement.

2.1.1.8 It is likely that the Hornsea Three components will be fabricated at a number of manufacturing sites across Europe or elsewhere, to be determined as part of a competitive tendering process upon award of consent and the completion by Ørsted of a Final Investment Decision (FID). A construction base (port facility) may be used to stockpile some components, such as foundations and turbines, before delivery to the Hornsea Three array area for installation. Other components, such as pre-fabricated offshore substation units, may be delivered directly to the Hornsea Three array area when required. An onshore operations and maintenance base may be provided to support the operating wind farm after construction. This onshore operations and maintenance base is not included in this application and any consent will be secured at a later date when the location and requirements for this are known.

2.1.1.9 Hornsea Three may be constructed in a single phase or two phases. Although the total durations for each phase would not exceed those stated in this document, there may be periods where work stops as one phase is completed and is initiated again for the following phase after a gap.

2.1.1.10 The maximum number of phases has been reduced from the three phases proposed in the PEIR. This has reduced impacts on a number of receptors including, but not limited to:

- Onshore Ecology;
- Land Use; and
- Public Rights of Way.

2.2 Project location

- 2.2.1.1 The Hornsea Three array area (i.e. the area in which the turbines are located) is approximately 696 km², and is located approximately 121 km northeast off the Norfolk coast and 160 km east of the Yorkshire coast. 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.
- 2.2.1.2 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. The Hornsea Three offshore cable corridor is approximately 163 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.
- 2.2.1.3 From the Norfolk coast, underground onshore cables will connect the offshore wind farm to an onshore HVDC converter/HVAC substation, (via a HVAC booster station if required), 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 is approximately 55 km in length. The onshore elements of the project cross three local planning authority areas; North Norfolk, Broadland and South Norfolk Districts. All three are located within the county of Norfolk.
- 2.2.1.4 The electricity generated from Hornsea Three will be transmitted via buried HVDC or HVAC cables, or a combination of the two. The differences between the HVDC and HVAC transmission options are explained further in volume 1, chapter 3: Project Description of the Environmental Statement.
- 2.2.1.5 Under the HVAC 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 HVDC transmission option. The potential location for the onshore HVAC booster station is presented in the Environmental Statement, along with an offshore HVAC booster station search area.
- 2.2.1.6 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 are provided in volume 1, chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement. Further details of the Hornsea Three project design are provided in volume 1, chapter 3: Project Description of the Environmental Statement.

3. Relevant Legislation and Decision-Making Framework

3.1 Introduction

3.1.1.1 This section outlines the legislative and policy framework for determining applications for Development Consent, the matters to which the Secretary of State will have regard and the weight which should be ascribed to those matters in the decision-making process.

3.2 International obligations on climate change and National climate change and energy legislation

3.2.1.1 Section 8 of the Statement of Reasons submitted in support of the application (Volume 4, document 4.2 Statement of Reasons) sets out the need for the project. Section 8 of the Statement of Reasons references international and national climate change legislation, and whilst this wider need is not reproduced in full in this Planning Statement, key legislation referenced in the Statement of Reasons pertinent to the matters to which the Secretary of State will have regard and the weight which should be ascribed includes:-

- International obligations on climate change, including European Parliament and Council agreements on climate and energy package, known as the '20-20-20' targets package in order to comply with the Kyoto Protocol to the United Nations Framework Convention on Climate Change and further European Community and international greenhouse gas (GHG) reduction commitments beyond 2012. This encompasses Directive 2009/28/EC on the promotion of the use of energy from renewable sources (Renewable Energy Directive) and sets mandatory national targets to be met by 2020.
- National climate change and energy legislation, including Climate Change Act 2008 which commits the UK to a net reduction in GHG emissions (against the 1990 baseline) of 80% by 2050 through a system of carbon budgets and the Energy Act 2013 which makes provisions to incentivise investment in low carbon electricity generation, ensure security of supply, and help the UK meet its emission reduction and renewables targets. The Energy Act also contains provisions from the Department of Energy and Climate Change (DECC) (now BEIS) for Electricity Market Reform (EMR), which sets out the framework for replacing Renewables Obligation Certificates (ROCs), granted under the Renewables Obligation (RO), with Contracts for Difference (CfDs) to provide stable financial incentives to encourage investment in low carbon electricity generation.

3.3 Relevant legislation and decision-making framework

3.3.1.1 Section 15 of the Planning Act 2008 (as amended) (The Act) sets out the categories of development that qualify as a Nationally Significant Infrastructure Project (NSIP). Section 15(3) confirms offshore electricity generating stations with a capacity greater than 100 MW qualify as an NSIP. Hornsea Three, with a generating capacity greater than this, therefore qualifies.

3.3.1.2 The statutory framework for determining applications for Development Consent such as Hornsea Three is provided by the Act. Section 104 of the Act confirms the matters the Examining Authority must have regard to in decision making where a national policy statement has effect, such as for Hornsea Three. Section 104 (2) of the Act (as amended) states that:

"In deciding the application, the Secretary of State must have regard to—

any national policy statement which has effect in relation to development of the description to which the application relates (a "relevant national policy statement"),

(aa) the appropriate marine policy documents (if any), determined in accordance with section 59 of the Marine and Coastal Access Act 2009,

any local impact report (within the meaning given by section 60(3)) submitted to the Secretary of State before the deadline specified in a notice under section 60(2),

any matters prescribed in relation to development of the description to which the application relates, and other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision."

3.3.1.3 Section 104 (3) provides that the Secretary of State must decide applications for Development Consent in accordance with any National Policy Statement (NPS) except to the extent that the Secretary of State is satisfied one or more of the following exceptions apply:

- That deciding the application in accordance with any relevant national policy statement would lead to the United Kingdom being in breach of any of its international obligations;
- That deciding the application in accordance with any relevant national policy statement would lead to the Secretary of State being in breach of any duty imposed on the Secretary of State by or under enactment;
- That deciding the application in accordance with any relevant national policy statement would be unlawful by virtue of any enactment;
- That the Secretary of State is satisfied that the adverse impact of the proposed development would outweigh its benefits; or
- That the Secretary of State is satisfied that any condition prescribed for deciding an application otherwise than in accordance with a national policy statement is met.

3.3.1.4 In deciding the application for Development Consent for Hornsea Three, the relevant NPSs to which the Secretary of State must have regard in accordance with Sections 104(2) and 104(3) of the 2008 Act, are:

- Overarching National Policy Statement for Energy EN-1 (NPS EN-1) which sets out the Government's policy for the delivery of and the position in relation to the need for new Energy NSIPs, and the assessment principles and consideration generic impacts in relation to such projects;

- National Policy Statement for Renewable Energy Infrastructure EN-3 (NPS EN-3) which covers technology specific matters including offshore wind; and
- National Policy Statement for Electricity Networks Infrastructure EN-5 (NPS EN-5) which covers technology specific matters but mostly relates to the provision of overhead lines and as such, is of limited relevance as no new overhead lines are proposed as part of the Hornsea Three application.

3.3.1.5 NPS EN-1 confirms that the above NPSs:

- Provide the primary basis for determining Development Consent applications (paragraph 1.1.1);
- Supports the requirements of the Renewable Energy Directive, stating that new projects are urgently needed in order to ensure that this target is met (Paragraph 3.4.1);
- Advises that offshore wind is expected to provide the largest single contribution towards the 2020 renewable energy generation targets (Paragraph 3.4.3);
- NPS EN-1 confirms that the UK needs the different types of energy infrastructure that are set out in the NPS, and these include offshore wind generation (Paragraph 3.1.10). The NPS further states that the Secretary of State should assess all applications for development consent for energy infrastructure covered by NPS EN-1 on the basis that the Government has shown there is a need for those types of projects (Paragraph 3.1.3);
- Indicate that given the level and urgency of need for nationally significant energy infrastructure projects there is a presumption in favour of granting Development Consent for applications for such development unless more specific and relevant policy within the NPS indicate that consent should be refused (paragraph 4.1.2);
- Indicate that in the event of a conflict between development plan documents and a NPS, the NPS prevails (paragraph 4.1.5), and similarly; and
- Indicate that in the event of a conflict between a marine policy document (Marine Policy Statement or relevant Marine Plan) and a NPS, the NPS prevails given the national significance of the infrastructure (paragraph 4.1.6).

3.3.1.6 Throughout the remainder of this statement, extracts from the NPS have been presented. Where the NPS series refer to the 'IPC', this has been replaced in this statement by 'Secretary of State' (for clarity, as when the NPS were adopted, a body known as the IPC was the decision maker for NSIP projects, which has now been replaced in this role by the Secretary of State). Where references to specific sections and paragraphs of the NPS series have been provided, or are cross referred to, the relevant section or paragraph numbers are presented afterwards in closed brackets.

3.3.2 National Planning Policy Framework (NPPF)

3.3.2.1 The National Planning Policy Framework (NPPF) was adopted in March 2012 and acts as guidance for local planning authorities and decision-takers for both drawing up the plan and making decisions regarding planning application. The NPPF confirms that it does not contain specific policies for NSIPs for which particular considerations apply (paragraph 3). The NPPF (paragraph 3) and development plan documents (paragraph 4.1.5 of NPS EN-1) may however be matters that are important and relevant to determining Development Consent applications.

3.3.2.2 A draft revised NPPF was published for consultation on 9th March 2018. The consultation period closes on 10th May 2018. Importantly the draft revised NPPF maintains an overarching support (paragraph 150) for plan making to help increase the use and supply of renewable and low carbon energy, and requires local planning authorities to plan positively to deliver that objective, ensuring that adverse impacts are addressed satisfactorily.

3.3.2.3 The main thrust of changes set out in the draft revised NPPF seek to support housing delivery, notably with the introduction of the Housing Delivery Test. The draft revised NPPF does not materially alter the support provided by the extant NPPF for the delivery of renewable energy, and none of the key tests that would be applied to the assessment of the project have been fundamentally altered. Consistent with the extant NPPF, the revised draft NPPF states that it does not contain policies for NSIPs, and that NSIPs will continue to be determined in accordance with the NPSs.

3.3.2.4 Until the revised draft NPPF is published in its final form, it will carry little weight in decision making. Should the draft revised NPPF be finalised during the course of the examination on Hornsea Three however, it will need to be considered more fully in the decision-making process, if there are material changes to policy relevant to Hornsea Three.

3.4 Relevant national policy

3.4.1.1 This section summarises the key aspects of policy contained in the relevant NPSs and how they apply to the determination of the application for Hornsea Three.

3.4.2 National Policy Statements: The Need for New Nationally Significant Energy Infrastructure Projects and Offshore Wind Projects

3.4.2.1 Part 3 of NPS EN-1 establishes an indisputable and urgent policy need for all types of energy infrastructure in order to achieve energy security and dramatically reduce carbon emissions (paragraph 3.1.1). It also explains that, without significant amounts of new large-scale energy infrastructure, the Government's energy and climate change objectives cannot be fulfilled and this will not be possible without some significant residual adverse impacts (paragraph 3.2.3).

3.4.2.2 In particular, NPS EN-1 sets out that electricity meets a significant proportion of overall energy demand and reliance upon it is likely to increase in the period leading up to 2050. When combined with the UK Government's legal obligation to reduce the UK's greenhouse gas emissions by at least 80% (from 1990 levels), an urgent need for new NSIPs to deliver electricity has been established (paragraph 3.3.1).

3.4.2.3 Section 4 of NPS EN-1 sets out a number of assessment principles that should be taken into account when considering proposals for new energy infrastructure. Where appropriate, these considerations have been addressed in each topic chapter of the Environmental Statement. Some matters (for example, principles of 'good design', set out at section 4.5) are carried forward as Hornsea Three continues to develop the detailed project design, in particular the siting and appearance of the HVAC booster station and HVDC converter/HVAC substation which will be dealt with post grant of Development Consent by way of discharge of requirements.

Energy Security & Carbon Reduction

3.4.2.4 Firstly, there is a need to ensure energy security while seeking to meet carbon reduction objectives. In respect of energy security, it identifies that there needs to be sufficient electricity generating capacity to meet maximum peak demand whilst allowing for a safety margin to accommodate unexpectedly high demand, unexpected plant closure or extreme weather events (paragraph 3.3.2). This objective also helps to protect businesses and consumers from rising and volatile prices and supply interruptions (paragraph 3.3.3).

3.4.2.5 There are also benefits of having a diverse mix of all types of power generation to reduce dependency and so ensure a security of supply (paragraph 3.3.4), as such, Government policy is to bring forward new low carbon developments within the next 10 to 15 years to meet climate change obligations whilst achieving energy security (paragraph 3.3.5).

Replacing Existing Generating Capacity

3.4.2.6 Secondly, there is a need to replace closing electricity generating capacity. When published in 2011, the NPS EN-1 identified that at least 22 GW of existing electricity capacity will need to be replaced (about a quarter of the UK's electricity generating capacity (paragraph 3.3.7).

Meeting Increased Need for Renewables & Future Increases in Electricity Demand

3.4.2.7 The UK Government is also committed to dramatically increasing the amount of renewable electricity generation with much of this likely to be onshore and offshore wind in the short to medium term (paragraph 3.3.10).

3.4.2.8 It is also expected that the demand for electricity is likely to increase in relation to industrial sectors of the economy, heating and surface transport as there is a move away from fossil fuels to electricity in order to achieve the 2050 legal obligations to reduce carbon emissions (paragraph 3.3.13). This could lead to the potential for total electricity consumption to double by 2050 and therefore the total nameplate capacity of electricity generation may need to at least double, perhaps even triple in some scenarios, to be robust, accounting for all weather condition (paragraph 3.3.14).

The Urgency of the Need for New Electricity Capacity

3.4.2.9 NPS EN-1 therefore concludes that there is an urgent need for new (and particularly low carbon) energy NSIPs to be brought forward as soon as possible and certainly in the 10-15 years (from 2011) given the crucial role of electricity in decarbonising the UK's energy sector (paragraph 3.3.15).

3.4.2.10 Furthermore, it is clear that a failure to meet the 2050 carbon reduction target would result in the UK becoming locked into a system of high carbon generation, something which cannot be afforded to happen (paragraph 3.3.16). Targets are set for the period leading up to 2025 with at least 113 GW of total electricity capacity being required. In order to minimise the risks to energy security by increasing resilience, the Government considers it to be prudent to plan for a minimum need of 59 GW of new build electricity capacity by 2025, including approximately 33 GW of new renewable capacity to meet renewable energy commitments (paragraphs 3.3.22 and 3.3.23).

The Role of Renewable Electricity Generation

3.4.2.11 In terms of renewable electricity generation, although the Government does not consider it appropriate for planning policy to set targets for, or limits on, different technologies (paragraph 3.1.2), the UK Renewable Energy Strategy commits to sourcing 15% of the UK's total energy from renewable sources by 2020 (paragraph 3.4.1). The large-scale deployment of renewables will help the UK to reduce its emissions of carbon dioxide by over 750 million tonnes by 2020 (paragraph 3.4.2) with offshore wind expected to provide the largest single contribution towards the 2020 renewable energy targets (paragraph 3.4.3). Furthermore, in order to significantly decarbonise the power sector by 2030, NPS EN-1 indicates that it is necessary to bring forward renewable energy projects as soon as possible (paragraph 3.4.5).

3.4.2.12 NPS EN-3 recognises that offshore wind farms will deliver a significant proportion of the UK's renewable energy generating capacity up to 2020 and towards 2050 (paragraph 2.6.1). It also refers to the Offshore Energy Strategic Environmental Assessment (SEA) which concludes that there are no overriding environmental considerations preventing the plans for 25 GW of new offshore wind capacity, if mitigation measures are implemented to prevent, reduce and offset significant adverse effects (NPS EN-3, paragraph 2.6.15).

Apportioning Weight to the Need Established in the Planning Balance & Decision Making

3.4.2.13 All applications seeking Development Consent for energy NSIPs should be assessed by the Secretary of State on the basis there is a demonstrated need for those types of infrastructure and that the scale and urgency of that need is as described in NPS EN-1 (paragraph 3.1.3) and summarised above.

3.4.2.14 Furthermore, substantial weight should be given to the contribution which projects would make towards satisfying that need (paragraph 3.1.4). In this policy context, Hornsea Three would make a substantial contribution towards the delivery of renewable energy and should therefore be ascribed substantial weight in the balance of considerations and the presumption in favour of such developments (paragraph 4.1.2) commensurate to its potential to be the largest offshore wind farm in the world. In addition, the other socio-economic benefits (paragraph 4.1.3) associated with Hornsea Three, including the increases in Gross Value Added (GVA) and job creation in both the Humber and New Anglia LEP Local Impact Areas should also be considered in the balance of considerations overall (paragraph 4.1.4). Socio-economic impacts are considered further in volume 3, chapter 10: Socio-Economics where a full assessment of socio-economic impacts is presented as part of the Environmental Statement that accompanies the final application.

3.4.2.15 The principle need for Hornsea Three is therefore established.

3.4.3 National Policy Statements: Generic Impacts (NPS EN-1) and Technology Specific Impact Policy (NPS EN-3 and NPS EN-5)

Overarching Matters

3.4.3.1 NPS EN-1 sets out the policy framework for assessing the generic impacts of all types of energy infrastructure, for example biodiversity and transport considerations. NPS EN-3 identifies certain technology-specific policy considerations that the Secretary of State must give due regard during the examination and determination, including offshore wind projects. NPS EN-5 identifies certain policy considerations specific to 'Electricity Network Infrastructure' relevant to electricity cables transmission and substations, as required by NPS EN-3 (paragraph 2.6.41).

3.4.3.2 NPS EN-3 requires that an EIA should assess the effects of the cable where a precise cable route from the wind farm to the definite location of the onshore substation and connection to the network is known (paragraph 2.6.37). Where the precise locations are unknown a corridor should be identified in which the cable and offshore substation are likely to be located. In this case the EIA should assess the effects of the development within the corridor (paragraph 2.6.38). If the exact point of the onshore connection is unknown when the application is submitted, a corridor from the wind farm to shore in which infrastructure is likely to be located should be assessed (paragraph 2.6.39).

3.4.3.3 It is acknowledged by NPS EN-3 that due to the complex nature of offshore wind farm development many elements of the scheme may be unknown at the time of submission (paragraph 2.6.42).

3.4.3.4 It is further accepted by NPS EN-3, and in accordance with Section 4.2 of NPS EN-1, that wind farm operators are unlikely to know the precise details of turbines to be used on site prior to consent being granted. Where details are not known, it should be explained which elements of the scheme are not finalised and this may lead to a degree of flexibility in the consent. Under these circumstances, it needs to be ensured that the proposal has been properly assessed to identify any potential impacts (the 'Rochdale Envelope'). This will allow the maximum adverse case scenario to be assessed and this uncertainty should be allowed in the consideration of the application and consent (paragraph 2.6.41). The approach taken by Hornsea Three in this regard is set out in section 5.3.3 ('Maximum Design Scenario') in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement.

3.4.3.5 The Environmental Statement, and Outline Report to Inform Appropriate Assessment (RIAA) (document A5.2) assess the impacts in terms of those covered in the NPSs. Sections 5.1 and 5.2 of this Planning Statement outline the relevant policies and assess the extent of Hornsea Three's conformity with these policy requirements based on the findings of the Environmental Statement and RIAA. This assessment will be revisited and, where required, updated based on the findings reported in the Environmental Statement prior to the submission of the application.

3.4.4 Marine policy documents

3.4.4.1 Section 59 of the Marine and Coastal Access Act 2009 (MCAA) sets out that both the UK-wide Marine Policy Statement (MPS) (September 2011) and the East Inshore and East Offshore Marine Plans (April 2014) are the appropriate marine policy documents for the purposes of Section 104 of the 2008 Act. The MPS provides the policy framework for the preparation of marine plans, and the basis for decisions affecting the marine areas. The MCAA requires that all public authorities taking decisions regarding the marine area should do so accordance with the MPS, unless relevant considerations indicate otherwise. Once adopted, marine plans carry the same weight.

3.4.4.2 The MPS sets out (at paragraph 3.3.4) that when decision makers are examining and determining applications for energy infrastructure (and marine plan authorities are developing Marine Plans) they should take into account, *inter alia*:

- The national level of need for energy infrastructure, as set out in the Overarching National Policy Statement for Energy (EN-1) which applies in England and Wales;
- The positive wider environmental, societal and economic benefits of low carbon electricity generation and carbon capture and storage as key technologies for reducing carbon dioxide emissions;
- That the physical resources and features that form oil and gas fields or suitable sites for gas or carbon dioxide storage occur in relatively few locations and need first of all to be explored for and can then only be exploited where they are found. Similarly, renewable energy resources can only be developed where the resource exists and where economically feasible; and
- The potential impact of inward investment in offshore wind, wave, tidal stream and tidal range energy related manufacturing and deployment activity; as well as the impact of associated employment opportunities on the regeneration of local and national economies. All of these activities support the objective of developing the UK's low carbon manufacturing capability.

3.4.4.3 It accepts that renewable energy infrastructure can potentially have adverse effects on fish, mammals, and birds but at the same time recognises at paragraph 3.3.19 that *“the UK has some of the best wind resources in the world and offshore wind will play an important and growing part in meeting our renewable energy and carbon emission targets and improving energy security by 2020, and afterwards towards 2050”* and that offshore wind *‘has the potential to have the biggest impact in the medium-term on security of energy supply and carbon emission reductions through its commercial scale output’*.

3.4.4.4 Hornsea Three is in line with the vision and objectives of the MPS by virtue of its substantial contribution to renewable energy targets, thereby helping in the development of a low carbon economy and as a sustainable economic development. As demonstrated by the assessment contained in the Environmental Statement, potential likely significant effects of Hornsea Three have been or will be avoided or reduced as far as possible and the societal benefits of the marine area will be retained, in line with the requirements of the MPS.

3.4.4.5 In 2011, the Department for Environment, Food and Rural Affairs (Defra) recommended a series of marine plan areas for the English inshore and offshore marine regions to the MMO. The East Inshore and East Offshore areas as shown in 5.1 (5.1.2, 5.1.3 and 5.1.6), which include the Hornsea Three array area, are the first two areas in England to be selected for marine planning. The East Inshore and East Offshore Marine Plans (EIEOMP) were published on 2 April 2014. The plans do not establish new requirements or policies, but apply or clarify the intent of national policy to the marine plan areas, taking into account the characteristics of these two areas.

3.4.4.6 The central vision of the EIEOMPs makes specific reference to the development of offshore wind:

“By 2033 the East Inshore and East Offshore marine areas are providing a substantial part of the electricity generated from offshore wind in the UK as a result of collaboration and integration between sectors. Sustainable, effective and efficient use of our marine area has been achieved, resulting in economic development whilst protecting the marine ecosystem, and offering local communities new jobs, wealth, improved health and well-being”

3.4.4.7 Objective 3 of the EIEOMP is:

“To realise sustainably the potential of renewable energy, particularly offshore wind farms, which is likely to be the most significant transformational economic activity over the next 20 years in the East marine plan areas, helping to achieve the United Kingdom’s energy security and carbon reduction objectives.”

3.4.4.8 The EIEOMP sets out a series of environmental topic related policies which are broadly similar in objective and requirements to those set out in the relevant NPSs. In this respect, as noted above, in the event of any policy conflict, the NPS would prevail (paragraph 4.1.66). Reflecting the central vision and Objective 3, EIEOMP policy WIND2 sets out that:

“Proposals for Offshore Wind Farms inside Round 3 zones, including relevant supporting projects and infrastructure, should be supported.”

3.4.4.9 The relevant marine plan policies have been taken into account in preparing the application.

3.4.5 Local Planning Authorities

3.4.5.1 Local Planning Authorities (LPAs) are required to prepare and maintain an up-to-date Local Development Plan, which sets out objectives for the use and development of land within their jurisdiction, and general policies for implementation.

3.4.5.2 It is important to recognise that whilst the provisions of development plan documents may potentially be important and contain relevant considerations to which regard may be had for the purpose of Section 104 of the Act, the legal requirement to determine applications for Development Consent in accordance with such development plan documents (as prescribed under s38(6) of the Planning and Compulsory Purchase Act 2004), is not applicable to NSIPs.

3.4.5.3 This section identifies the development plan documents engaged by Hornsea Three and considers the extent to which the scheme is compliant with the relevant policies. In the following sections, the relevant planning policies are identified and then considered in turn.

3.4.5.4 The onshore cable route passes through the following LPA areas (Figure 3.1):

- North Norfolk District Council (NNDC), including the landfall at Weybourne and HVAC booster station at Little Barningham;
- Broadland District Council (BDC); including the main construction compound at Oulton Airfield; and
- South Norfolk Council (SNC), including the HVDC converter/HVAC substation and connection to the National Grid at Norwich Main Substation.

3.4.5.5 NNDC, BDC, SNC and Norfolk County Council, will be invited to submit a Local Impact Report under the Planning Act 2008, which must be given regard by the Secretary of State.

3.4.5.6 The landfall location, HVAC booster station (should it be required) cable route and HVDC converter/HVAC substation are significantly distant from neighbouring local planning authority areas, such that no direct or indirect impacts on adjacent authorities are anticipated.

3.4.5.7 None of the aforementioned local authorities are unitary. For the purposes of Section 43 of the Act, North Norfolk, Broadland and South Norfolk Districts are all lower tier district councils, and Norfolk County Council, in whose administrative area all three lower tier District Council’s district councils fall, is an upper tier County Council. In accordance with Section 42 of the act, the Applicant has a duty to consult with all four Councils.

3.4.5.8 The following paragraphs identify the documents that make up the statutory development plan documents (DPD) in each of the local planning authority areas. A number of these documents are not relevant to Hornsea Three. These are marked with “*”. In the case of Neighbourhood Plans, that includes those plans which are not in close proximity to the onshore cable route, the onshore HVAC booster station or HVDC converter/HVAC substation.

North Norfolk District Council

3.4.5.9 The statutory development plan for NNDC comprises the following documents:

- North Norfolk Core Strategy (adopted September 2008);
- North Norfolk Site Allocations DPD (adopted February 2011);
- North Norfolk Proposals Map (adopted September 2008);
- Design Guide (adopted December 2008);
- Landscape Character Assessment (adopted June 2009); and
- Open Space Standards Practice Guidance (adopted September 2008).

3.4.5.10 NNDC are currently preparing a new Local Plan which will provide the planning policy context for development for the administrative area of North Norfolk during the period of 2016-2036. However, this plan is at an early stage of preparation with no policies having yet been drafted. The new Local Plan is not anticipated to be adopted until December 2018 at the earliest and as such, the draft Local Plan will become increasingly relevant as it progresses during 2018 and beyond.

3.4.5.11 NNDC is the only coastal local planning authority that interfaces with Hornsea Three, and whose administrative boundary extends into the marine zone, out to mean low water springs (MLWS).

3.4.5.12 NNDC Local Plan Policy EN3 states that in the Undeveloped Coast only development that will not be significantly detrimental to the open coastal character will be permitted.

3.4.5.13 Policy EN11 resists development that would increase risk to life or property as a result of coastal erosion. Further, EN11 states that proposals that are likely to increase coastal erosion as a result of changes in surface water run-off will not be permitted. Hornsea Three will not lead to an increased risk of coastal erosion. Hornsea Three does not conflict with this policy.

3.4.5.14 NNDC Local Plan Policy EN9: Biodiversity and Geology relates to the protection of biodiversity and geological interests. The supporting text to this policy identifies the role of the Shoreline Management Plan, in that where areas may be permanently flooded as part of long-term coastal realignment, opportunities for the creation of new habitats may be presented. Generally, Policy EN9 seeks to manage biodiversity and geology interests affected by terrestrial development, and as such Hornsea Three does not conflict with this policy in terms of benthic ecology.

3.4.5.15 Neither the adopted or emerging local plans for North Norfolk contain policies relevant to the offshore aspects of Hornsea Three.

Broadland District Council

3.4.5.16 The statutory development plan for BDC comprises the following documents:

- Joint Core Strategy for Broadland, Norwich and South Norfolk (JCS) (adopted March 2011, with amendments adopted January 2014);
- Broadland Development Management DPD (adopted August 2015);

- Broadland Site Allocations DPD (adopted May 2016);
- Growth Triangle Area Action Plan (adopted July 2016) *;
- Recreational Provision in Residential Development Supplementary Planning Document (SPD) (adopted April 2016) *;
- Landscape Character Assessment SPD (adopted October 2013);
- Food Hub SPD (adopted July 2014);
- Parking Standards SPD (adopted June 2007);
- Affordable Housing SPD (adopted December 2008) *;
- Blue Boar Lane Development Brief SPD (adopted May 2007) *;
- Acle Neighbourhood Plan (adopted February 2015) *;
- Blofield Neighbourhood Plan (adopted July 2016) *;
- Brundall Neighbourhood Plan (adopted May 2016) *;
- Drayton Neighbourhood Plan (adopted July 2016) *;
- Great and Little Plumstead Neighbourhood Plan (adopted July 2015) *;
- Old Catton Neighbourhood Plan (adopted July 2015) *;
- Rackheath Neighbourhood Plan (adopted July 2017) *;
- Salhouse Neighbourhood Plan (adopted July 2017) *;
- Sprowston Neighbourhood Plan (adopted May 2014) *; and
- Strumpshaw Neighbourhood Plan (adopted July 2014) *.

3.4.5.17 South Norfolk, Broadland and Norwich City are currently producing a new Greater Norwich Local Plan (GNLP) which will set out the strategy for development across South Norfolk, Broadland and Norwich City to 2036. The GNLP Regulation 18 consultation ran from 8 January 2018 and concluded on 22 March 2018.

3.4.5.18 Adoption of this plan is currently scheduled for late 2020. At present, no draft policies have been published in relation to this plan and as such, no further consideration can be given to the emerging plan at this stage. However, this position will be kept under review in consultation with the local planning authority and any policy which emerges following the application submission will be considered where it is appropriate to do so.

3.4.5.19 On this basis, given the primacy of the GNLP at the submission of this application, the policies contained within the current development plan are the only policies considered to be of relevance.

South Norfolk Council

3.4.5.20 The statutory development plan for South Norfolk Council comprises the following documents:

- Joint Core Strategy with Broadland, Norwich and South Norfolk (JCS), (adopted in March 2011, with amendments adopted January 2014);
- South Norfolk Site Allocations and Site-Specific Policies Document (the Site Allocations Document) (adopted October 2015);

- Development Management Policies Local Plan (adopted October 2015);
- Wymondham Area Action Plan (adopted October 2015) *;
- Long Stratton Area Action Plan (adopted May 2016) *;
- Cringleford Neighbourhood Plan (adopted February 2014);
- Mulbarton Neighbourhood Plan (adopted February 2016);
- Easton Neighbourhood Plan (adopted December 2017);
- Food Hub Supplementary Planning Document (SPD) (adopted July 2014); and
- South Norfolk Place-Shaping Guide SPD (adopted September 2012).

3.4.5.21 As set out at paragraph 3.4.5.16 above, SNC is currently producing a new Greater Norwich Local Plan (GNLP).

3.4.5.22 Adoption of this plan is currently scheduled for late 2020. At present, no draft policies have been published in relation to this plan and as such, no further consideration can be given to the emerging plan at this stage. However, this position will be kept under review in consultation with the local planning authority and any policy which emerges prior to the application submission will be considered where it is appropriate to do so.

3.4.5.23 On this basis, given the primacy of the GNLP at the submission of this application, the policies contained within the current development plan are the only policies considered to be of relevance.

Norfolk County Council

3.4.5.24 Norfolk County Council (NCC) is responsible for producing the relevant Minerals and Waste policy documents and statements for Norfolk County. The adopted Norfolk Minerals and Waste Development Framework indicates where minerals and waste development may occur within Norfolk, and comprises the following documents:

- Core Strategy and Minerals and Waste Development Plan Document 2010-2026 (adopted September 2011);
- Minerals Site Specific Allocations Development Plan Document (DPD) (adopted October 2013, amendments adopted December 2017)(2013a);
- Waste Site Specific Allocations DPD (adopted October 2013)(2013b); and
- Revised Policies Map (adopted December 2017).

3.4.5.25 The County Council is preparing a Norfolk Minerals and Waste Local Plan Review, to consolidate the three aforementioned DPDs and Policy Map into one Local Plan, to ensure the policies within them remain up-to-date and to extend the plan period to the end of 2036 to ensure consistency with the other plans being developed by the LPAs in Norfolk.

3.4.5.26 The publication of the Local Plan Review public consultation document is planned to take place in spring 2018.

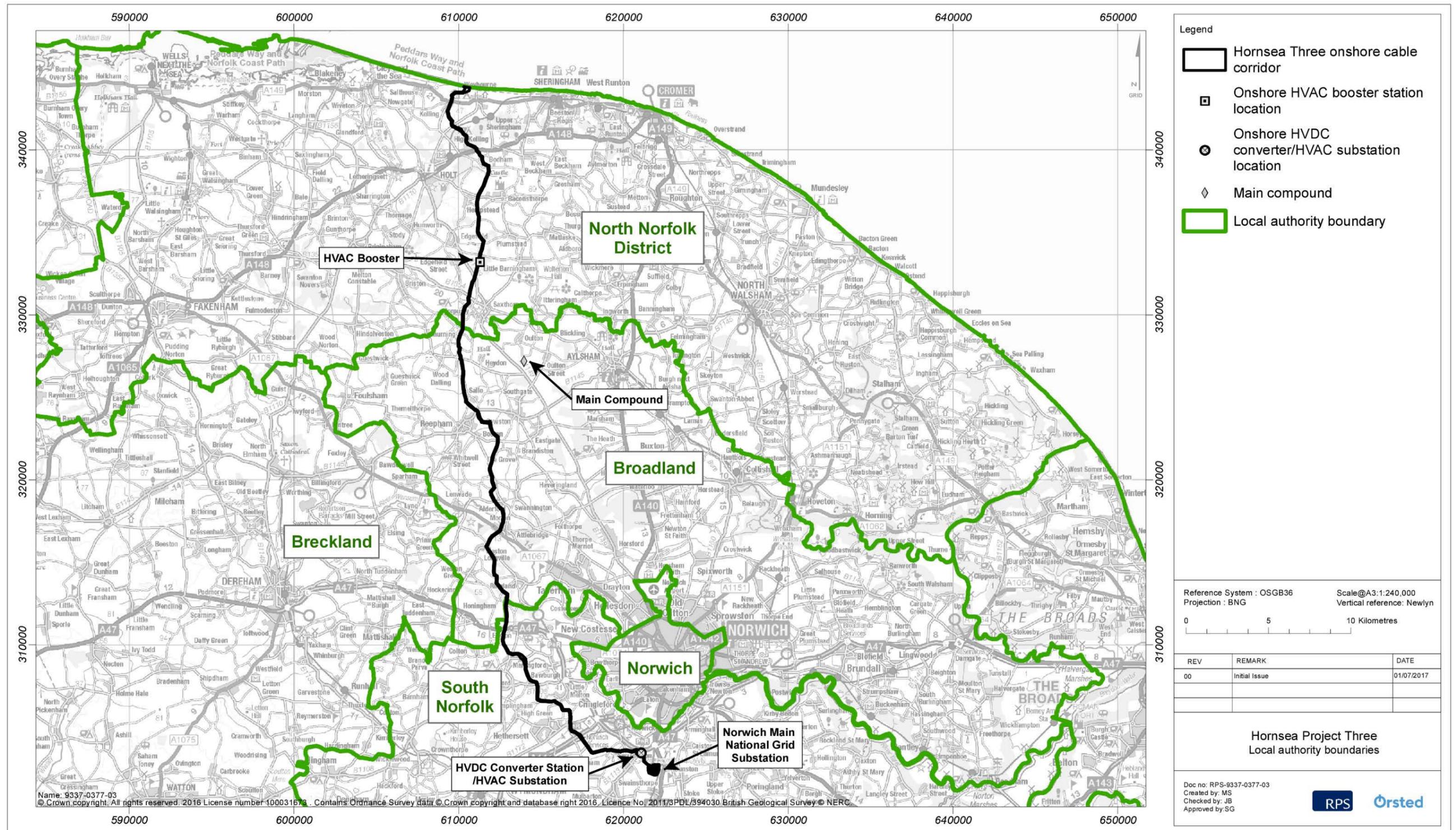


Figure 3.1: The onshore cable corridor in relation to the Local Authority boundaries.

4. Site Selection and Consideration of Alternatives

4.1.1.1 Hornsea Three has carried out an extensive site selection process, prior to defining the project proposals in order to inform the environmental assessment and make the DCO application. The site selection process has identified and considered a number of alternatives, in order to connect Hornsea Three to the National Transmission System (NTS). As well as spatial alternatives, there are also different technology options and the potential for many potential routes between them that needed to be considered before progressing with a final option.

4.1.1.2 Volume 1, chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement, provides full details of the site selection process that has been followed. The purpose of this section is to set out the main policy drivers and guidance for the site selection process that has been followed and to signpost evidence presented as part of the DCO application where compliance with relevant legislation and guidance demonstrates the process followed by the Applicant satisfies those requirements.

4.1.1.3 The key legislation and guidance that has informed the site selection process is provided across the following documents:

- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009; and
- National Policy Statements EN1, EN-3 and EN-5.

4.2 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009

4.2.1.1 The Infrastructure Planning (EIA) Regulations 2009 (the EIA Regulations) require that an Environmental Statement includes:

“An outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant’s choice, taking into account the environmental effects”.

4.2.1.2 Volume 1, chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement demonstrates that the requirement of the EIA Regulations is met by Hornsea Three. All main alternatives that have been considered have been set out clearly, as have the environmental effects that have been considered in the site selection process. Ørsted has followed a nine-stage site selection process, presented at paragraph 4.1.1.8 of volume 1, chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement.

4.2.1.3 Those stages were as follows:

- Stage 1 – Identification of the former Hornsea Zone;
- Stage 2 – Identification of the Hornsea Three array area within the former Hornsea Zone;

- Stage 3 – Identification of Grid Connection Location and Strategic Landfall Assessment:
 - High level connection options;
 - National Grid connection offer; and
 - Strategic landfall assessment.
- Stage 4 – Refinement of Project Options:
 - Landfall;
 - Offshore components; and
 - Onshore components.
- Stage 5 – Identification of Project for Scoping, Statement of Community Consultation (SoCC) and Phase 1.A Consultation:
 - Landfall;
 - Offshore components; and
 - Onshore components.
- Stage 6 – Refinement of Project for Phase 1.B Community Consultation Events and EIA preparation:
 - Landfall;
 - Offshore components; and
 - Onshore components.
- Stage 7 – Refinement of Project for PEIR; s42 and s47 Consultation (Phase 2 Consultation):
 - Landfall;
 - Offshore components; and
 - Onshore components.
- Stage 8 – Refinement of the Project from PEIR to Phase 2 Consultation:
 - Consideration of alternative route options;
 - Onshore cable route;
 - Onshore HVDC converter/HVAC substation;
 - Onshore HVAC booster station;
 - Temporary construction compounds; and
 - Selection of access routes.
- Stage 9 - Submission of final preferred option(s) as part of the DCO application.

4.2.1.4 The site selection process followed by Ørsted is concluded to be in accordance with the requirements of the EIA Regulations.

4.3 National Policy Statements EN1 and EN-5

4.3.1.1 Paragraphs 4.2.1.3 to 4.2.1.7 of volume 1, chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement identify the guidance provided by NPSs EN-1 and EN-5 in respect of site selection. Although the NPSs themselves do not set a general requirement to consider alternatives, it is recognised within EN-1 that the requirements of the EIA Regulations, the Habitat Regulations and the offshore Habitat Regulations there is a need to consider alternatives, and accordingly EN-1 provides guidance for applicants to consider, where those other legislative requirements exist.

4.3.1.2 Paragraph 4.2.1.6 of volume 1, chapter 4: Site selection and consideration of alternatives of the Environmental Statement confirms that where there is a policy or legal requirement to consider alternatives, paragraph 4.4.3 of NPS EN-1 (DECC, 2011) highlights other guiding principles that the Secretary of State should consider when deciding what weight should be given to alternatives, specifically:

“the consideration of alternatives in order to comply with policy requirements should be carried out in a proportionate manner;

- *the Secretary of State should be guided in considering alternative proposals by whether there is a realistic prospect of the alternative delivering the same infrastructure capacity (including energy security and climate change benefits) in the same timescale as the proposed development;*
- *where (as in the case of renewables) legislation imposes a specific quantitative target for particular technologies or (as in the case of nuclear) there is reason to suppose that the number of sites suitable for deployment of a technology on the scale and within the period of time envisaged by the relevant NPSs is constrained, the Secretary of State should not reject an application for development on one site simply because fewer adverse impacts would result from developing similar infrastructure on another suitable site, and [he] should have regard as appropriate to the possibility that all suitable sites for energy infrastructure of the type proposed may be needed for future proposals;*
- *alternatives not among the main alternatives studied by the applicant (as reflected in the ES) should only be considered to the extent that the Secretary of State thinks they are both important and relevant to [his] decision;*
- *as the Secretary of State*
- *must decide an application in accordance with the relevant NPS (subject to the exceptions set out in the Planning Act 2008), if the Secretary of State concludes that a decision to grant consent to a hypothetical alternative proposal would not be in accordance with the policies set out in the relevant NPS, the existence of that alternative is unlikely to be important and relevant to the Secretary of State’s decision;*
- *alternative proposals which mean the necessary development could not proceed, for example because the alternative proposals are not commercially viable or alternative proposals for sites would not be physically suitable, can be excluded on the grounds that they are not important and relevant to the Secretary of State’s decision;*
- *alternative proposals which are vague or inchoate can be excluded on the grounds that they are not important and relevant to the Secretary of State’s decision; and*

- *it is intended that potential alternatives to a proposed development should, wherever possible, be identified before an application is made to the Secretary of State in respect of it (so as to allow appropriate consultation and the development of a suitable evidence base in relation to any alternatives which are particularly relevant). Therefore, where an alternative is first put forward by a third party after an application has been made, the [SoS] may place the onus on the person proposing the alternative to provide the evidence for its suitability as such and the Secretary of State should not necessarily expect the applicant to have assessed it.”*

4.3.1.3 The NPS for Renewable Energy Infrastructure (NPS EN-3) states at paragraph 2.6.81 that the applicant should include an assessment of the effects of installing cable across the intertidal zone which should include information, where relevant, about:

- *“any alternative landfall sites that have been considered by the applicant during the design phase and an explanation for the final choice”; and*
- *“any alternative cable installation methods that have been considered by the applicant during the design phase and an explanation for the final choice.”*

4.3.1.4 Stage 4 of Ørsted’s site selection process involved the identification of five broad landfall zones, and the progressive refinement of those zones taking onto account relevant technical, commercial and consenting considerations. It was concluded there were areas within each of the Zones that had the potential to provide a landfall location but all presented different combinations and levels of technical, consenting and commercial risk. The process undertaken, culminating in the selection of the final landfall zone is clearly set out in section 4.9 of volume 1, chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement.

4.3.1.5 Ørsted has, as demonstrated in volume 1, chapter 4: Site Selection and Consideration of Alternatives of the Environmental Statement, and summarised here, carried out a clear, extensive and objectively led site selection process, culminating in the final project boundaries and detail. Hornsea Three is in compliance with all requirements of the EIA Regulations and EN-1 and EN-3.

5. Planning assessment

5.1 Offshore

5.1.1 Marine Processes

- 5.1.1.1 The following paragraphs identify relevant policy regarding Marine Processes as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.
- 5.1.1.2 Marine processes is a collective term for Water levels; Currents; Waves (and winds); Stratification and frontal systems; Sediments and Geology (including seabed sediment distribution and sediment transport); Seabed geomorphology; and Coastal Geomorphology.
- 5.1.1.3 Volume 2, chapter 1: Marine Processes of the Environmental Statement addresses offshore marine processes. Paragraph 1.8.2.1 confirms that no impacts have been scoped out of the assessment.
- 5.1.1.4 Hornsea Three has characterised the relevant Marine Processes baseline through consideration of both existing publicly available datasets and reports, as well as from the project-specific survey data. An overview of these various datasets is provided in section 1.6 of volume 2, chapter 1: Marine Processes.
- 5.1.1.5 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on marine processes. Table 1.15 in volume 2, chapter 1: Marine Processes provides a summary of the measures adopted as part of Hornsea Three. These measures are considered standard industry practice for this type of development. These designed in measures include:
- Scour protection;
 - Development of, and adherence to, a Cable Specification and Installation Plan; and
 - Cable trench infill at the nearshore area.
- 5.1.1.6 Table 1.21 of volume 2, chapter 1: Marine Processes provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.
- 5.1.1.7 For the most part, marine processes are not in themselves receptors but are, instead, 'pathways'. However, changes to marine processes have the potential to indirectly impact other environmental receptors. For instance, the creation of sediment plumes (which is considered in the marine processes assessment) may lead to settling of material onto benthic habitats. Accordingly, the approach adopted is to describe the potential changes to marine processes due to Hornsea Three, but not provide an assessment of the significance. An exception to the approach outlined above occurs when considering physical changes to the shoreline, offshore sandbanks and the Flamborough Front. These features are considered to be sensitive receptors. In these instances, a full impact assessment has been carried out and is presented in the chapter.

- 5.1.1.8 In those cases, the assessment has concluded there would not be significant effects in EIA terms.

National Policy Statements

NPS EN-1

- 5.1.1.9 Marine Processes are considered within NPS EN-1 at section 5.5: Coastal Change. However Paragraph 5.5.5 confirms that this section of EN-1 applies only to onshore energy infrastructure projects situated on the coast. This part of the NPS is considered relevant to Hornsea Three insofar as the export cables interface with the coastal zone at landfall. It is confirmed that the impacts of offshore renewable energy projects on marine life and coastal geomorphology are considered in EN-3.
- 5.1.1.10 Paragraph 5.5.6 identifies that the applicant's assessment should include the following:
- 'Where relevant, applicants should undertake a coastal geomorphological and sediment transfer modelling to predict and understand impacts and help identify relevant mitigating or compensatory measures.'*
- 5.1.1.11 Assessments have been made through consideration of the existing numerical modelling undertaken to support Hornsea Project One and Hornsea Project Two, analytical assessments of project-specific data, as well as the use of standard empirical equations. Full justification of this evidence based approach is set out in volume 5, annex 1.1: Marine Processes Technical Annex, section 2.
- 5.1.1.12 The impact of Hornsea Three on identified marine processes receptors is considered in paragraph 1.11.5.1 of the Environmental Statement onwards (for the construction phase), paragraph 1.11.8.1 onwards (for the operation and maintenance phase), paragraph 1.11.9.1 onwards (for the decommissioning phase) and paragraph 1.13.6.1 onwards (in the context of cumulative effects).
- 5.1.1.13 Paragraph 5.5.7 goes on to say that:
- 'The Environmental Statement should include an assessment of the effects on the coast. In particular, applicants should assess:*
- *The impact of the proposed project on coastal processes and geomorphology, including by taking account of potential impacts from climate change. If the development will have an impact on coastal processes the applicant must demonstrate how the impacts will be managed to minimise adverse impacts on other parts of the coast;*
 - *The implications of the proposed project on strategies for managing the coast as set out in Shoreline Management Plans (SMPs)...any relevant Marine Plans...and capital programmes for maintaining flood and coastal defences;*
 - *The effects of the proposed project on marine ecology, biodiversity and protected sites;*
 - *The effects of the proposed project on maintaining coastal recreation sites and features; and*
 - *The vulnerability of the proposed development to coastal change, taking account of climate change, during the project's operational life and any decommissioning period.'*

- 5.1.1.14 Hornsea Three has identified the various marine processes receptors. There are considered in volume 2, chapter 1: Marine Processes, paragraph 1.11.2.1 of the Environmental Statement onwards (for the construction phase), paragraph 1.11.3.1 of the Environmental Statement onwards (for the operation and maintenance phase), paragraph 1.11.4.3 onwards (for the decommissioning phase) and paragraph 1.13.1.1 of the Environmental Statement onwards (in the context of cumulative effects). Table 1.2 within volume 2, chapter 1: Marine Processes of the Environmental Statement sets out how Hornsea Three responds to the policies on decision making relevant to marine processes.
- 5.1.1.15 In addition, it has been concluded that based on the local spatial extent and short-term duration of installation activities, that there would be no implications for long-term management strategies for the coast as a result of Hornsea Three, as set out in the relevant SMP and East Marine Plan.
- 5.1.1.16 Hornsea Three has carried out an assessment that responds to and satisfies the guidance set out within NPS EN-1 with regards to what an applicant should undertake and include in their assessment.
- NPS EN-3
- 5.1.1.17 Marine Processes are considered within NPS EN-3 at section 2.6.189 to 2.6.197: Physical Environment. Paragraph 2.6.190 identifies that the Applicant's assessment should include the following:
- 'Assessment should be undertaken for all stages of the lifespan of the proposed wind farm in accordance with the appropriate policy for offshore wind farm EIAs'*
- 5.1.1.18 The impact of Hornsea Three on identified marine processes receptors is considered in volume 2, chapter 1: Marine Processes paragraph 1.11.3.1 of the Environmental Statement onwards (for the construction phase), paragraph 1.11.3.1 onwards (for the operation and maintenance phase), paragraph 1.11.4.3 onwards (for the decommissioning phase) and paragraph 1.13.1.1 onwards (in the context of cumulative effects).
- 5.1.1.19 Hornsea Three has carried out an assessment that responds to and satisfies the guidance set out within NPS EN-3 with regards to what an applicant should undertake and include in their assessment.
- NPS EN-5
- 5.1.1.20 NPS EN-5 does not contain any guidance specific to marine processes.
- Other relevant policies**
- 5.1.1.21 A number of other policies are relevant to marine processes including:
- The East Marine Plans (MMO,2014);
 - The Marine Strategy Framework Directive (MSFD); and
 - The UK Marine Policy Statement (HMSO, 2011).
- 5.1.1.22 The undeveloped coast is an area defined in the Core Strategy, and covers a continuous belt of coastline along the North Norfolk coastline, encroaching inland to different extents. The Undeveloped Coast area includes the Hornsea Three landfall area near Weybourne. Policy EN3 seeks to maintain the open coastal character, and seeks to resist development that might be detrimental to the area defined as undeveloped coast in the Core Strategy. Hornsea Three involves no permanent above ground development in this area, and as such would not conflict with the objectives of this policy.
- 5.1.1.23 Policy EN11 resists development that would increase risk to life or property as a result of coastal erosion. Further, EN11 states that proposals that are likely to increase coastal erosion as a result of changes in surface water run-off will not be permitted. Hornsea Three will not lead to an increased risk of coastal erosion. Hornsea Three does not conflict with this policy.
- The Secretary of State's decision***
- 5.1.1.24 Part 5.5 of EN-1 set out matters relevant to Coastal Change at national level. It is recognised that *'The Government's aim is to ensure that our coastal communities continue to prosper and adapt to coastal change'*. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.
- 5.1.1.25 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.6 requires that the following matters relevant to Marine Processes are taken in account when considering any proposed development:
- 'The Secretary of State must have regard to the MPS and applicable marine plans in taking any decision which relates to the exercise of any function capable of affecting the whole or any part of the UK marine area. In the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for purposes of Secretary of State decision making given the national significance of the infrastructure'*.
- 5.1.1.26 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *"environmental, social and economic benefits and adverse impacts, at national, regional and local levels"*.
- 5.1.1.27 Paragraphs 5.5.10 to 5.5.16 of NPS EN-1 set out matters the Secretary of State should have regard to in reaching a decision. This includes, *inter alia*, proposed mitigation, specifically in respect of matters relating to marine processes. It is confirmed that the Secretary of State should be satisfied that the proposed development will be resilient to coastal erosion and deposition, taking account of climate change, during the project's operational life and any decommissioning period.
- 5.1.1.28 Paragraph 2.6.196 states that the Secretary of State should be satisfied that the methods of construction, including use of materials, are such as to reasonably minimise the potential for impact on the physical environment.

- 5.1.1.29 Table 1.21 of volume 2, chapter 1: Marine Processes of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.
- 5.1.1.30 The assessment of Marine Processes has had regard to the relevant requirements for assessment set out in EN-1 and EN-3, and been carried out in accordance with those requirements.
- 5.1.1.31 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on marine processes grounds.

5.1.2 Benthic Ecology

- 5.1.2.1 The following paragraphs identify relevant policy regarding Benthic Ecology as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.
- 5.1.2.2 Benthic Ecology encompasses the study of the organisms living in and on the sea floor, the interactions between them and impacts on the surrounding environment.
- 5.1.2.3 Volume 2, chapter 2: Benthic Ecology of the Environmental Statement addresses the benthic ecology relevant to Hornsea Three. Paragraph 2.8.2.1 sets out the impacts scoped out of the assessment.
- 5.1.2.4 The benthic ecology assessment has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. Specific to the benthic ecology EIA, the following guidance documents will also be considered:
- Guidelines for Ecological Impact Assessment (EclA) in the UK and Ireland. Terrestrial, Freshwater and Coastal (CIEEM, 2016);
 - Offshore Wind Farms. Guidance note for EIA in respect of the Food and Environmental Protection Act 1985 (FEPA) and the Coast Protection Act 1949 (CPA) requirements (Cefas *et al.*, 2004);
 - Guidance on Environmental Considerations for Offshore Wind Farm Development (OSPAR, 2008); and
 - Guidelines for the conduct of benthic studies at aggregate dredging sites (DTLR, 2002).
- 5.1.2.5 In addition, the benthic ecology assessment has followed the legislative framework as defined by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009, the Wildlife and Countryside Act 1981 (as amended) and the MCAA 2009 (as amended).

- 5.1.2.6 The assessment has also taken into consideration the requirements of the United Nations Environment Programme (UNEP) Convention on Biological Diversity (CBD), in particular those listed under Article 8 of the Convention. Article 8 of the CBD relates to *in-situ* conservation and includes reference to the need to protect areas for nature conservation. Therefore, where necessary, mitigation measures have been designed-in to Hornsea Three to ensure the *in-situ* conservation of benthic ecology.

- 5.1.2.7 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on benthic ecology, including potential effects on Annex 1 reef features. Table 2.18 in volume 2, chapter 2: Benthic Ecology of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures are considered standard industry practice for this type of development. These designed in measures include:

- Pre-construction surveys;
- Micrositing of the export cables through areas of lower quality reef; and
- A Biosecurity Plan will be produced and agreed with statutory consultees.

- 5.1.2.8 Construction activities within the Hornsea Three array area and offshore cable corridor have the potential to result in a range of potential impacts on benthic ecology. These include the removal or disturbance of sediments resulting in temporary habitat loss/disturbance and increased SSC and associated deposition. Table 2.38 of volume 2, chapter 2: Benthic Ecology of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

- 5.1.2.9 Benthic Ecology is considered within NPS EN-1 at section 5.3: Biodiversity and geological conservation. Paragraphs 5.3.3 and 5.3.4, identify that the applicant's assessment should include the following:

'the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Secretary of State consider thoroughly the potential effects of a proposed project.

The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests'.

5.1.2.10 Effects on benthic features, including habitats and species of conservation importance, including those listed as features of designated sites, are fully considered in volume 2, chapter 2: Benthic Ecology of the Environmental Statement, sections 2.11.1 (construction phase), 2.11.2 (operation and maintenance phase) and 2.11.3 (decommissioning phase). Baseline information on these receptors is presented in section 2.7, with valuation of these receptors in the context of their conservation importance considered in section 2.7.4.

5.1.2.11 The impact of Hornsea Three on identified benthic ecology receptors is considered in paragraph 1.11.5.1 of the Environmental Statement onwards (for the construction phase), paragraph 1.11.8.1 onwards (for the operation and maintenance phase), paragraph 1.11.9.1 onwards (for the decommissioning phase) and paragraph 1.13.6.1 onwards (in the context of cumulative effects).

5.1.2.12 Paragraph 5.3.8 goes on to say that:

'In taking decisions, the Secretary of State should ensure that appropriate weight is attached to designated sites of international, national and local importance; protected species; habitats and other species of principal importance for the conservation of biodiversity; and to biodiversity and geological interests within the wider environment'.

5.1.2.13 As discussed in paragraph 2.3.1.1 ecology of volume 2, chapter 2: Benthic Ecology of the Environmental Statement, the benthic ecology assessment that has been carried out specifically considers the impacts, where relevant, to features of designated sites. Assessments relating to impacts in designated sites in section 2.11 (e.g. temporary habitat loss/disturbance) consider the biotopes rather than just the broader Valued Ecological Receptors (VER), where appropriate. Section 5.5 of NPS EN-1: Coastal Change only applies to onshore energy infrastructure projects situated on the coast. Given the nature of Hornsea Three (with offshore, intertidal and onshore aspects) only those provisions of relevance to offshore and intertidal benthic receptors have been considered.

5.1.2.14 Hornsea Three has carried out an assessment that responds to and satisfies the guidance set out within NPS EN-1 with regards to Benthic Ecology and what an applicant should undertake and include in their assessment.

NPS EN-3

5.1.2.15 Benthic Ecology is considered within NPS EN-3 at sections 2.6.58 to 2.6.71: Biodiversity; 2.6.78 to 2.6.89: Intertidal; and 2.6.111 to 2.6.120: Subtidal. Paragraph 2.6.64 to 2.6.67 set out that applicants should address the following:

'Assess the effects on the offshore ecology and biodiversity for all stages of the lifespan of the proposed offshore wind farm.

Consultation on the assessment methodologies should be undertaken at early stages with the statutory consultees as appropriate.

Any relevant data that has been collected as part of post-construction ecological monitoring from existing, operational offshore wind farms should be referred to where appropriate.

Applicants should assess the potential for the scheme to have both positive and negative effects on marine ecology and biodiversity'.

5.1.2.16 Hornsea Three's approach to the requirements set out above is confirmed in Table 2.1 of volume 2, chapter 2: Benthic Ecology of the Environmental Statement. This table also sets the approach Hornsea Three has made to benthic subtidal and intertidal ecology.

5.1.2.17 Table 2.2 within volume 2, chapter 2: Benthic Ecology of the Environmental Statement sets out where Hornsea Three responds to the policies on decision making relevant to benthic ecology relevant to EN-3.

NPS EN-5

5.1.2.18 With regard to Benthic Ecology, NPS EN-5 (2.7.1) refers to Section 5.3 of NPS EN-1.

Other relevant policies

5.1.2.19 The Marine Policy Statement (MPS) and the East Inshore and East Offshore Coast Marine Plans (MMO, 2014) are also relevant to benthic ecology. Volume 2, chapter 2: Benthic Ecology of the Environmental Statement considers how these have been addressed within the assessment.

The Secretary of State's decision

5.1.2.20 Part 5.3 of EN-1 set out matters relevant to Biodiversity and geological conservation at national level. It is recognised that *'Biodiversity is the variety of life in all its forms and encompasses all species of plants and animals and the complex ecosystems of which they are a part'*. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.1.2.21 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.6 requires that the following matters relevant to benthic ecology are taken in account when considering any proposed development:

'The Secretary of State must have regard to the MPS and applicable marine plans in taking any decision which relates to the exercise of any function capable of affecting the whole or any part of the UK marine area. In the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for purposes of Secretary of State decision making given the national significance of the infrastructure'.

5.1.2.22 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *"environmental, social and economic benefits and adverse impacts, at national, regional and local levels"*.

5.1.2.23 Paragraph 2.6.68 of NPS EN-3 set out matters the Secretary of State should have regard to in reaching a decision. The Secretary of State should consider the effects of a proposal on marine ecology and biodiversity taking into account all relevant information made available to it. Paragraphs 2.6.84 to 2.6.87 and 2.6.115 to 2.6.118 of NPS EN-3 set out matters the Secretary of State should have regard to when considering impacts on subtidal and intertidal environments.

5.1.2.24 Section 2.16 of volume 2, chapter 2: Benthic Ecology of the Environmental Statement sets out how Hornsea Three responds to the aforementioned criteria. Table 2.38 of volume 2, chapter 2: Benthic Ecology of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

5.1.2.25 The assessment of benthic ecology has had regard to the relevant requirements for assessment set out in EN-1 and EN-3, and been carried out in accordance with those requirements.

5.1.2.26 The proposals will be in accordance with the relevant policies related to Benthic Ecology in North Norfolk.

5.1.2.27 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on benthic ecology grounds.

5.1.3 Fish and Shellfish Ecology

5.1.3.1 The following paragraphs identify relevant policy regarding Fish and Shellfish Ecology as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.1.3.2 The detailed technical information which underpins the impact assessments presented within volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement is contained within volume 5, annex 3.1: Fish and Shellfish Ecology Technical Report which should be reviewed alongside this chapter. For the purposes of assessment, shellfish is considered a generic term to define molluscs and crustaceans.

5.1.3.3 Volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement addresses the Fish and Shellfish ecology relevant to Hornsea Three. Table 3.12 of volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement sets out the impacts scoped out of the assessment.

5.1.3.4 The fish and shellfish ecology EIA has followed this methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. Specific to the fish and shellfish ecology EIA, the following guidance documents have also been considered:

- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal (CIEEM, 2016);
- Offshore Wind Farms. Guidance Note for EIA in Respect of FEPA (Food and Environment Protection Act 1985) and CPA (Coast Protection Act 1949) Requirements (Cefas *et al.*, 2004);

- Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects (Judd, 2012); and
- Guidance on Environmental Considerations for Offshore Wind Farm Development (OSPAR, 2008).

5.1.3.5 In addition, the fish and shellfish ecology EIA has considered the legislative framework as defined by the Wildlife and Countryside Act 1981 (as amended) and the Marine and Coastal Access Act, 2009, with consideration of the Conservation of Habitats and Species Regulations 2017 (consolidates and updates the Conservation of Habitats and Species Regulations 2010) and the Conservation of Offshore Marine Habitats and Species Regulations 2017 (consolidates and updates the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007), although these relate to the Habitats Regulations Assessment (HRA) and not specifically to EIA).

5.1.3.6 The EIA has also taken into consideration the requirements of the United Nations Environment Programme (UNEP) Convention on Biological Diversity (CBD), in particular those listed under Article 8 of the Convention. Article 8 of the CBD relates to *in situ* conservation and includes reference to the need to protect areas for nature conservation. Therefore, where necessary, mitigation measures have been designed in to Hornsea Three to ensure the in-situ conservation of fish and shellfish ecology.

5.1.3.7 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on Fish and Shellfish ecology. Table 3.16 in volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures are considered standard industry practice for this type of development. These designed in measures include:

- A PEMMP will be developed and implemented to cover the construction, and operation and maintenance phases of Hornsea Three;
- A cable burial risk assessment (CBRA) will inform cable burial depth and will be required by a condition of the deemed marine licences; and
- During piling operations, soft starts will be used, with lower hammer energies used at the beginning of the piling sequence before increasing energies to the higher levels.

5.1.3.8 Construction activities within the Hornsea Three array area and offshore cable corridor have the potential to result in a range of potential impacts on Fish and Shellfish ecology. Table 3.29 of volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

5.1.3.9 Fish and Shellfish Ecology is considered within NPS EN-1 at section 5.3: Biodiversity and geological conservation. Paragraph 5.3.3 identifies that the applicant's assessment should include the following:

'the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Secretary of State consider thoroughly the potential effects of a proposed project.

The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests'.

- 5.1.3.10 Effects on Fish and Shellfish ecology, including species of conservation importance, including those listed as features of designated sites, are fully considered in sections 3.11.1 (construction phase), 3.11.2 (operation and maintenance phase) and 3.11.3 (decommissioning phase) of volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement. Baseline information on these receptors is presented in section 3.7, with valuation of these receptors in the context of their conservation importance considered in section 3.7.3.
- 5.1.3.11 A summary of NPS EN-1 policies relevant to fish and shellfish ecology are set out in table 3.2 of volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement.
- 5.1.3.12 Hornsea Three has carried out an assessment that responds to and satisfies the guidance set out within NPS EN-1 with regards to what an applicant should undertake and include in their assessment.

NPS EN-3

- 5.1.3.13 Ecology is considered within NPS EN-3 at sections 2.6.58 to 2.6.71: Biodiversity and 2.6.72 to 2.6.77: Fish. Paragraph 2.6.64 to 2.6.67 set out that applicants should address the following:

'Assess the effects on the offshore ecology and biodiversity for all stages of the lifespan of the proposed offshore wind farm.

Consultation on the assessment methodologies should be undertaken at early stages with the statutory consultees as appropriate.

Any relevant data that has been collected as part of post-construction ecological monitoring from existing, operational offshore wind farms should be referred to where appropriate.

Applicants should assess the potential for the scheme to have both positive and negative effects on marine ecology and biodiversity'.

- 5.1.3.14 Hornsea Three's approach to the requirements set out above is confirmed in Table 3.1 of Volume 2, Chapter 3: Fish and Shellfish Ecology of the Environmental Statement. This table also sets the approach Hornsea Three has made to fish and shellfish ecology. Table 3.3 of volume 3, chapter 3: Fish and Shellfish Ecology of the Environmental Statement provides a summary of how Hornsea Three responds to the NPS EN-2 policies on decision making with regard to Fish and Shellfish ecology.

NPS EN-5

- 5.1.3.15 There are no policies within NPS EN-5 that relate to Fish and Shellfish Ecology. NPS EN-5 will not be considered further.

Other relevant Policies

- 5.1.3.16 The MPS and the East Inshore and East Offshore Coast Marine Plans (MMO, 2014) are also relevant to ecology. The Marine Strategy Framework Directive (MSFD), adopted in July 2008, has also been considered in the Hornsea Three assessment for fish and shellfish ecology. The relevance of the MSFD to Hornsea Three is described in full in volume 1, chapter 2: Policy and Legislation of the Environmental Statement. Key provisions of these policies are set out in Tables 3.4 and 3.5 of volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement along with details as to how these have been addressed within the assessment.

- 5.1.3.17 As stated above, Policy EN9 is not concerned with Benthic Ecology and as such, there is no conflict caused by Hornsea Three.

The Secretary of State's decision

- 5.1.3.18 Part 5.3 of EN-1 sets out the policy for the Secretary of State in relation to generic biodiversity impacts. Paragraphs 2.6.58 to 2.6.71 of NPS EN-3 set out offshore wind-specific biodiversity policy.. In addition, there are specific considerations set out in EN-3 (2.6.73) which apply to the effect of offshore wind energy infrastructure proposals on fish as set out below:

"There is potential for the construction and decommissioning phases, including activities occurring both above and below the seabed, to interact with seabed sediments and therefore have the potential to impact fish communities, migration routes, spawning activities and nursery areas of particular species. In addition, there are potential noise impacts, which could affect fish during construction and decommissioning and to a lesser extent during operation'.

- 5.1.3.19 It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

- 5.1.3.20 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.6 requires that the following matters relevant to fish and shellfish ecology are taken in account when considering any proposed development:

'The Secretary of State must have regard to the MPS and applicable marine plans in taking any decision which relates to the exercise of any function capable of affecting the whole or any part of the UK marine area. In the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for purposes of Secretary of State decision making given the national significance of the infrastructure'.

- 5.1.3.21 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to "environmental, social and economic benefits and adverse impacts, at national, regional and local levels".

- 5.1.3.22 Paragraph 2.6.75 of NPS EN-3 set out matters the Secretary of State should have regard to in reaching a decision. Where it is proposed that mitigation measures are applied to offshore export cables to reduce EMF (e.g. Armoured cabling and cable burial at sufficient depths) the residual effects of EMF on sensitive species from cable infrastructure during operation are not likely to be significant. Once installed, operational EMF impacts are unlikely to be of sufficient range or strength to create a barrier to fish movement.
- 5.1.3.23 EMF effects, including cable design, installation, and mitigation are considered within the Hornsea Three assessment at Table 3.11 of volume 2, chapter 3: Fish and Shellfish Ecology of the Environmental Statement.
- 5.1.3.24 The impacts on fish and shellfish receptors from all stages of the project were assessed, including impacts from habitat loss, underwater noise, increased SSC and deposition and pollution events, and EMF. Throughout the construction, operation and maintenance, and decommissioning phases, all impacts were found to have either negligible, minor adverse or minor beneficial effects on fish or shellfish receptors within the Hornsea Three fish and shellfish study area.
- 5.1.3.25 The assessment of cumulative impacts from Hornsea Three and other developments and activities, including offshore wind farms and aggregate extraction, concluded that the effects of any cumulative impacts would be of minor or negligible significance, and not significant in EIA terms. Habitat loss was predicted to affect a relatively small proportion of the habitats in the southern North Sea fish and shellfish study area, with effects predicted to be spatially and temporally limited at any one time, meaning that other habitats within the southern North Sea fish and shellfish study area would remain undisturbed. The cumulative effects of underwater noise and EMF were also considered with regard to construction, and operation and maintenance phases of other offshore wind farms. These impacts may result in temporary displacement of fish populations however these were not predicted to have any significant effects on fish and shellfish populations and no potential for barrier effects to migratory fish species.
- 5.1.3.26 The assessment of Fish and Shellfish Ecology has had regard to the relevant requirements for assessment set out in EN-1 and EN-3, and been carried out in accordance with those requirements.
- 5.1.3.27 The proposals will be in accordance with the relevant policies related to Fish and Shellfish Ecology in North Norfolk.
- 5.1.3.28 The construction, operation and maintenance, and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on fish and shellfish ecology grounds.

5.1.4 Marine Mammals

- 5.1.4.1 The following paragraphs identify relevant policy regarding Marine Mammals as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.
- 5.1.4.2 The detailed technical information which underpins the impact assessments presented within volume 2, chapter 4: Marine Mammals of the Environmental Statement is contained within volume 5, annex 4.1: Marine Mammal Technical Report. The technical report provides a detailed characterisation of the marine mammal ecology of Hornsea Three and the wider southern North Sea, based on existing literature sources, field surveys across the former Hornsea Zone and Hornsea Three specific surveys, and includes information on marine mammal species of ecological importance and conservation value.
- 5.1.4.3 Volume 2, chapter 4: Marine Mammals of the Environmental Statement addresses the relevant Marine Mammal ecology to Hornsea Three. Table 4.15 of volume 2, chapter 4: Marine Mammals of the Environmental Statement sets out the impacts scoped out of the assessment.
- 5.1.4.4 The fish and shellfish ecology EIA has followed this methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. Specific to the marine mammal EIA, the following guidance documents have also been considered:
- Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater and Coastal, Second Edition (Chartered Institute of Ecology and Environmental Management (CIEEM) 2016);
 - Offshore Wind Farms. Guidance note for EIA in respect of Food and Environment Protection Act (FEPA) and Coastal Protection Act (CPA) requirements (Cefas *et al.*, 2004);
 - Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects (Judd, 2012);
 - Guidance on Environmental Considerations for Offshore Wind Farm Development (OSPAR, 2008);
 - The Protection of Marine EPS from Injury and Disturbance: Draft Guidance for the Marine Area in England and Wales and the UK Offshore Marine Area (JNCC *et al.*, 2010a); and
 - Statutory Nature Conservation Protocol for Minimising the Risk of Injury to Marine Mammals from Piling Noise (JNCC *et al.*, 2010b).
- 5.1.4.5 In addition, the marine mammal EIA has been informed by the legislative framework as defined by the conservation of Offshore Marine Habitats and Species Regulations 2017 (Offshore Habitats Regulations) (as amended), the Conservation of Habitats and Species Regulations 2010 (Habitats Regulations) (as amended in England and Wales), the Wildlife and Countryside Act 1981 (as amended) and the Marine and Coastal Access Act (MCAA) 2009 (as amended) (UK Government, 2009).

5.1.4.6 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on Marine Mammals. Table 4.18 in volume 2, chapter 4: Marine Mammals of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures are considered standard industry practice for this type of development. These designed in measures include:

- A PEMMP (operation phase) and Decommissioning Plan (decommissioning phase) will be produced, approved by the MMO under the deemed marine licences and followed;
- Array, export and interconnector cables will typically be buried to a target burial depth of 1 to 2 m, subject to a cable burial risk assessment;
- During piling operations, soft starts will be used, with lower hammer energies used at the beginning of the piling sequence before increasing energies to the higher levels; and
- The implementation of a Marine Mammals Mitigation Protocol (MMMP).

5.1.4.7 The impacts of the offshore construction of Hornsea Three have been assessed on marine mammals. The environmental impacts arising from the construction of Hornsea Three are listed in section 4.11 of volume 2, chapter 4: Marine Mammals of the Environmental Statement along with the maximum design scenario against which each construction phase impact has been assessed.

5.1.4.8 Construction activities within the Hornsea Three array area and offshore cable corridor have the potential to result in a range of potential impacts on Marine Mammals. Table 4.59 of volume 2, chapter 4: Marine Mammals of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

5.1.4.9 Section 5.3 of EN-1 sets out the policies in relation to generic biodiversity impacts. Paragraph 5.3.3 identifies that applicant's assessments should include the following:

'the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Secretary of State consider thoroughly the potential effects of a proposed project.

The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests'.

5.1.4.10 Construction, operation and maintenance, and decommissioning phases of Hornsea Three have been assessed as part of the EIA on designated sites relevant to marine mammals, and in the Report to Inform the Appropriate Assessment for Hornsea Three (document reference A5.2) for Natura 2000 sites.

5.1.4.11 A summary of NPS EN-1 policies relevant to Marine Mammals are set out in table 4.1 of volume 2, chapter 4: Marine Mammals of the Environmental Statement.

5.1.4.12 Hornsea Three has carried out an assessment that responds to and satisfies the guidance set out within NPS EN-1 with regards to what an applicant should undertake and include in their assessment.

NPS EN-3

5.1.4.13 Marine Mammals are considered within NPS EN-3 at sections 2.6.58 to 2.6.71: Biodiversity and 2.6.90 to 2.6.99: Marine Mammals. Paragraph 2.6.92 sets out that, where necessary, the assessment of the effects on marine mammals should include details of:

- *"Likely feeding areas;*
- *Known birthing areas/haul out sites;*
- *Nursery grounds;*
- *Known migration or commuting routes;*
- *Duration of the potentially disturbing activity including cumulative/in-combination effects with other plans or projects;*
- *Baseline noise levels;*
- *Predicted noise levels in relation to mortality, permanent threshold shift (PTS) and temporary threshold shift (TTS);*
- *Soft-start noise levels according to proposed hammer and pile design; and*
- *Operational noise".*

5.1.4.14 Hornsea Three has identified all of the specified marine mammal ecology details in volume 2, chapter 4: Marine Mammals of the Environmental Statement. The Hornsea Three assessment has considered the relevant marine mammal behaviour for key species present in the regional marine mammal study area. An assessment of construction and operational noise impacts and their likely effects upon marine mammal behaviour and ecology has been undertaken. This assessment also considers the cumulative impacts of Hornsea Three and other relevant plans or projects.

5.1.4.15 Paragraph 2.6.93 states that:

'The applicant should discuss any proposed piling activities with the relevant body. Where assessment shows that noise from offshore piling may reach noise levels likely to lead to an offence, the applicant should look at possible alternatives or appropriate mitigation before applying for a European Protected Species (EPS) licence'.

5.1.4.16 The Hornsea Three assessment has considered the environmental impact of piling noise over a range of hammer energies and foundation types has been considered. Measures adopted as part of Hornsea Three are outlined in section 4.10 of volume 2, chapter 4: Marine Mammals of the Environmental Statement.

5.1.4.17 A summary of the NPS EN-3 policies on decision making relevant to marine mammals for the Hornsea Three assessment are set out at Table 4.2 of volume 2, chapter 4: Marine Mammals of the Environmental Statement.

NPS EN-5

5.1.4.18 There are no policies within NPS EN-5 that relate to Marine Mammals. NPS EN-5 will not be considered further.

Other relevant policies

5.1.4.19 The MPS notes that marine planning authorities should be mindful of the high-level marine objectives set out by the UK in order to ensure due consideration of marine ecology and biodiversity interests.

5.1.4.20 The requirements of the Marine Strategy Regulations 2010, and subsequent guidance, has also been considered in the Hornsea Three assessment for marine mammals. The relevance of the Marine Strategy Regulations 2010 to Hornsea Three is described in full in volume 1, chapter 2: Policy and Legislation of the Environmental Statement. Key provisions of these policies are set out in Tables 4.3 of volume 2, chapter 4: Marine Mammals of the Environmental Statement along with details as to how these have been addressed within the assessment.

5.1.4.21 As stated above, Policy EN9 is not concerned with Marine Mammals and as such, there is no conflict caused by Hornsea Three.

The Secretary of State's decision

5.1.4.22 Part 5.3 of EN-1 sets out the policy for the Secretary of State in relation to generic biodiversity impacts. Paragraphs 2.6.58 to 2.6.71 of NPS EN-3 set out offshore wind-specific biodiversity policy. In addition, there are specific considerations from piling noise which apply to offshore wind energy infrastructure proposals with regard to marine mammals.

5.1.4.23 It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.1.4.24 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.6 requires that the following matters relevant to marine mammals are taken in account when considering any proposed development:

'The Secretary of State must have regard to the MPS and applicable marine plans in taking any decision which relates to the exercise of any function capable of affecting the whole or any part of the UK marine area. In the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for purposes of Secretary of State decision making given the national significance of the infrastructure.'

5.1.4.25 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to "environmental, social and economic benefits and adverse impacts, at national, regional and local levels".

5.1.4.26 Paragraph 2.6.94 to 2.6.96 relate to the Secretary of State's decision making, and sets out that:

'the preferred methods of construction, in particular the construction method needed for the proposed foundations and the preferred foundation type, where known at the time of application, are designed so as to reasonably minimise significant disturbance effects on marine mammals. Unless suitable noise mitigation measures can be imposed by requirements to any development consent the Secretary of State may refuse the application.'

The conservation status of marine European Protected Species and deals are of relevance to the Secretary of State. The Secretary of State should take into account the views of relevant statutory advisors.

Fixed submerged structures such as foundations are likely to pose little collision risk for marine mammals and the Secretary of State is not likely to have to refuse to grant consent for a development on the grounds that offshore wind farm foundations pose a collision risk to marine mammals'.

5.1.4.27 Different foundation options and hammer energies have been considered for Hornsea Three. The maximum design scenario has been defined as those that represent the realistic maximum design scenario that have the potential to occur. These have been assessed and are presented in section 4.8.1 of volume 2, chapter 4: Marine Mammals of the Environmental Statement.

5.1.4.28 The conservation status of species has been factored into the assessment of significance at Table 4.12 of volume 2, chapter 4: Marine Mammals of the Environmental Statement.

5.1.4.29 The impacts of activities during the construction, operation and maintenance, and decommissioning phases of Hornsea Three, both alone and cumulatively with other plans and projects, were assessed with respect to these key marine mammal species and marine mammal features of SACs within the study area. The impact assessment has adopted a precautionary approach throughout in order to help to address any uncertainties. Assuming successful implementation of the proposed mitigation measures, the majority of impacts from Hornsea Three alone were assessed as being of minor adverse significance or less.

5.1.4.30 The Environmental Statement describes the magnitude of impact from subsea noise on marine mammal receptors and the sensitivity of the receptors to the range of impacts. No adverse effects above minor significance were identified to be considered likely to arise from Hornsea Three alone.

5.1.4.31 All of the impacts assessed in the CEA with the exception of underwater noise effect on harbour porpoise from piling were predicted to be of minor adverse significance and not significant in EIA terms. The cumulative effects of underwater noise from piling harbour porpoise has been assessed as of moderate significance in the short term, with this expected to decrease to a minor effect in the medium to long term.

5.1.4.32 The assessment of Marine Mammals has had regard to the relevant requirements for assessment set out in EN-1 and EN-3, and been carried out in accordance with those requirements.

5.1.4.33 The proposals are in accordance with the relevant policies related to Marine Mammals.

5.1.4.34 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on grounds related to Marine Mammals.

5.1.5 Offshore Ornithology

5.1.5.1 The following paragraphs identify relevant policy regarding Offshore Ornithology as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.1.5.2 Volume 2, chapter 5: Offshore Ornithology of the Environmental Statement presents the findings of the EIA for the potential impacts of the Hornsea Three on bird species occurring offshore. Specifically, this chapter considers the potential impact of Hornsea Three within a geographical remit seaward of Mean High-Water Springs (MHWS) during its construction, operation and maintenance, and decommissioning phases. The potential impacts of Hornsea Three on bird species occurring landward of MHWS are considered in volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

5.1.5.3 Volume 2, chapter 5: Offshore Ornithology of the Environmental Statement addresses the relevant offshore ornithology matters relevant to Hornsea Three. Paragraph 5.8.2.1 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement states that no known impacts are proposed to be scoped out of the assessment for offshore ornithology.

5.1.5.4 The Offshore Ornithology EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. These criteria have been adapted in order to implement a specific methodology for offshore ornithology. The general principle of determining impact significance from levels of sensitivity of the receptors and magnitude of effect is however consistent with Design Manual for Roads and Bridges (DMRB). In this respect, the methodology used also follows the approach outlined by CIEEM (2010).

5.1.5.5 In addition, the Offshore Ornithology EIA has considered relevant legislation, which is detailed in section 5.4.2 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement.

5.1.5.6 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on offshore ornithology. Table 5.15 in volume 2, chapter 5: Offshore Ornithology of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures are considered standard industry practice for this type of development. These designed in measures include:

- Relevant HSE procedures will be followed for all activities during construction, operation and maintenance, and decommissioning periods;
- Installation of appropriate lighting on wind farm structures as required by Trinity House; and
- A minimum wind turbine hub-height of 127.47 m (above LAT) will be used for Hornsea Three.

5.1.5.7 The impacts of the offshore construction of Hornsea Three have been assessed on offshore ornithology. The environmental impacts arising from the construction of Hornsea Three are listed in 5.11.1 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement along with the maximum design scenario against which each construction phase impact has been assessed.

5.1.5.8 Construction activities within the Hornsea Three array area and offshore cable corridor have the potential to result in a range of potential impacts on Offshore Ornithology. Table 5.59 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

5.1.5.9 Section 5.3 of EN-1 sets out the policies in relation to generic biodiversity impacts. Paragraph 5.3.3 identifies that applicant's assessment should include the following:

'the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Secretary of State consider thoroughly the potential effects of a proposed project.

The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests'.

5.1.5.10 Effects on offshore ornithology, including species of conservation importance, including those listed as features of designated sites, are fully considered in sections 5.11.1 (construction phase), 5.11.2 (operation and maintenance phase) and 5.11.3 (decommissioning phase) of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement. Baseline information on these receptors is presented in Section 5.7, with valuation of these receptors in the context of their conservation importance considered in volume 6, annex 5.1: Baseline Characterisation Report.

5.1.5.11 A summary of NPS EN-1 policies relevant to offshore ornithology is set out in table 5.1 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement.

5.1.5.12 Hornsea Three has carried out an assessment that responds to and satisfies the guidance set out within NPS EN-1 with regards to what an applicant should undertake and include in their assessment.

NPS EN-3

- 5.1.5.13 Offshore Ornithology is considered within NPS EN-3 at sections 2.6.58 to 2.6.71: Biodiversity and 2.6.100 to 2.6.110: Birds. With regards to applicant's assessments, paragraph 2.6.102 states that *'the scope, effort and methods required for ornithological surveys should have been discussed with the relevant statutory advisor'*.
- 5.1.5.14 The Hornsea Three pre-application process has included full consultation with statutory advisors (the Joint Nature Conservation Committee (JNCC) and Natural England) on ornithological survey methods and scope.
- 5.1.5.15 Paragraph 2.6.103 of NPS EN-3 states that *'relevant data from operational offshore wind farms should be referred to in the applicant's assessment'*.
- 5.1.5.16 Hornsea Three has considered relevant information on offshore birds in relation to published studies on operational offshore wind farms as part of the Environmental Impact Assessment process.
- 5.1.5.17 A summary of the NPS EN-3 provisions relevant to offshore ornithology, and policies on decision making relevant to offshore ornithology for the Hornsea Three assessment are set out at Tables 5.2 and 5.3 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement.

NPS EN-5

- 5.1.5.18 There are no policies within NPS EN-5 that relate to Offshore Ornithology. NPS EN-5 will not be considered further.

Other relevant policies

- 5.1.5.19 The key international, national and local legislation is set out in full at section 5.4.2 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement. Further advice in relation specifically to the Hornsea Three development has been sought through consultation with the statutory authorities and from the Secretary of State's scoping opinion.
- 5.1.5.20 There are no policies relevant to offshore ornithology within the adopted NNDC local plan.

The Secretary of State's decision

- 5.1.5.21 Part 5.3 of EN-1 sets out the policy for the Secretary of State in relation to generic biodiversity impacts. Paragraphs 2.6.58 to 2.6.71 of NPS EN-3 set out offshore wind-specific biodiversity policy.
- 5.1.5.22 It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.
- 5.1.5.23 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.6 requires that the following matters are taken in account when considering any proposed development:

'The Secretary of State must have regard to the MPS and applicable marine plans in taking any decision which relates to the exercise of any function capable of affecting the whole or any part of the UK marine area. In the event of a conflict between any of these marine planning documents and an NPS, the NPS prevails for purposes of Secretary of State decision making given the national significance of the infrastructure'.

- 5.1.5.24 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *"environmental, social and economic benefits and adverse impacts, at national, regional and local levels"*.
- 5.1.5.25 Paragraph 2.6.106 relates to the Secretary of State's decision making, and sets out that:

'In addition to Section 5.3 of EN-1 the offshore wind-specific biodiversity considerations set out in paragraphs 2.6.58 to 2.6.71 above should inform Secretary of State decision making'.
- 5.1.5.26 The requirements of the aforementioned paragraphs (specifically 2.6.68 to 2.6.71) have been assessed and are presented in Table 5.3 of volume 2, chapter 5: Offshore Ornithology of the Environmental Statement.
- 5.1.5.27 When considering the cumulative effects of Hornsea Three together with other projects and activities, several impacts of moderate or major adverse effect are predicted. Cumulative collision risk impacts are predicted on gannet, kittiwake, lesser black-backed gull and great black-backed gull and cumulative displacement impacts on guillemot.
- 5.1.5.28 The methods used to predict mortality rates are based on conservative assumptions, including the use of precautionary parameters in relevant risk assessments, and assuming the project is built out to the maximum design scenario. This approach has been discussed with the National Air Traffic Services (NATS).
- 5.1.5.29 The assessment of Offshore Ornithology has had regard to the relevant requirements for assessment set out in EN-1 and EN-3, and been carried out in accordance with those requirements.
- 5.1.5.30 There are no policies or guidance within the North Norfolk, Broadland, South Norfolk or Norfolk County Council Local Plans relating to Offshore Ornithology.
- 5.1.5.31 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on grounds related to Offshore Ornithology.
- 5.1.6 Commercial Fisheries**
- 5.1.6.1 The following paragraphs identify relevant policy regarding Commercial Fisheries as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

- 5.1.6.2 For the purpose of the Commercial Fisheries chapter, commercial fishing is defined as any form of fishing actively legally undertaken for taxable profit. Recreational fishing is addressed in volume 2, chapter 10: Infrastructure and Other Users of the Environmental Statement. Navigational aspects related to fishing vessels are assessed in volume 2, chapter 7: Shipping and Navigation of the Environmental Statement.
- 5.1.6.3 Volume 2, chapter 6: Commercial Fisheries of the Environmental Statement addresses the commercial fisheries matters relevant to Hornsea Three. Paragraph 6.8.2.1 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement states that on the basis of the baseline environment and the project description outlined in volume 1, chapter 3: Project Description of the Environmental Statement, no impacts are scoped out of the assessment for commercial fisheries.
- 5.1.6.4 The commercial fisheries EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. Specific to the commercial fisheries EIA, the following guidance documents have also been considered:
- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (UKFEN, 2013);
 - Fisheries Liaison with Offshore Wind and Wet Renewables group (FLOWW) Recommendations For Fisheries Liaison: Best Practice guidance for offshore renewable developers (BERR, 2008 and FLOWW, 2014);
 - FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015);
 - Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010a); and
 - Developing guidance on fisheries CIA for wind farm developers (Blyth-Skyrme, 2010b).
- 5.1.6.5 The legislative framework from which commercial fisheries operate under is accounted for within the baseline assessment, as management defines the level of catch (e.g. through TACs and quotas) and operating distribution (e.g. through Eastern IFCA Byelaws) of commercial fisheries. This legislative framework is defined by the EU Common Fisheries Policy, the UK Blue Book (which provides a single collection of UK and EU legislation applicable to UK fisheries) and Eastern IFCA Byelaws (which are applicable from 0 to 6 nm).
- 5.1.6.6 As part of the design process, a number of designed-in measures have been proposed to reduce the potential for impacts on commercial fisheries. Table 6.13 in volume 2, chapter 6: Commercial Fisheries of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. As there is a commitment to implementing these measures, they are considered inherently part of the design of Hornsea Three. These measures are considered standard industry practice for this type of development. These designed in measures include:
- Advance warning and accurate location details of phased construction operations and associated advisory distances;
 - On-going liaison with all fishing fleets (including regular Notice to Mariners);

- Appropriate marine coordination to ensure risks associated with construction vessels are minimised; and
- Use of guard vessels, where appropriate.

5.1.6.7 The impacts of the offshore construction of Hornsea Three have been assessed on commercial fisheries. The potential impacts arising from the construction of Hornsea Three are listed in section 6.8.1 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement, along with the maximum design scenario against which each construction phase impact has been assessed.

5.1.6.8 Construction activities within the Hornsea Three array area and offshore cable corridor have the potential to result in a range of potential impacts on Commercial Fisheries. Table 6.18 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

5.1.6.9 There are no policies within NPS EN-1 that relate to offshore ornithology.

NPS EN-3

5.1.6.10 Commercial Fisheries are considered within NPS EN-3 at section 2.6.121 to 2.6.136: Commercial Fisheries and fishing. Paragraphs 2.6.127 to 2.6.131 relate to applicant's assessments, stating that:

'Early consultation should be undertaken with statutory advisors and with representatives of the fishing industry which could include discussions of impact assessment methodologies. Where any part of a proposal involves a grid connection to shore, appropriate inshore fisheries groups should also be consulted.'

5.1.6.11 Hornsea Three has engaged with the local and regional industry over the period September 2010 to present Consultation has been undertaken at both at a zonal and at a project-specific level.

5.1.6.12 Paragraph 2.6.129 of NPS EN-3 states:

'the assessment by the applicant should include detailed surveys of the effects on fish stocks of commercial interest and any potential reduction in such stocks, as well as any likely constraints on fishing activity within the project's boundaries.'

5.1.6.13 Site-specific otter trawl and epibenthic beam trawl surveys were undertaken to inform fish and shellfish ecology; details of which are presented in Table 6.6 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement. In addition, consultation with the fishing industry has identified key concerns as well as available data and potential impacts, which have all been considered in the assessment (see section 6.5 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement).

5.1.6.14 A summary of the NPS EN-3 provisions relevant to Commercial Fisheries, and policies on decision making relevant to Commercial Fisheries for the Hornsea Three assessment are set out at Table 6.2 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement.

NPS EN-5

5.1.6.15 There are no policies within NPS EN-5 that relate to Offshore Ornithology. NPS EN-5 will not be considered further.

Other relevant policies

5.1.6.16 The UK Marine Policy Statement (MPS; HM Government, 2011) explicitly expresses support for the fishing sector, and with regard to displacement, advocates “seeking solutions such as co-location of activity wherever possible”. Specifically paragraphs 3.8.1, 3.8.2, and 2.3.1.5 stipulate that the process of marine planning should “enable the co- existence of compatible activities wherever possible”, and supports the reduction of real and potential conflict as well as maximising compatibility and encouraging co-existence of activities.

5.1.6.17 The East Inshore and East Offshore Marine Plans support maximising possibilities for the co-location of fisheries with other sectors (GOV2 under objective 10), together with a cross-sectoral policy on displacement (GOV3). A summary of East Inshore and East Offshore Marine Plans policies relevant to commercial fisheries is provided in Table 6.3 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement.

The Secretary of State's decision

5.1.6.18 Paragraphs 2.6.132 and 2.6.133 of NPS EN-3 sets out the policy for the Secretary of State's decision making in relation to Commercial Fisheries.

5.1.6.19 It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.1.6.20 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.2 requires that:

‘The Secretary of State should start with a presumption in favour of granting consent to applications for energy NSIPs.’

5.1.6.21 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to “environmental, social and economic benefits and adverse impacts, at national, regional and local levels”.

5.1.6.22 Paragraph 2.6.132 relates to the Secretary of State's decision making, and sets out that:

‘The Secretary of State should be satisfied that the site selection process has been undertaken in a way that reasonably minimises adverse impacts on fish stocks, including during peak spawning periods and the activity of fishing itself. The Secretary of State should consider the extent to which the proposed development occupies any recognised important fishing grounds and whether the project would prevent or significantly impede protection of sustainable Commercial Fisheries or fishing activities.’

5.1.6.23 Paragraph 2.6.33 states that:

‘The Secretary of State should be satisfied that the applicant has sought to design the proposal having consulted representatives of the fishing industry with the intention of minimising the loss of fishing opportunity taking into account effects on other marine interests.’

5.1.6.24 The effects arising from the proposed development have been and will be discussed with statutory bodies during pre and post application consultation. Hornsea Three is, and will continue to, take steps to minimise the effects upon the fishing industry in the area through appropriate mitigation where required. Designed-in measures related to commercial fisheries and adopted as part of Hornsea Three are provided in section 6.10 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement.

5.1.6.25 Consultation is important to the assessment of impact on commercial fisheries for Hornsea Three. Hornsea Three consultation with UK and overseas stakeholders from the fishing community is on-going. A range of mitigation measures are presented within Section 6.10 of volume 2, chapter 6: Commercial Fisheries of the Environmental Statement.

5.1.6.26 The cumulative effects of reduction in access to, or exclusion from, potential and/or established fishing grounds and displacement leading to gear conflict and increased fishing pressure on alternative grounds are considered to be moderate adverse for demersal trawling fleets and minor for all other fleets. The moderate adverse cumulative effect remains consistent for Tiers 1, 2 and 3 of the assessment which considers a range of developments and plans including offshore wind farms and marine protected areas. All other cumulative effects are considered to be of minor adverse significance for all fleets.

5.1.6.27 Transboundary impacts to non-UK vessels fishing within UK waters have been intrinsically considered throughout the commercial fisheries impact assessment. Transboundary impacts outside UK waters are limited to potential displacement of effort from Hornsea Three into non-UK EEZs, namely the Dutch EEZ. Based on the established fishing grounds targeted by the fleets under assessment it is anticipated that displacement effects into the Dutch EEZ would not be significant.

5.1.6.28 The assessment of Commercial Fisheries has had regard to the relevant requirements for assessment set out in NPS EN-3, and been carried out in accordance with those requirements.

5.1.6.29 There are no policies or guidance within the North Norfolk, Broadland, South Norfolk or Norfolk County Council Local Plans relating to Commercial Fisheries.

5.1.6.30 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on grounds related to Commercial Fisheries.

5.1.7 Shipping and Navigation

5.1.7.1 The following paragraphs identify relevant policy regarding Shipping and Navigation as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.1.7.2 Volume 2, chapter 7: Shipping and Navigation of the Environmental Statement considers the potential impact of Hornsea Three on Shipping and Navigation matters) during its construction, operation and maintenance and decommissioning phases.

5.1.7.3 Volume 2, chapter 7: Shipping and Navigation of the Environmental Statement addresses offshore shipping and navigation matters.

5.1.7.4 Hornsea Three has characterised the relevant shipping and navigation baseline, drawing on relevant policy, and assessing data regarding marine charts, fishing data, AIS survey data, shipping routes information, and maritime incident information. Site specific surveys were carried out covering both winter and summer periods for the array area and booster station search area, returning AIS, visual and Rader vessel survey information determining the existing shipping capacity in the vicinity of these features of Hornsea Three.

5.1.7.5 A summary of the desktop resources used to inform the shipping and navigation baseline are set out in Table 7.4 of volume 2, chapter 7: Shipping and Navigation of the Environmental Statement and site-specific survey data used is summarised in Table 7.5 of volume 2, chapter 7: Shipping and Navigation of the Environmental Statement.

5.1.7.6 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on shipping and navigation. These include:

- The inclusion of advisory safe distances from work areas and cable and maintenance vessels.
- Production of an aid to navigation management plan;
- Application and use of safety zones (up to 500m) during construction and decommissioning works and during operation for manned platforms;
- Restriction under a requirement of the DCO to a minimum blade clearance distance, at 34.97m above Lowest Astronomical Tide (LAT);
- Consideration of navigational safety in design of bridge links;
- Deployment of buoys around construction areas;
- Cable Burial Risk Assessment and future survey, to identify any potential and ongoing risks to navigation; and

- Charting of array area, cables, and HVAC booster station.

5.1.7.7 Table 7.17 of volume 2, chapter 7: Shipping and Navigation of the Environmental Statement, provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

5.1.7.8 Shipping and navigation is not specifically considered by EN-1.

NPS EN-3

5.1.7.9 NPS EN-3 provides guidance specific to renewable energy infrastructure proposals. Section 2.6 of EN-3 (specifically 2.6.147 to 2.6.175) refers to the potential impacts on shipping and navigation associated with Offshore Wind Farms. Those impacts can affect commercial and recreational users of the sea, with offshore wind farms potentially causing disruption or economic loss to them. EN-3 confirms that consent should not be granted for offshore wind farms where there would be unacceptable risks to shipping and navigation, after mitigation measures had been adopted (2.6.147).

5.1.7.10 EN-3 confirms that impacts may arise as a result of the creation of a physical barrier during construction and operation, in addition to having an impact on shipborne and shore based radar systems (2.6.148). The creation of safety zones may lead to further impacts (2.6.149), affecting rites of passage through UK territorial waters and freedom of navigation beyond the seaward limits of the territorial seas (2.6.150).

5.1.7.11 EN-3 also confirms that the use of the sea by recreational craft is an important consideration for applicants and the Secretary of State (2.6.151).

NPS EN-5

5.1.7.12 Shipping and navigation is not specifically considered by EN-5.

The Secretary of State's decision

5.1.7.13 Part 5.8 of EN-1 set out matters relevant to shipping and navigation at national level. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.1.7.14 EN-3 contains more specific guidance, relevant to the Secretary of State's decision making process with regard to shipping and navigation.

5.1.7.15 The assessment of shipping and navigation has had regard to the relevant requirements for assessment set out in EN-1 and EN-3 and been carried out in accordance with those requirements.

5.1.7.16 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on shipping and navigation grounds.

5.1.8 Civil and military aviation and defence interests

5.1.8.1 The following paragraphs identify relevant policy regarding civil and military aviation and defence interests as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.1.8.2 Volume 2, chapter 8: Aviation, Military and Communications of the Environmental Statement considers the potential impact of Hornsea Three on these matters during its construction, operation and maintenance, and decommissioning phases.

5.1.8.3 Hornsea Three has characterised the relevant baseline, drawing on available data regarding radar zones, military practice areas, radio and communications information, oil and gas development information, wind speed and direction data and other data regarding civil and defence aviation activities. This desktop information has been supplemented by further analysis carried out by NATs on behalf of Hornsea Three, providing an analysis of typical radar data to provide a better understanding of the aviation baseline, to inform the aviation assessment that has been carried out.

5.1.8.4 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on civil and military aviation and defence interests. These designed in measures are set out at Table 8.13 of volume 2, chapter 8: Aviation, Military and Communications of the Environmental Statement. Those measures include:

- The UK Hydrographic Office (UKHO) will be informed of the locations, heights and lighting status of the wind turbines, including estimated and actual dates of construction and the maximum height of any construction equipment to be used, prior to the start of construction, to allow inclusion on Aviation Charts;
- During the operation and maintenance phase, the Hornsea Three operator will issue, as necessary, requests to the UK Aeronautical Information Service to submit a Notice to Airmen (NOTAMS) in the event of any failure of aviation lighting;
- Hornsea Three will continue to consult with current oil and gas operators and licensees and will consider representations if approached by future oil and gas operators and licensees;
- An Emergency Response and Cooperation Plan (ERCoP) will be in place for the operation and maintenance of Hornsea Three. The ERCoP will detail specific marking and lighting of the wind turbines; and
- Hornsea Three shall continue to consult with the MOD to better understand their aviation lighting requirements.

5.1.8.5 Table 8.18 of volume 2, chapter 8: Aviation, military and communication of the Environmental Statement, provides a summary of the potential effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

5.1.8.6 NPS EN-1 considers civil and military aviation and defence interests at section 5.4.

5.1.8.7 Paragraphs 5.4.10 to 5.4.13 set out a number of overarching aspects that applicant's assessment should include.

"Where the proposed development may have an effect on civil or military aviation and/or other defence assets an assessment of potential effects should be set out in the ES (see Section 4.2). The applicant should consult the MoD, CAA, NATS and any aerodrome – licensed or otherwise – likely to be affected by the proposed development in preparing an assessment of the proposal on aviation or other defence interests.

Any assessment of aviation or other defence interests should include potential impacts of the project upon the operation of CNS infrastructure, flight patterns (both civil and military), other defence assets and aerodrome operational procedures. It should also assess the cumulative effects of the project with other relevant projects in relation to aviation and defence.

If any relevant changes are made to proposals during the pre-application and determination period, it is the responsibility of the applicant to ensure that the relevant aviation and defence consultees are informed as soon as reasonably possible".

NPS EN-3

5.1.8.8 NPS EN-3 does not provide any guidance with regard to civil and military aviation and defence interests

NPS EN-5

5.1.8.9 NPS EN-5 notes that in some cases it will be necessary for applicants to consider potential effects of Electro Magnetic Fields (EMF) on aviation. This matter has not been raised to date in consultation with relevant stakeholders in respect of Hornsea Three.

The Secretary of State's decision

5.1.8.10 Paragraphs 5.4.14 to 5.4.21 of EN-1 set out matters the Secretary of State will need to be satisfied that the effects on civil and military aerodromes, aviation technical sites and other defence assets have been addressed by the applicant and any necessary assessment of the proposal on aviation or defence interests has been carried out, along with any relevant mitigation (5.4.14).

5.1.8.11 Hornsea Three has consulted all relevant aviation, military and communications stakeholders as part of the EIA/DCO process and taken those responses into consideration in the preparation of the EIA, along with all relevant legislation/guidance.

"If there are conflicts between the Government's energy and transport policies and military interests in relation to the application, the SoS should expect the relevant parties to have made appropriate efforts to work together to identify realistic and pragmatic solutions to the conflicts. In so doing, the parties should seek to protect the aims and interests of the other parties as far as possible". (5.4.15).

5.1.8.12 The Hornsea Three impact assessment shows that steps have been taken to avoid or reduce the impact of the development through proposed mitigation.

"Where aviation and navigation lighting is requested on structures that goes beyond statutory requirements by any of the relevant aviation and defence consultees, the Secretary of State should satisfy itself of the necessity of such lighting taking into account the case put forward by the consultees. The effect of such lighting on the landscape and ecology may be a relevant consideration". (5.4.16).

5.1.8.13 Aviation lighting requirements are outlined in section 8.10 of this chapter and will satisfy the requirements of CAP 393 (Article 223) (CAA, 2016a). An indicative lighting plan is included in volume 2, chapter 10: Seascape and Visual Resources of the Environmental Statement.

"Where, after reasonable mitigation, operational changes, obligations and requirements have been proposed, the Secretary of State considers that:

- *a development would prevent a licensed aerodrome from maintaining its licence;*
- *the benefits of the proposed development are outweighed by the harm to aerodromes serving business, training or emergency service needs;*
- *the development would significantly impede or compromise the safe and effective use of defence assets or significantly limit military training;*
- *the development would have an impact on the safe and efficient provision of en route air traffic control services for civil aviation; consent should not be granted". (5.4.17).*

5.1.8.14 Hornsea Three has been sited to minimise conflicts with aviation, military and communication receptors. In cases where conflict has been highlighted by early consultation, Hornsea Three has, where appropriate, proposed mitigation measures to reduce or negate impacts. Mitigation measures for aviation, military and communication receptors are presented in Table 8.13 of volume 2, chapter 8: Aviation, Military and Communications of the Environmental Statement.

"Where a proposed energy infrastructure development would significantly impede or compromise the safe and effective use of civil or military aviation or defence assets and or significantly limit military training, the Secretary of State may consider the use of 'Grampian', or other forms of condition which relate to the use of future technological solutions, to mitigate impacts. Mitigation for infringement of Obstacle Limitation Surfaces (OLS) may include:

- *amendments to layout or scale of infrastructure;*
- *changes to operational procedures of the aerodromes in accordance with relevant guidance; and*
- *installation of obstacle lighting and/or by notification in Aeronautical Information Service publications.*

For CNS infrastructure, the UK military Low Flying system (including Tactical Training Areas (TTAs)) and designated air traffic routes, mitigation may also include:

- *lighting;*
- *operational airspace changes; and*
- *upgrading of existing CNS infrastructure. Mitigation for effects on radar, communications and navigational systems may include reducing the scale of a project" (5.4.18 to 5.4.21).*

5.1.8.15 The assessment of effects on aviation, military and communications matters by Hornsea Three has had regard to the relevant requirements for assessment set out in EN-1 and EN-3 and been carried out in accordance with those requirements.

5.1.8.16 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's in respect of civil and military aviation and defence, which would lead to a refusal of development consent.

5.1.9 Historic environment (Marine Archaeology)

5.1.9.1 The following paragraphs identify relevant policy regarding Marine Archaeology as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.1.9.2 Volume 2, chapter 9: Marine Archaeology of the Environmental Statement considers the potential impact of Hornsea Three on Marine Archaeology matters seaward of Mean High Water Springs (MHWS) during its construction, operation and maintenance and decommissioning phases. Matters relevant to onshore heritage are landward of MHWS are assessed in volume 3, chapter 5: Historic Environment of the Environmental Statement.

5.1.9.3 Volume 2, chapter 9: Marine Archaeology of the Environmental Statement addresses offshore heritage matters.

5.1.9.4 As stated above, Hornsea Three has characterised the relevant Historic Environment baseline, drawing on relevant policy, and assessing data regarding offshore wrecks, marine charts, past study, and field survey works. A summary of the desktop resources used to inform the Marine Archaeology baseline are set out in Table 5.7 of volume 2, chapter 9: Marine Archaeology of the Environmental Statement and site-specific survey data used is summarised in Table 9.5.

5.1.9.5 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on Marine Archaeology. These designed in measures include:

- Programme of advance archaeological investigation following consent under a written scheme of investigation secured by the deemed marine licences;
- Provision by Hornsea Three of archaeological input to future geotechnical surveys where deposits of known archaeological potential are likely to be affected;
- Hornsea Three's archaeologists to be consulted in the preparation of any preconstruction ROV/diver surveys and, if appropriate, in monitoring/checking of data;
- Further investigation of those SeaZone/UKHO records classified as 'dead' (where there has been no evidence of the wreck or obstruction over successive surveys) will be undertaken during the future assessment of higher resolution geophysical survey data;
- The identification and implementation of AEZs around those sites identified as having high and medium archaeological potential;
- Final turbine locations to avoid any known archaeological constraints identified in pre-construction surveys through micrositing;
- The identification and implementation of Temporary Archaeological Exclusion Zones (TAEZs) based on all available information;
- Archaeologists to be consulted in the preparation of pre-construction cable route clearance or other pre-construction clearance operations and, if appropriate, to carry out watching briefs of such work;
- Mitigation of unavoidable direct impacts on known sites of archaeological significance: Options include i) preservation by record; ii) stabilisation; iii) detailed analysis and safeguarding of otherwise comparable sites elsewhere; and
- Implementation of the Offshore Renewables Protocol for Archaeological Discoveries for unexpected archaeological discoveries made during the course of development.

5.1.9.6 Table 9.17 of volume 2, chapter 9: Marine Archaeology of the Environmental Statement, provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

5.1.9.7 The Historic Environment is considered within NPS EN-1 at section 5.8: Historic Environment. Paragraph 5.8.8 identifies a number of overarching aspects that the applicant's assessment should include:

'Provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. As a minimum the applicant should have consulted the relevant Historic Environment Record¹²⁰ (or, where the development is in English or

Welsh waters, English Heritage [Historic England] or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.

The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents'.

5.1.9.8 Paragraph 5.8.9 goes on to say that:

'Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact.'

5.1.9.9 Hornsea Three has characterised the relevant Historic Environment baseline, drawing on relevant national and local policy, and conducting desk-based and field research to better understand the potential impacts on any historic features identified. In addition, Hornsea Three has regularly consulted with Historic England providing project updates, as well as discussing offshore survey outputs and results.

5.1.9.10 Therefore EN-1 is the primary policy with respect to the Historic Environment overall, onshore and offshore, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment. Matters specifically relevant to Marine Archaeology are further set out in EN-3.

NPS EN-3

5.1.9.11 NPS EN-3 provides guidance specific to renewable energy infrastructure proposals. Section 2.6 of EN-3 (specifically 2.6.137 to 2.6.146) refers to the impacts associated with Offshore Wind Farms. With regard to the onshore Historic Environment, NPS EN-3 refers to NS EN-1. With regard to the offshore historic environment requires that applicants consult with the relevant statutory consultees (2.6.140) and that consultation be carried out at an early stage. Applicants are further guided that assessments should have regard to any geotechnical and geophysical surveys undertaken to inform the project design. (2.6.141). Where possible, EN-3 requires assessments to identify any beneficial effects on the historic maritime environment, through improved access or contribution to new knowledge arising from investigation (2.6.142).

NPS EN-5

5.1.9.12 NPS EN-5 notes that developers will be influenced by Schedule 9 to the Electricity Act 1989, which places a duty on all generation, supply, transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to have regard to the desirability of protecting sites, buildings and objects of architectural, historic or archaeological interest (paragraph 2.2.6, NPS EN-5). With regard to the Historic Environment, NPS EN-5 refers to NPS EN-1.

5.1.9.13 There are no policies contained within the NNDC Core Strategy considered relevant to marine heritage matters.

The Secretary of State's decision

5.1.9.14 Part 5.8 of EN-1 set out matters relevant to the Historic Environment at national level. It is recognised that *'the construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment'*. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.1.9.15 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.3 requires that the following matters relevant to the Historic Environment are taken in account when considering any proposed development:

'potential adverse impacts, including long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts'.

5.1.9.16 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *"environmental, social and economic benefits and adverse impacts, at national, regional and local levels"*.

5.1.9.17 Paragraphs 5.8.11 to 5.8.18 set out matters the Secretary of State should have regard to in reaching a decision, including proposed mitigation, specifically in respect of matters relating to the Historic Environment. It is confirmed that the Secretary of State should seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development, including by development affecting the setting of a heritage asset taking account, *inter alia*, of:

- Evidence provided with the application;
- Any designation records;
- The Historic Environment Record, and similar sources of information;
- The heritage assets themselves;
- The outcome of consultations with interested parties; and
- Where appropriate and when the need to understand the significance of the heritage asset demands it, expert advice.

5.1.9.18 Specifically with regard to Marine Archaeology, EN-3 requires that the Secretary of State should be satisfied that the project has been designed sensitively taking into account known heritage assets and their status, including features like protected wrecks (2.6.144).

5.1.9.19 The assessment of marine Archaeology has had regard to the relevant requirements for assessment set out in EN-1 and EN-3 and been carried out in accordance with those requirements.

5.1.9.20 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on Marine Archaeology grounds.

5.1.10 Infrastructure and other users

5.1.10.1 The following paragraphs identify relevant policy regarding Infrastructure as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application. Matters related to infrastructure are presented in volume 2, chapter 11: Infrastructure and Other Users, of the Environmental Statement.

5.1.10.2 The Environmental Statement considers the potential impact of Hornsea Three seaward of Mean High Water Springs (MHWS) during its construction, operation and maintenance, and decommissioning phases are considered on existing infrastructure; as well as other users within the vicinity of Hornsea Three.

5.1.10.3 Volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement addresses the infrastructure matters relevant to Hornsea Three. A number of impacts are proposed to be scoped out of the assessment for infrastructure and other users; these impacts are outlined, together with a justification for scoping them out, in section 11.8.2 of volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement.

5.1.10.4 The infrastructure and other users EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. Specific to the infrastructure and other users EIA, the following guidance documents/references have also been considered:

- The RYA's Position on Offshore Renewable Energy Developments: Paper 1 (of 4) – Wind Energy, September 2015 (RYA, 2015);
- Guidance on Environmental Impact Assessment of Offshore Renewable Energy Development on Surfing Resources and Recreation (SAS, 2009);
- European Subsea Cables UK Association (ESCA) Guideline No 6, The Proximity of Offshore Renewable Energy Installations and Submarine Cable Infrastructure in UK Waters (ESCA, March 2016);
- The International Cable Protection Committee (ICPC) recommendations:
 - Recommendation No.2. Recommended Routing and Reporting Criteria for Cables in Proximity to Others (ICPC, 2015);
 - Recommendation No.3. Criteria to be Applied to Proposed Crossings Submarine Cables and/or Pipelines (ICPC, 2014); and
 - Recommendation No.13. The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters (ICPC, 2013).

- Oil and Gas Licencing Rounds (OGA, 2016a);
 - Oil and Gas UK, Pipeline Crossing Agreement and Proximity Agreement Pack (Oil and Gas UK, 2015a); and
 - TCE Guidance: Offshore wind farms and electricity export cables – crossing agreements (TCE, 2012).
- 5.1.10.5 The criteria for determining the significance of effects is a two-stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts. This section describes the criteria applied in this chapter to assign values to the sensitivity of receptors and the magnitude of potential impacts. The terms used to define sensitivity and magnitude are based on those used in the DMRB methodology, which is described in further detail in volume 1, chapter 5: Environmental Impact Assessment Methodology, of the Environmental Statement.
- 5.1.10.6 As part of the design process, a number of designed-in measures have been proposed to reduce the potential for impacts on infrastructure and other users. Table 11.27 in volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures are considered standard industry practice for this type of development. These designed in measures include:
- A cable crossing agreement will be established with relevant cable operators;
 - The crossing or laying of marine export cables from Hornsea Three over or adjacent to existing or future pipelines will be subject to pipeline crossing/proximity agreements between Hornsea Three and the pipeline operators, prior to the start of the construction phase;
 - Hornsea Three will continue to consult with current oil and gas operators and licensees and will consider representations if approached by future oil and gas operators and licensees; and
 - Hornsea Three intends to apply for a standard 500 m safety zone (as per the 2007 Safety Zone regulations cited in the justification column), around each of the wind turbines, offshore transformer substations, offshore HVDC converter stations, accommodation platforms and the offshore HVAC booster stations whilst construction/decommissioning works are ongoing.
- 5.1.10.7 The impacts of the offshore construction of Hornsea Three have been assessed on infrastructure and other users. The potential impacts arising from the construction of Hornsea Three are listed in section 11.8.1 of volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement, along with the maximum design scenario against which each construction phase impact has been assessed.
- 5.1.10.8 Construction activities within the Hornsea Three array area and offshore cable corridor have the potential to result in a range of potential impacts on Infrastructure and other users. Tables 11.38, 11.39 and 11.40 of volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

National Policy Statements

NPS EN-1

- 5.1.10.9 There are no policies within NPS EN-1 that relate to Infrastructure. NPS EN-1 will not be considered further.

NPS EN-3

- 5.1.10.10 Infrastructure is considered within NPS EN-3 at section 2.6.176 to 2.6.188: Oil, gas and other offshore infrastructure and activities. Paragraphs 2.6.179 to 2.6.181 relate to applicant's assessments, stating that:

'Where a potential offshore wind farm is proposed close to existing operational offshore infrastructure, or has the potential to affect activities for which a licence has been issued by Government, the applicant should undertake an assessment of the potential effect of the proposed development on such existing or permitted infrastructure or activities. The assessment should be undertaken for all stages of the lifespan of the proposed wind farm in accordance with the appropriate policy for offshore wind farm EIAs'.

- 5.1.10.11 The Hornsea Three assessment has considered each of these potential effects and provided an assessment of their likely significance, considering each phase of the development process (i.e. construction, operation and maintenance, and decommissioning).

- 5.1.10.12 Paragraphs 2.6.180 and 2.6.181 of NPS EN-3 state that:

'Paragraphs 2.6.180 – 2.6.181 note that applicants should establish stakeholder engagement with interested parties in the offshore sector early in the development phase of the proposed offshore wind farm, with an aim to resolve as many issues as possible prior to the submission of an application. Such stakeholder engagement should continue throughout the life of the development'.

- 5.1.10.13 Consultation with potentially affected stakeholders has been carried out from the early stages of the project and throughout the pre-application consultation process. Details of this are presented in section 11.5 of volume 2, chapter 11: Infrastructure and other users of the Environmental Statement.

- 5.1.10.14 A summary of the NPS EN-3 provisions relevant to Infrastructure, and policies on decision making relevant to Infrastructure for the Hornsea Three assessment are set out at Tables 11.1 and 11.2 of volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement.

NPS EN-5

- 5.1.10.15 There are no policies within NPS EN-5 that relate to infrastructure. NPS EN-5 will not be considered further.

Other relevant policies

5.1.10.16 The infrastructure assessment has also given consideration to the specific policies set out in the East Inshore and East Offshore Marine Plans. Key provisions are set out in section 11.4.2 of volume 2, chapter 11: Infrastructure and Other Users of the Environmental Statement, along with details as to how these have been addressed within the assessment.

The Secretary of State's decision

5.1.10.17 Paragraphs 2.6.182 to 2.6.186 of NPS EN-3 sets out the policy for the Secretary of State's decision making in relation to Infrastructure.

5.1.10.18 It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.1.10.19 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.2 requires that:

'The Secretary of State should start with a presumption in favour of granting consent to applications for energy NSIPs.'

5.1.10.20 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to "environmental, social and economic benefits and adverse impacts, at national, regional and local levels".

5.1.10.21 Paragraph 2.6.183 relates to the Secretary of State's decision making, and sets out that:

'Where a proposed offshore wind farm potentially affects other offshore infrastructure or activity, a pragmatic approach should be employed by the Secretary of State. Much of this infrastructure is important to other offshore industries as is its contribution to the UK economy. In such circumstances the Secretary of State should expect the applicant to minimise negative impacts and reduce risks to as low as reasonably practicable.'

5.1.10.22 Paragraph 2.6.184 states that:

'As such, the Secretary of State should be satisfied that the site selection and site design of the proposed offshore wind farm has been made with a view to avoiding or minimising disruption or economic loss or any adverse effect on safety to other offshore industries. The Secretary of State should not consent applications which pose unacceptable risks to safety after mitigation measures have been considered.'

5.1.10.23 The Hornsea Three impact assessment describes the steps that have been taken to avoid or reduce the impact of the development. Hornsea Three has been sited to minimise conflicts with other users, where possible. In cases where conflict has been identified, Hornsea Three has, where appropriate and feasible, proposed mitigation measures to reduce or negate impacts (section 11.10 of volume 2, chapter 11: Infrastructure and Other Users, of the Environmental Statement). Mitigation measures for receptors are presented in 11.10 of the chapter, and also volume 1, chapter 4: Site Selection and Consideration of Alternatives, of the Environmental Statement.

5.1.10.24 Information on infrastructure and other users within the Hornsea Three infrastructure and other users study area was collected through a detailed desktop review of existing datasets and through consultation.

5.1.10.25 Impacts assessed during the construction, operation and maintenance, and decommissioning phase for Hornsea Three, considered alongside other projects and plans, include the displacement of recreational craft and recreational fishing vessels leading to a loss of recreational activity, restricted access to cables and pipelines, increased suspended sediment concentrations and deposition resulting in a change in aggregate resource, restriction on seismic survey, drilling and the placement of infrastructure, underwater noise that may acoustically interfere with seismic survey operations, interference with the performance of the Radar Early Warning System (REWS) located on oil and gas platforms, deviation of vessels leading to a change in CPA and TCPA alarms on oil and gas platforms protected by REWS, and disruption of vessel access to oil and gas platforms and subsea infrastructure. Overall it is concluded that there will be no significant cumulative effects from Hornsea Three alongside other projects/plans.

5.1.10.26 Potential transboundary impacts have been identified in regard to effects of Hornsea Three in isolation on the J6A platform REWS operated by Spirit Energy, which is not significant in EIA terms.

5.1.10.27 The assessment of Infrastructure and other users has had regard to the relevant requirements for assessment set out in NPS EN-3, and been carried out in accordance with those requirements.

5.1.10.28 The construction, operation and maintenance, and decommissioning of Hornsea Three will be in accordance with the relevant NPS's and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPS's which would lead to a refusal of development consent on grounds related to infrastructure and other users.

5.2 Onshore

5.2.1 Geology and Ground Conditions

5.2.1.1 The following paragraphs identify relevant policy regarding geology and ground conditions as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.1.2 Volume 3, chapter 1: Geology and Ground Conditions of the Environmental Statement addresses onshore Geology and Ground Conditions matters.

National Policy Statements

NPS EN-1

5.2.1.3 Geology and ground conditions are considered within NPS EN-1 at section 5.3: Biodiversity and Geological Conservation (paragraphs 5.3.3, 5.3.4, 5.3.8; 5.3.10, 5.3.11, 5.3.13 and 5.3.18); section 5.10: Land use including open space, green infrastructure & Green Belt (paragraphs 5.10.8, 5.10.9 and 5.10.22); and section 15: Water quality and resources (paragraphs 5.15.1; 5.15.2 and 5.15.3).

5.2.1.4 With regards to matters relevant to the form of Hornsea Three, EN-1 paragraph 5.3.3 identifies that applicant's assessments should:

'ensure that the ES clearly sets out any significant effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity'

And

'show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests'.

5.2.1.5 EN-1 is the primary policy with respect to Geology and Ground Conditions, subject to the potential material relevance of other policies such as the NPPF, which states at paragraph 109 that Local Planning Authorities should *'protect and enhance valued landscapes, geological conservation interests and soils'*.

5.2.1.6 There are two designated geological sites (Kelling Heath SSSI and Weybourne Cliffs SSSI) within the Hornsea Three Geology and Ground Conditions study area. The avoidance of these designated sites is a designed in measure and no land take within the designated sites is required for the construction of Hornsea Three.

5.2.1.7 As well as physical avoidance, further designed-in measures have been proposed to reduce the potential for impacts on Geology and Ground Conditions. Table 1.15 in volume 3, chapter.1: Geology and Ground Conditions of the Environmental Statement, provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

5.2.1.8 During the site selection and route refinement process, the width of the Hornsea Three onshore cable corridor has been refined. This has in turn reduced the area of Hornsea Three which has direct impacts on Minerals Safeguarding Areas. The design also takes into account that construction activities are confined to the minimum areas required for work, to reduce the extent of the areas affected. Mitigation measures in relation to Geology and Ground Conditions are set out in Table 1.14 of volume 3, chapter 1: Geology and Ground Conditions of the Environmental Statement. Hornsea Three does not directly affect any sites currently allocated or in receipt of planning permission for minerals extraction and there is no conflict with this policy as a result. The onshore HVAC booster station is located within a sand and gravel safeguarding area, and the HVDC converter/HVAC substation is not located within minerals safeguarded areas.

5.2.1.9 The Hornsea Three onshore cable corridor would impact approximately 245 ha of Minerals Safeguarded Areas. This is considered to be a relatively small area of the total safeguarded reserves in Norfolk, spread along a relatively narrow corridor. Following the operating life of Hornsea Three (approximately 35 years) those minerals resources could be extracted. Hornsea Three will continue to consult with NCC regarding the Mineral Safeguarding Areas located along the Hornsea Three onshore cable corridor and the onshore HVAC booster station area.

5.2.1.10 Mitigation measures with regard to the protection of groundwater are secured through the Outline CoCP (document reference A8.5). During operation and maintenance, it has been assumed that oils and lubricants will be used in the maintenance of the onshore HVAC booster station and onshore HVDC converter/HVAC substation. The effect of spills and leaks occurring and affecting underlying groundwater resources is considered to be minor adverse, assuming appropriate mitigation measures are in place. The thermal effect of underground cables on groundwater during the operation and maintenance phase is also considered to be minor adverse assuming that stabilised backfill material is used in the construction of the onshore cable trenches.

5.2.1.11 A robust assessment of the potential effects of Hornsea Three has been carried out in terms of Geology and ground conditions that satisfies the assessment requirements set out in EN-1. The assessment has concluded there would be no significant effects as a result of the development.

NPS EN-3

5.2.1.12 NPS EN-3 does not address matters relating to Geology and Ground Conditions, and is therefore not considered relevant to this type of project.

NPS EN-5

5.2.1.13 Matters relating to geology and ground conditions are considered within NPS EN-5 at section 2.7: Biodiversity and Geological Conservation (paragraph 2.7.1).

5.2.1.14 Paragraph 2.8.9 confirms that impacts and costs of both overhead cables and underground cables vary considerably between individual projects and that underground cables, when compared to overhead cables, can lead to greater environmental consequences to soils and geology during the construction phase.

5.2.1.15 Hornsea Three considers that there are no additional matters that EN-5 raises with respect to Geology or Ground Conditions, which are not already addressed by the provisions of EN-1.

NPPF

5.2.1.16 Paragraph 109 of the NPPF confirms that the planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes, geological conservation interests and soils. Paragraph 117 states that to minimise impacts on biodiversity and geodiversity, planning policies should aim to prevent harm to geological conservation interests.

Local planning policy

North Norfolk District Council

5.2.1.17 NNDC Local Plan Policy EN9 relates to biodiversity and geology. There are currently no NNDC Emerging Local Plan policies available for consideration. With respect to Geology, policy EN9 seeks to resist development that would cause a direct or indirect adverse effect to nationally designated sites. Such proposals would not be permitted unless there is no alternative site that would cause less or no harm, the benefits of the development outweigh the effects, and prevention, mitigation and compensation are provided. The assessment of Hornsea Three has concluded there would be no significant effects on geology and ground conditions. Hornsea Three satisfies the requirements of Policy EN9.

Broadland District Council

5.2.1.18 While the Joint Core Strategy acknowledges the presence of geological features within Broadland, South Norfolk and Norwich City, there is no specific policy for the protection or preservation of geological sites.

South Norfolk Council

5.2.1.19 While the Joint Core Strategy acknowledges the presence of geological features within Broadland, South Norfolk and Norwich City, there is no specific policy for the protection or preservation of geological sites.

Norfolk County Council

5.2.1.20 NCC Core Strategy and Minerals and Waste Development Management Policy CS16 relates to safeguarding minerals and waste sites and minerals resources. The policy seeks to safeguard existing and planned minerals sites, and to prevent sterilisation of currently safeguarded, but not yet allocated or developed, minerals extraction sites in Norfolk. As discussed above in respect of EN-1, it is concluded that Hornsea Three would not have a significant impact in this regard and there would be no conflict with this policy.

The Secretary of State's decision

5.2.1.21 Part 5 of EN-1 set out matters relevant to Biodiversity and Geological Conservation effects at national level. It is recognised that "*Geological conservation relates to the sites that are designated for their geology and/or their geomorphological importance*". It is accepted in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.2.1.22 Part 4 of EN-1 sets out a series of general principles that will be taken into account when reaching a decision. Paragraph 4.13 requires that the following matters relevant to Geology and Ground Conditions are taken into account when considering any proposed development:

- *"its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and*
- *its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts"*.

5.2.1.23 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to "*environmental, social and economic benefits and adverse impacts, at national, regional and local levels*".

5.2.1.24 Paragraphs 5.3.5 to 5.3.8, and 5.3.18 to 5.3.20 set out matters the Secretary of State should have regard to in reaching a decision, including proposed mitigation, specifically in respect of Geology matters. It is confirmed that development should aim to avoid significant harm to biodiversity and geological conservation interests, including through mitigation and consideration of reasonable alternatives. Section 4 of this planning statement covers matters relating to site selection and consideration of alternatives.

5.2.1.25 In taking decisions, the Secretary of State should ensure appropriate weight is attached to designated sites of international, national and local importance. Volume 3, chapter 1: Geology and Ground Conditions of the Environmental Statement identifies the relevant designated sites and assesses impacts and mitigation to be implemented by Hornsea Three.

5.2.1.26 The assessment of geology and ground conditions has had regard to the relevant requirements for assessment set out in EN-1, and been carried out in accordance with those requirements.

5.2.1.27 The proposals are in accordance with the relevant policies regarding geology and Ground conditions in North Norfolk and Norfolk County; there are no relevant policies for Broadland and South Norfolk Districts.

5.2.1.28 The proposed methods for the construction, operation and maintenance, and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that none of the conditions set out that may warrant a refusal of development consent are conflicted with.

5.2.2 Hydrology and Flood Risk

5.2.2.1 The following paragraphs identify relevant policy regarding Hydrology and Flood Risk as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.2.2 Volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement addresses onshore hydrology and flood risk matters.

National Policy Statements

NPS EN-1

5.2.2.3 Matters relevant to hydrology and flood risk and water quality and resources, are set out within NPS EN-1 at section 5.7: Flood Risk and section 5.5: Water Quality and Resources. Paragraph 4.8.6 of EN-1 specifically identifies that applicants should have regard to climate change and should assess the resilience of their project to climate change.

5.2.2.4 Paragraph 5.7.5 identifies that applicant's assessment, as a minimum requirement, should include a Flood Risk Assessment (FRA) that:

- *'Is proportionate to the risk and appropriate to the scale, nature and location of the project;*
- *Consider the risk of flooding arising from the project in addition to the risk of flooding to the project;*
- *take the impacts of climate change into account, clearly stating the development lifetime over which the assessment has been made;*
- *be undertaken by competent people, as early as possible in the process of preparing the proposal;*
- *consider both the potential adverse and beneficial effects of flood risk management infrastructure, including raised defences, flow channels, flood storage areas and other artificial features, together with the consequences of their failure;*
- *consider the vulnerability of those using the site, including arrangements for safe access;*
- *consider and quantify the different types of flooding (whether from natural and human sources and including joint and cumulative effects) and identify flood risk reduction measures, so that assessments are fit for the purpose of the decisions being made;*
- *consider the effects of a range of flooding events including extreme events on people, property, the natural and historic environment and river and coastal processes;*
- *include the assessment of the remaining (known as 'residual') risk after risk reduction measures have been taken into account and demonstrate that this is acceptable for the particular project;*
- *consider how the ability of water to soak into the ground may change with development, along with how the proposed layout of the project may affect drainage systems;*
- *consider if there is a need to be safe and remain operational during a worst case flood event over the development's lifetime; and*
- *be supported by appropriate data and information, including historical information on previous events.'*

5.2.2.5 Table 2.1 of volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement confirms how Hornsea Three has responded to the provisions of EN-1 that are relevant to Hydrology and Flood Risk. Hornsea Three is concluded to have satisfied the requirements of EN-1 in this regard.

5.2.2.6 Paragraph 5.7.7 goes on to say that:

"Applicants for projects which may be affected by, or may add to, flood risk should arrange pre-application discussions with the EA, and, where relevant, other bodies such as Internal Drainage Boards, sewerage undertakers, navigation authorities, highways authorities and reservoir owners and operators. Such discussions should identify the likelihood and possible extent and nature of the flood risk, help scope the FRA, and identify the information that will be required by the Secretary of State to reach a decision on the application when it is submitted. The Secretary of State should advise applicants to undertake these steps where they appear necessary, but have not yet been addressed."

5.2.2.7 Hornsea Three has consulted the Environment Agency, Norfolk County Council (Lead Local Flood Authority) and Norfolk Rivers Internal Drainage Board (IDB) have been consulted as detailed in Table 2.4 of volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement.

5.2.2.8 Paragraph 5.15.2 states that:

'The applicant should undertake an assessment of the existing status of, and impacts of the proposed project on water quality, water resources and physical modifications to the water environment'.

5.2.2.9 Hornsea Three has set out the relevant Hydrology and Flood Risk baseline, drawing on relevant national and local planning policy, and conducting desk-based research using publicly available data from the EA, Norfolk County Council, North Norfolk, Broadland, South Norfolk, Norfolk Rivers IDB, and commercial data supply companies. In addition, Hornsea Three has regularly consulted with the EA and Norfolk County Council as Lead Local Flood Authority to provide project updates.

5.2.2.10 Volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement addresses onshore hydrology and flood risk matters. Impacts that are scoped out of the assessment for hydrology and flood risk are set out in Table 2.13 of volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement.

5.2.2.11 Hornsea Three has characterised the relevant Hydrology and Flood Risk baseline, drawing on relevant national and local planning policy and legislative framework. The hydrology and flood risk EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology of the Environmental Statement. Volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement concludes that approximately 90% the hydrology and flood risk study area is located within Flood Zone 1 (areas at lowest risk from flooding), other than localised areas of Flood Zones 2 and 3 (areas at higher risk of flooding). The FRA (volume 6, annex 2.1 of the Environmental Statement) demonstrates that the HVAC booster station and the HVDC converter/HVAC substation would be entirely within Flood Zone 1.

- 5.2.2.12 If the HVAC booster station and HVDC converter/HVAC substation sites were located in Flood Zones 2 or 3, it would be necessary to demonstrate as part of the application that there were no alternative sites available, which were at a lower risk of flooding, referred to as the 'sequential test'. In cases where alternative sites at lower risk of flooding are not available, applicants are then required to carry out the 'exceptions test' to demonstrate how flood risk would be managed on site, sustainability benefits of the proposal, and to demonstrate that flood risk would not be increased elsewhere as a result of the proposal. The sequential and exceptions tests are not engaged for the HVAC booster station and HVDC converter/HVAC substation, which are both located in Flood Zone 1.
- 5.2.2.13 The development of the onshore cable corridor will involve land located within Flood Zone 3. Norfolk County Council Strategic Flood Risk Assessment (SFRA) flood mapping shows that a small percentage (about 1.1%) of the onshore project area is located within Flood Zone 3. The onshore cable corridor crosses a number of watercourses and it is not possible to avoid all watercourse crossings and areas of flood risk in their vicinity. The onshore cable corridor, however, will not increase flood risk to the surrounding area and has negligible risk of flooding to and from the development. On this basis, the Sequential Test and Exception Test are determined to be passed with regard to the onshore cable corridor.
- 5.2.2.14 As part of the design process, a number of designed-in measures have been proposed to reduce the potential impacts for hydrology and flood risk. Table 2.17 in volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures have been proposed to reduce the potential impacts for hydrology and flood risk. These measures are considered standard industry practice for this type of development and are secured in the Outline CoCP (document reference A8.5). These designed in measures include:
- Detailed surface water drainage schemes for onshore infrastructure;
 - Onshore construction compounds and construction access and haul roads would comprise permeable gravel overlaying a permeable geotextile membrane; and
 - Deploying 'best practice' measures throughout the onshore development works.
- 5.2.2.15 Table 2.20 of volume 3, chapter 2: Hydrology and Flood Risk of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.
- 5.2.2.16 Drainage Management Plans are utilised along with the incorporation of appropriate construction mitigation techniques. There are no other specific Management Plans set out within the DCO requirements. This is secured through the Outline CoCP (document reference A8.5).
- 5.2.2.17 Potential impacts of Hornsea Three on Geology and Ground Conditions (including groundwater abstractions) landward of MHWS are assessed in Chapter 1: Geology and Ground Conditions of the Environmental Statement, whilst potential impacts on ecology and nature conservation are assessed in Chapter 3: Ecology and Nature Conservation of the Environmental Statement.
- 5.2.2.18 A robust assessment of the potential effects of Hornsea Three has been carried out in terms of Hydrology and flood risk that satisfies the assessment requirements set out in EN-1.
- NPS EN-3**
- 5.2.2.19 NPS EN-3 provides guidance specific to renewable energy infrastructure proposals. Section 2.3 of EN-3 (specifically paragraph 2.3.4) refers to climate change adaptation and offshore Wind Farms, stating that:
- 'Offshore and onshore wind farms are less likely to be affected by flooding, but applicants should particularly set out how the proposal would be resilient to storms'*
- 5.2.2.20 With regard to onshore Hydrology and Flood Risk, NPS EN-3 refers to NS EN-1 (paragraph 2.6.5).
- NPS EN-5**
- 5.2.2.21 NPS EN-5 paragraph 2.4.1 specifically identifies the potential issues applicants should consider in terms of resilience to climate change.
- 5.2.2.22 Paragraph 2.4.2 notes at *'section 4.8 of EN-1 advises that the resilience of the project to climate change should be assessed in the Environmental Statement (ES) accompanying an application. For example, future increased risk of flooding would be covered in any flood risk assessment (paragraph 2.2.6, NPS EN-5)'*.
- 5.2.2.23 With regard to Hydrology and Flood Risk, therefore, NPS EN-5 refers to NPS EN-1.
- NPPF**
- 5.2.2.24 Paragraph 100 of the NPPF confirms that inappropriate development in areas at risk of flooding should be avoided, consistent with EN-1. Paragraph 102 sets out the requirements for site-specific FRAs.
- Local planning policy**
- North Norfolk District Council**
- 5.2.2.25 NNDC Local Plan Policy EN 10 relates to Development and Flood Risk. This policy sets out the requirements of the sequential test, provides a steer on the appropriate locations for development, and confirms the requirements of site specific FRAs. Hornsea Three have prepared FRAs for the onshore HVAC booster station in North Norfolk. So far as possible, flood risk areas have been avoided as part of the site selection process for Hornsea Three. An FRA has been prepared for the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and locations of the Hornsea Three onshore cable corridor which fall within Flood Zones 2 and 3. The onshore HVAC booster station FRA indicates the site is located at low risk of fluvial flooding, very low risk of surface water flooding and at no risk of flooding from reservoir failure. The main risk of flooding to the onshore HVAC booster station has been determined to be from groundwater flood risk which is considered to be low to medium. The onshore HVAC booster station and onshore HVDC converter/HVAC substation have both been defined as 'Essential infrastructure' and suitable for the present Flood Zones including climate change. Therefore, there is no requirement for either a Sequential or Exception Test.

- 5.2.2.26 Hornsea Three therefore meets the requirements of Policy EN10.
- 5.2.2.27 The NNDC Emerging Local Plan is at an early stage in production and at present, no emerging policies are available for consideration.
- Broadland District Council
- 5.2.2.28 The Joint Core Strategy Policy 1: Addressing climate change and protecting environmental assets sets out that *'To address climate change and promote sustainability, all development will be located and designed to use resources efficiently, minimise greenhouse gas emissions and be adapted to a changing climate and more extreme weather. Development will therefore...be located to minimise flood risk, mitigating any such risk through design and implementing sustainable drainage'*.
- 5.2.2.29 The Broadland District Council Development Management DPD Policy CSU5: Surface water drainage states that *'mitigation measures to deal with surface water arising from development proposals should be incorporated to minimise the risk of flooding on the development site without increasing flood risk elsewhere'*.
- 5.2.2.30 Specific mitigation measures, relevant to Broadland District, are set out in table 2.17 of volume 3, chapter 2, Hydrology and Flood Risk of the Environmental Statement. Specifically, flood control measures will be implemented as part of the onshore cable corridor construction works, along with pollution prevention measures and best practice construction management techniques will be secured through the Outline CoCP (document reference A8.5), as part of the DCO. These measures will be finally discussed and agreed with BDC, and the other relevant local planning authorities, prior to the commencement of development. On this basis, there is no conflict with Policy CSU5.
- South Norfolk Council
- 5.2.2.31 The Joint Core Strategy Policy 1: Addressing climate change and protecting environmental assets sets out that *'To address climate change and promote sustainability, all development will be located and designed to use resources efficiently, minimise greenhouse gas emissions and be adapted to a changing climate and more extreme weather. Development will therefore...be located to minimise flood risk, mitigating any such risk through design and implementing sustainable drainage'*.
- 5.2.2.32 The onshore HVDC converter/HVAC substation FRA indicates the site is at low risk of fluvial flooding, very low risk of surface water flooding and at no risk of flooding from reservoir failure. As with the onshore HVAC booster station area, the main flood risk is from groundwater flooding which is considered to be at low to medium risk. The onshore HVAC booster station and onshore HVDC converter/HVAC substation have both been defined as 'Essential infrastructure' and suitable for the present Flood Zones including climate change. Therefore, there is no requirement for either a Sequential or Exception Test.
- 5.2.2.33 As discussed above, Hornsea Three has committed to a series of mitigation measures, designed to mitigate hydrology and flood risk effects. In addition, relevant to South Norfolk District, Hornsea Three has provided an outline drainage strategy for the HVDC converter/HVAC substation site, and have proposed a pre-commencement requirement as part of the DCO requiring the approval of a surface and foul (as may be applicable) drainage system to be approved in consultation with the relevant sewerage and drainage bodies, along with the Environment Agency and relevant local planning authorities.
- 5.2.2.34 Hornsea Three meets the requirements of Joint Policy 1.
- Norfolk County Council
- 5.2.2.35 NCC Core Strategy and Minerals and Waste Development Management Policy DM4: Flood Risk relates specifically to Minerals extraction and waste development sites. However, it confirms that an FRA is required for all development in Flood Zones 2 and 3, and for sites greater than 1 hectare.
- 5.2.2.36 As discussed above, Hornsea Three has prepared FRAs as part of the DCO application. The FRAs, provided at volume 6, annex 2.1: Onshore infrastructure FRA, of the Environmental Statement, cover both the HVAC booster station and HVDC converter/HVAC substation sites, as well as all areas on the cable corridor that fall within flood zones 2 and 3. This approach has been agreed with NCC as Lead Local Flood Authority (LLFA).
- 5.2.2.37 Hornsea Three meets the requirements of Policy DM4.
- The Secretary of State's decision***
- 5.2.2.38 Part 5.7 of EN-1 set out matters relevant to the Hydrology and Flood Risk at national level. It is recognised that *'Flooding is a natural process that plays an important role in shaping the natural environment. Although flooding cannot be wholly prevented, its adverse impacts can be avoided or reduced through good planning and management'*. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.
- 5.2.2.39 Paragraphs 5.7.9 to 5.7.12 set out matters the Secretary of State should have regard to in determining an application for development consent. This include, *inter alia*, the following:
- *"Application supported by an appropriate FRA;*
 - *The Sequential Test has been applied as part of site selection;*
 - *A sequential approach has been applied at the site level to minimise risk by directing the most vulnerable uses to areas of lowest flood risk;*
 - *The proposal is in line with any relevant national and local flood risk management strategy;*
 - *Priority has been given to the use of sustainable drainage systems (SUDS) (as required in the next paragraph on national standards; and*
 - *In flood risk areas the project is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed over the lifetime of the development."*

- 5.2.2.40 Hornsea Three meets these key requirements. The application is supported by a FRA, focused on the HVAC booster station, HVDC converter/HVAC substation and those areas on the onshore cable corridor in flood zones 2 and 3. It has been demonstrated that the sequential test is not applicable in this case, and consideration has been given to the SUDs hierarchy, in consultation with the LLFA.
- 5.2.2.41 The assessment of Hydrology and Flood Risk has had regard to the relevant requirements for assessment set out in EN-1, EN-3 and EN-5, and been carried out in accordance with those requirements.
- 5.2.2.42 The proposals are in accordance with the relevant policies regarding Hydrology and Flood Risk in North Norfolk, Broadland, South Norfolk and Norfolk County.
- 5.2.2.43 The construction, operation and maintenance, and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on Hydrology and Flood Risk grounds.

5.2.3 Ecology and Nature Conservation

- 5.2.3.1 The following paragraphs identify relevant policy regarding Ecology and Nature Conservation as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.
- 5.2.3.2 Volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement addresses onshore ecology and nature conservation matters.

National Policy Statements

NPS EN-1

- 5.2.3.3 The Historic Environment is considered within NPS EN-1 at section 5.3: Biodiversity and Geological Conservation. Paragraph 4.3.1 of EN-1 sets out that development must be assessed with regard to whether or not the project would have a significant effect on a European site or any site which is provided the same protection as a matter of policy.
- 5.2.3.4 Paragraph 5.3.3 identifies that applicant's assessment should:
- 'ensure that the ES clearly sets out any effects on internationally, nationally and locally designated sites of ecological or geological conservation importance, on protected species and on habitats and other species identified as being of principal importance for the conservation of biodiversity. The applicant should provide environmental information proportionate to the infrastructure where EIA is not required to help the Secretary of State consider thoroughly the potential effects of a proposed project'*
- 5.2.3.5 Table 3.1 of volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement confirms how Hornsea Three has responded to the provisions of EN-1 that are relevant to Ecology and Nature Conservation.

- 5.2.3.6 Paragraph 5.3.4 goes on to say that:
- 'The applicant should show how the project has taken advantage of opportunities to conserve and enhance biodiversity and geological conservation interests.'*
- 5.2.3.7 Where practicable, opportunities to enhance the site for the benefit of biodiversity have been included in development proposals, and are discussed at section 3.10 of volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement. Full details are included in the Outline Ecological Management Plan (EMP) (document reference A8.6) that accompanies the DCO application. These have been informed by baseline surveys.
- 5.2.3.8 Hornsea Three has characterised the relevant Ecology and Nature Conservation baseline, drawing on desk-based research using existing studies and datasets. Full details of the organisations and individuals contacted to obtain ecological data is provided in volume 6, annex 3.1: Desk Study and Phase 1 Habitat Survey of the Environmental Statement. In addition, aerial photography and Ordnance Survey maps were referred to in order to identify and assess areas potentially suitable for protected species and habitats.
- 5.2.3.9 EN-1 is the primary policy with respect to Hydrology and Flood Risk, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment.
- 5.2.3.10 Volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement addresses onshore ecology and nature conservation matters. Impacts that are scoped out of the assessment of Ecology and Nature Conservation are set out in Table 3.15 of volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement.
- 5.2.3.11 As stated at paragraph 5.2.3.8 above, Hornsea Three has characterised the relevant Ecology and Nature Conservation baseline, drawing on relevant national and local planning policy and legislative framework. In total there are 16 onshore statutory designated sites located within 1 km of the onshore elements of Hornsea Three, and three additional statutory designated sites are located between 1 and 2 km. There are 60 non-statutory designated sites located within 1 km of the onshore elements of Hornsea Three and another 47 non-statutory designated sites located between 1 and 2 km. Marine designated sites are considered in volume 2, chapter 2: Benthic Ecology of the Environmental Statement and chapter 4: Marine Mammals of the Environmental Statement.
- 5.2.3.12 Designated sites within the study area are summarised in section 3.7.1 and their locations are shown in Figure 3.2 of volume 3, chapter 3: Ecology and Nature Conservation, of the Environmental Statement.

5.2.3.13 As part of the project design process, a number of designed-in mitigation measures have been identified to reduce the potential for impacts on ecology and nature conservation. These are set out in Table 3.19 of volume 3, chapter 3: Ecology and Nature Conservation, of the Environmental Statement. These measures have been developed in collaboration with the Onshore EWG which included Natural England, the Environment Agency, the RPSB, Norfolk Wildlife Trust and Norfolk County Council (see Table 3.5 of volume 3, chapter 3: Ecology and Nature Conservation) of the Environmental Statement). These designed in measures include:

- Use of HDD installation methods beneath watercourses and designated sites;
- Utilising existing highways or tracks for access to construction sites; and
- Allowing appropriate ecological buffer from cable route.

5.2.3.14 Volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement identifies that the development of the onshore infrastructure for Hornsea Three will result in some impact on sites designated due to their ecology and nature conservation value, on a number of habitats, on wintering and migratory birds, badgers, and other species. Pre-application fieldwork has now concluded, and the outcomes of that work has been reported regularly to key stakeholders through the regular Onshore Ecology Expert Working Group (OEEWG) process. An Outline EMP (document reference A8.6) has been developed and is submitted as part of the application. The Outline EMP contains appropriate mitigation measures that will be employed during the construction phase to further mitigate the potential impacts of Hornsea Three. Hornsea Three has presented a number of potential mitigation measures in volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement, which will form the basis for mitigation that is set out in the EMP, taking into account any further feedback received through consultation.

5.2.3.15 Furthermore, impacts on designated sites and habitats during construction (e.g. dust generation, run-off pollution) is mitigated through the adoption of standard best practice working measures to be set out in the Outline CoCP (document reference A8.5). The mitigation set out in the outline CoCP (document reference A8.5), which is committed to as part of the DCO, in combination with ongoing design and route optimisation, has informed the assessment provided in the Environmental Statement and overall, reduces the potential impacts of Hornsea Three in a number of locations.

5.2.3.16 Table 3.24 of volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

5.2.3.17 An Outline EMP (document reference A8.6) has been submitted with the DCO application, and is utilised in combination with the Outline Landscape Management Plan (LMP). The outline EMP will provide the basis for a final EMP to be agreed with the relevant local planning authorities, prior to construction commencing onshore.

5.2.3.18 A robust assessment of the potential effects of Hornsea Three has been carried out in terms of Ecology and Nature Conservation that satisfies the assessment requirements set out in EN-1.

NPS EN-3

5.2.3.19 NPS EN-3 does not address matters relating to onshore Ecology and Nature Conservation, with regard to offshore wind development.

NPS EN-5

5.2.3.20 NPS EN-5 Section 2.7: Biodiversity and Geological Conservation identifies the potential issues relating to Ecology and Nature Conservation.

5.2.3.21 Paragraph 2.7.2 notes that '*particular consideration should be given to feeding and hunting grounds, migration corridors and breeding grounds*'.

5.2.3.22 Consideration is given to these matters, where relevant, as part of Hornsea Three's assessment. With regard to all other matters, NPS EN-5 refers to NPS EN-1.

NPPF

5.2.3.23 Paragraph 109 of the NPPF confirms that the planning system should contribute to and enhance the natural and local environment by minimising impacts on biodiversity and providing net gains in biodiversity where possible.

Local planning policy

North Norfolk District Council

5.2.3.24 NNDC Local Plan Policy SS4 states that renewable energy proposals will be supported where impacts on amenity, wildlife and landscape are acceptable. New development will incorporate open space and high-quality landscaping to provide attractive, beneficial environments for occupants and wildlife.

5.2.3.25 As discussed above, it is concluded that the development of Hornsea Three will result in some impacts on sites designated due to their ecology and nature conservation value. This in turn has informed the development of an Outline EMP (document reference A8.6), and has further informed discussions between Hornsea Three and stakeholders engaged through the OEEWG. Hornsea Three does not give rise to a need to incorporate new open space, however insofar as is possible, regard is had by Hornsea Three to the provision of high quality landscaping, where opportunities arise, such as at the HVAC booster station and HVDC converter/HVAC substation.

5.2.3.26 Policy EN9 sets out that all development proposals should protect and enhance both biodiversity and geodiversity. Hornsea Three has committed to a number of designed in mitigation measures, intended to minimise the effect on biodiversity, and to provide significant reassurance to local planning authorities and stakeholders. This includes the reinstatement of land where temporarily disturbed through construction works. These measures will be controlled through the Outline CoCP (document reference A8.5) and Outline EMP (document reference A8.6), both of which will be secured through the DCO. Hornsea Three is considering opportunities for enhancement, potentially through planting, and localised habitat creation, for example.

5.2.3.27 Hornsea Three does not conflict with Policy EN9.

5.2.3.28 The NNDC Emerging Local Plan is at an early stage in production and at present, no emerging policies are available for consideration.

Broadland District Council

5.2.3.29 The Joint Core Strategy Policy 1: Addressing climate change and protecting environmental assets sets out that *'To address climate change and promote sustainability, all development will be located and designed to use resources efficiently, minimise greenhouse gas emissions and be adapted to a changing climate and more extreme weather. Development will therefore minimise fragmentation of habitats and seek to conserve and enhance existing environmental asset of acknowledged regional or local importance'*.

5.2.3.30 Joint Core Strategy Policy 1 confirms that *'the environmental assets of the area will be protected, maintained, restored and enhanced and the benefits for residents and visitors will be improved'*.

5.2.3.31 Hornsea Three has sought to minimise the effects of the project on habitats so far as possible, through the avoidance of designated sites, by both completely avoiding them and/or adopting trenchless techniques to cross them, and designing in specific mitigation measures to ensure the effects of the project are minimised, and clear management measures are in place for the construction phase of the project, where most effects would occur.

5.2.3.32 Hornsea Three does not conflict with Joint Core Strategy Policy 1.

South Norfolk Council

5.2.3.33 Joint Core Strategy Policy 1 applies equally to Broadland and South Norfolk Districts. As set out above, Hornsea Three does not conflict with Joint Core Strategy 1.

Norfolk County Council

5.2.3.34 NCC Core Strategy and Minerals and Waste Development Management Policy DM1: Nature Conservation relates to development proposals and their impacts on Nature conservation. Policy DM1 is not considered to be directly relevant to Hornsea Three.

The Secretary of State's decision

5.2.3.35 Part 5.7 of EN-1 set out matters relevant to the Ecology and Nature Conservation at national level. It is recognised that 'Biodiversity is the variety of life in all its forms and encompasses all species of plants and animals and the complex ecosystems of which they are a part'. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.2.3.36 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.3 requires that the following matters relevant to Ecology and Nature Conservation are taken in account when considering any proposed development:

- *'its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and*
- *its potential adverse impacts, including long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts'.*

5.2.3.37 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *"environmental, social and economic benefits and adverse impacts, at national, regional and local levels"*.

5.2.3.38 Paragraphs 5.3.5 to 5.3.8 set out matters the Secretary of State should have regard to in determining an application for development consent. This include, *inter alia*, the following:

- The Government's biodiversity strategy is to ensure a halting, and if possible a reversal, of declines in priority habitats and species, with wild species and habitats as part of healthy, functioning ecosystems; and
- The general acceptance of biodiversity's essential role in enhancing the quality of life, with its conservation becoming a natural consideration in all relevant public, private and non-governmental decisions and policies.

5.2.3.39 The Government must also take in account the context of the challenge of climate change: failure to address this challenge will result in significant adverse impacts to biodiversity (EN-1 paragraph 5.3.6).

5.2.3.40 The assessment of Ecology and Nature Conservation has had regard to the relevant requirements for assessment set out in EN-1, EN-3 and EN-5, and been carried out in accordance with those requirements.

5.2.3.41 The proposals are in accordance with relevant policies regarding Ecology and Nature Conservation in North Norfolk, Broadland, South Norfolk and Norfolk County.

5.2.3.42 The construction, operation and maintenance, and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on Ecology and Nature Conservation grounds.

5.2.4 Landscape and visual resources and seascape and visual resources

5.2.4.1 The following paragraphs identify relevant policy regarding landscape and visual matters as set out within NPS EN-1, EN-3 and EN-5, and the development plan. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.4.2 Volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement addresses onshore landscape and visual matters.

5.2.4.3 Volume 2, chapter 10: Seascape and Visual Resources of the Environmental Statement addresses seascape and visual matters.

National Policy Statements

NPS EN-1

- 5.2.4.4 Landscape and visual matters, including the assessment of seascape effects, are considered within NPS EN-1 at section 5.9: Landscape and visual. Paragraphs 5.9.5 to 5.9.7 set out the matters which the assessment may include.
- 5.2.4.5 EN-1 requires that applicants carry out a landscape and visual assessment and report it in the Environmental Statement, and have regard to guidance produced to assist in the assessment. The assessment should include the effects during construction, and operation and maintenance of the project on landscape components and landscape character (5.9.5 and 5.9.6).
- 5.2.4.6 EN-1 also states that the applicant's assessment should include the visibility and conspicuousness of the project and potential effects on local amenity and nature conservation (5.9.7).
- 5.2.4.7 EN-1 is considered to be the primary policy with respect to the approach to the assessment of potential effects on Landscape, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment.
- 5.2.4.8 Hornsea Three has characterised the relevant landscape and seascape baselines, drawing on relevant national and local development and planning policy, landscape character areas, desktop information on soils, survey, public rights of way, land uses and arming data was gathered and assessed. This has been supplemented through consultation with local planning authorities. Further information, including photography has been obtained through field work. The methodology used to inform the baseline is set out in more detail at section 4.6 of volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement and section 10.6 of volume 2, chapter 10: Seascape and visual resources of the Environmental Statement.
- 5.2.4.9 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on landscape and seascape.
- 5.2.4.10 Table 4.12 in volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement sets out the measures that have been designed in to Hornsea Three. These measures have been embedded in the project from an early stage and are committed via the DCO. Landscape and Seascape matters were also built into the original site selection exercise, with key objectives for the project to avoid existing sensitive landscape and seascape receptors, such as designated landscape areas, residential areas, and other designations.
- 5.2.4.11 The designed in measures for Hornsea Three include:
- The location of the onshore cable corridor avoids as many landscape features as possible;
 - The onshore cable corridor is buried underground for its entire length; and
 - The location of the onshore HVAC booster station is closely associated with existing woodland.

- 5.2.4.12 The measures summarised above, and set out in full at Table 4.12 of volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement, are secured through the DCO, requiring the agreement and implementation of an EMP (document reference A8.6) and LMP (document reference A8.7). Outline versions of these plans have been submitted with the application and the final versions, approved prior to the commencement of works, will be prepared in accordance with those outline documents.
- 5.2.4.13 Table 4.17 of volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement and Table 10.28 of volume 2, chapter 10: Seascape and Visual Resources of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.
- 5.2.4.14 A robust assessment of the potential effects of Hornsea Three has been carried out in terms of landscape and visual resources and seascape and visual resources, that satisfies the assessment requirements set out in EN-1.

NPS EN-3

- 5.2.4.15 NPS EN-3 acknowledges that generic landscape and visual impacts are considered in EN-1, and provides further guidance on the assessment of seascape and visual effects. EN-3 does not set out any further guidance on landscape and visual assessment.
- 5.2.4.16 EN-3 states that proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity, and in the design of the project to mitigate impacts such as noise and effects on ecology (2.4.2).
- 5.2.4.17 EN-3 recognises that some applications for offshore wind farms will be proposed at distances from the shore which mean it would not be visible from the shore, and in those cases it is likely that an assessment of seascape and visual effects would not be required. Where an assessment of seascape and visual effects is carried out, EN-3 requires that an assessment is carried out which is proportionate to the scale of potential impacts.
- 5.2.4.18 EN-3 sets out three principal considerations on the likely effect of offshore wind farms from the coast (2.6.203):
- Limit of visual perception from the coast;
 - Individual characteristics of the coast which affect its capacity to absorb a development; and
 - How people perceive and interact with the seascape.
- 5.2.4.19 EN-3 notes that photomontages are likely to be required and that viewpoints should be selected in consultation with statutory consultees (2.6.204) and that the magnitude of change to identified receptors and visual receptors should be assessed (2.6.205).

NPS EN-5

- 5.2.4.20 NPS EN-5 also acknowledges that generic landscape and visual effects are considered by EN-1, but goes on to state that there are specific considerations which apply to electricity networks infrastructure, which are set out in EN-5. Specifically, EN-5 has regard to the potential effects of overhead lines, which is not relevant to Hornsea Three, and other new above ground infrastructure, such as substations, which is relevant to Hornsea Three.
- 5.2.4.21 EN-5 recognises that in some cases the development of new overhead electricity lines will be necessary (2.8.7). EN-5 goes on to say (2.8.8, 2.8.9) that in cases where there may be concerns about the potential adverse landscape and visual effects of a proposed overhead line, consideration should be given to undergrounding cables. The onshore cables for Hornsea Three would be buried and as such this guidance is not relevant. EN-5 goes on to consider potential mitigation. Although EN-5 refers specially to mitigation for the development of new overhead lines it is considered that the mitigation set out can be applied to new substations also (2.8.11). The mitigation options set out are the development of landscaping schemes (tree and hedgerow planting off site) and landscape screening (localised planting in the vicinity of residential properties and principal viewpoints).

NPPF

- 5.2.4.22 Paragraphs 81, 97, 109, 113, 114, 115, and 125 of the NPPF confirms the objective to preserve and enhance the landscape.

Local planning policy

North Norfolk District Council

- 5.2.4.23 The Local Plan for North Norfolk currently guides development in the district and includes, amongst other documents, the Core Strategy (North Norfolk District Council, 2008), which sets out local planning policies.
- 5.2.4.24 Core Aim 3 seeks to protect, restore and enhance North Norfolk's landscape, biodiversity and geodiversity and improve ecological connectivity. In terms of landscape effects, the onshore cable for Hornsea Three is not considered to conflict with this policy. The cables will be buried underground for their entire length, and are not expected to have significant landscape or visual effects on all sensitive receptors. There are not expected to be any potential landscape or visual effects arising from the cable corridor during the operation and maintenance phase of Hornsea Three and accordingly that has been scoped out of the assessment.

- 5.2.4.25 The HVAC booster station is located within North Norfolk District. During the operation and maintenance phase of Hornsea Three the HVAC booster station is predicted to have some major adverse landscape effects on sensitive receptors, but not to have significant effect on others. Where significant effects are predicted, it is concluded these are contained to impacts that would be experienced within the site itself, and beyond the site, the landscape effects would not be significant. Mitigation measures, including landscape planting round the site, would be secured the LMP. On the basis of the landscape and visual assessment that has been carried out, it is concluded that Hornsea Three would not conflict with the objectives of Core Aim 3.
- 5.2.4.26 Policy SS4 "Environment" which includes the protection and enhancement of natural and built environmental assets, protection of open spaces and the creation of green networks. Renewable energy projects will be supported where impacts on amenity, wildlife and landscape are acceptable. The objectives of Policy SS4 are similar to those of Core Aim 3. Hornsea Three would not conflict with this policy either.
- 5.2.4.27 Policy EN1 "Norfolk Coast Area of Outstanding Natural Beauty" (AONB) which places a limit on development which would have a detrimental effect on the special qualities of the AONB. The Hornsea Three onshore cable corridor would not undermine the social qualities of the AONB, or the reasons for its designation. The assessment of potential effects on the AONB has therefore been scoped out of the assessment. The assessment further concludes that the HVAC booster station would have a negligible effect on the AONB. Hornsea Three would not conflict with Policy EN1.
- 5.2.4.28 Policy EN3 "Undeveloped Coast" which limits development to that which can demonstrate that a coastal location is required and that will not be significantly detrimental to the open coastal character. The Undeveloped Coast is an area defined in the Core Strategy, and covers a continuous belt of coastline along the North Norfolk coastline, encroaching inland to different extents. The Undeveloped Coast area includes the Hornsea Three landfall area near Weybourne. Policy EN3 seeks to maintain the open coastal character, and seeks to resist development that might be detrimental to the area defined as undeveloped coast in the Core Strategy. Hornsea Three involves no permanent above ground development in this area, and as such would not conflict with the objectives of this policy.
- 5.2.4.29 Policy EN4 "Design" sets out criteria relating to design for all development, and refers to landscape enhancement and impacts. For the most part, the design of Hornsea Three is led by its function as electrical transmission infrastructure, and the large part of the onshore project, the cable corridor, is buried underground. The final details of the appearance of the above ground would be agreed post consent, prior to the commencement of development providing significant control over the final design of above ground aspects. The landscape design aspects would be managed through the outline, and final, LMPs. Hornsea Three does not conflict with this policy.
- 5.2.4.30 Policy EN7 "Renewable Energy" will support renewable energy proposals when considered in the context of sustainable development. Hornsea Three will make a significant contribution towards the delivery of sustainable development, through the provision of a significant amount of renewable power, and is supported by this policy.

5.2.4.31 The NNDC emerging local plan is at an early stage in production and at present, no emerging policies are available for consideration.

Broadland District Council

5.2.4.32 Planning policy for South Norfolk and Broadland is currently contained within the adopted Joint Core Strategy between SNC, BDC and Norwich City Council.

5.2.4.33 Policy 2 “Promoting good design” sets out policy in relation to local distinctiveness and landscape character. Policy 2 has similar objectives to North Norfolk Policy EN4. To the extent that Hornsea Three presents opportunities to promote good design, it is supported by this Policy.

5.2.4.34 Broadland District Council Development Management DPD Policy GC4 “Design” requires development to have regard to character, in respect of scale, landscaping and appearance and potential effects on the amenity of existing properties. Policy GC4 has similar objectives has Policy 2 to North Norfolk Policy EN4. To the extent that Hornsea Three presents opportunities to promote good design, it is supported by this Policy.

5.2.4.35 DPD Policy EN2 “Landscape” states that development proposals should have regard to the Landscape Character Assessment SPD. The landscape and visual assessment has had regard to this Supplementary Planning Document. Hornsea Three satisfies the requirements of this policy.

South Norfolk Council

5.2.4.36 There are no policies specific to South Norfolk within the Joint Core Strategy, which are not referred to above.

5.2.4.37 Policy DM 3.8 “Design Principles” sets out a requirement for design to reflect local character and retain important natural features. Policy DM3.8 has similar objectives to Policies GC4, Policy 2 and North Norfolk Policy EN4 discussed above. To the extent that Hornsea Three presents opportunities to promote good design, it is supported by this Policy.

5.2.4.38 Policy DM 4.6 “Landscape Setting of Norwich” sets out policy aiming to protect the openness of a zone around the Southern Bypass, avoid undermining the rural character of undeveloped approaches to Norwich and specific Key Views of the city.

5.2.4.39 It is concluded by the assessment that the onshore HVDC converter/HVAC substation would be unlikely to obstruct long distance views to and from Norwich City. Further, the assessment concludes that the onshore HVDC converter/HVAC substation would be visible from the B1113 which is defined as one of the ‘undeveloped approaches’, where it passes between Swardeston and the A47. It would be seen in the context of existing large-scale infrastructure including pylons and overhead lines and the A47 with associated moving traffic. This section of the road is lined by almost continuous roadside and field boundary vegetation in the form of hedges, scrub and trees which would restrict visibility of the onshore HVDC converter/HVAC substation, with greatest potential visibility as it passes the site. Viewpoint CC13 (Volume 6, Annex 4.5: Photograph Panels, Wirelines and Photomontages) is located on this road adjacent to the site of the onshore HVDC converter/HVAC substation, where a section of hedge would be removed to create a new site entrance, and trees planted between the hedge and the substation as illustrated in the Outline LMP (document reference A8.7). The onshore HVDC converter/HVAC substation would affect this ‘undeveloped approach’ adjoining the A47, in an area where it is already influenced by large scale infrastructure.

5.2.4.40 It is concluded, on balance, that Hornsea Three would not conflict with the objectives of this policy.

5.2.4.41 Policy DM 4.9 “Incorporating Landscape into Design” sets out an expectation of landscape proposals, appropriate to local character, as part of development. As discussed above, Hornsea Three has committed to implement landscape screening at the HVDC converter/HVAC substation site, set out in the Outline LMP (document reference A8.7) submitted as part of the application, and further developed in a final LMP to be agreed with the relevant local planning authorities post consent and prior to the commencement of development. Hornsea Three does not conflict with this policy.

Norfolk County Council

5.2.4.42 The adopted NCC Core Strategy and Minerals and Waste Development Management Policies DPD does not contain any policies relevant to landscape and visual effects, in respect of renewable energy projects.

The Secretary of State’s decision

5.2.4.43 Paragraphs 5.9.8 to 5.9.20 of EN-1 sets out a series of principles that will be taken into account when reaching a decision. Paragraph 5.9.8 states that projects need to be designed carefully, taking account of the potential impact on the landscape. EN-1 (5.9.9) considers the potential effects of development on nationally designated landscapes, such as AONBs, national parks and the Broads. The northernmost section of the Hornsea Three onshore cable corridor, and landfall area, are located within the North Norfolk Coast AONB. EN-1 recognises that each of these designated landscape types have a specific statutory purpose, and that the Secretary of State should have regard to that in decision making. In such areas EN-1 requires that the conservation of the natural beauty of the landscape and countryside should be given substantial weight by the Secretary of State in deciding on applications for development consent.

- 5.2.4.44 Projects should be designed carefully, taking account of environmental effects on the landscape and siting, operation and maintenance and other relevant constraints, to minimise the harm to the landscape by reasonable mitigation (5.9.17). Table 4.17 of volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement sets out how Hornsea Three complies with this requirement. During development, Hornsea Three has sought to avoid as many landscape features as possible, and the cables are buried underground for its entire length, mitigating landscape effects during the operation and maintenance phase of the project.
- 5.2.4.45 EN-1 states that all proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites. The Secretary of State will have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the project. Coastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline and affecting views along stretches of undeveloped coast (5.9.18).
- 5.2.4.46 In response to this, the potential effects of the temporary and permanent elements of Hornsea Three on the landscape and Seascape are assessed within the Environmental Statement.
- 5.2.4.47 EN-3 requires applicants to undertake a Seascape and Visual Impact Assessment (SVIA) if the offshore wind farm will be visible from the shore. At 121 km from the nearest land, the Hornsea Three array area would not be visible, however the offshore HVAC booster stations could be visible. The onshore infrastructure is not located within any designated landscapes.
- 5.2.4.48 During the construction phase the onshore cable corridor would result in temporary short-term landscape and visual impacts which would not be significant. Effects on landscape character would range from minor adverse to negligible. Effects on visual receptors would range from moderate adverse to negligible, which would not be significant. During the operation and maintenance phase the onshore cable corridor would be buried and not result in any landscape or visual impacts.
- 5.2.4.49 Impacts due to the onshore HVAC booster station and onshore HVDC converter/HVAC substation would be greatest during the operation and maintenance phase. During the construction and decommissioning phases the impacts would be short to medium term and temporary, and would therefore not be as great.
- 5.2.4.50 During the operation and maintenance phase impacts on landscape character due to the onshore HVAC booster station would be major adverse within the site itself, which is significant. Overall effects on the two local landscape character areas which would be affected by the onshore HVAC booster station would be of minor adverse or lower, which would not be significant. Visual effects due to the onshore HVAC booster station would range from minor adverse to neutral, which would not be significant.
- 5.2.4.51 During the operation and maintenance phase impacts on landscape character due to the onshore HVDC converter/HVAC substation would be major adverse within the site itself, which is significant. Overall effects on the two local landscape character areas which would be affected by the onshore HVDC converter/HVAC substation would be of minor adverse, which would not be significant. Visual effects due to the onshore HVDC converter/HVAC substation would range from major-moderate adverse to neutral. The only significant visual effects would occur to users of the local PRow south of the site on completion of development, but these effects would reduce as proposed landscape planting matures.
- 5.2.4.52 The cumulative impact upon seascape character, historic seascape character and visual receptors during the construction, operation and maintenance, and decommissioning phases of Hornsea Three has been considered together with the construction and operation of other planned nearby wind farm projects, decommissioning of pipelines and applications for aggregate extraction. Cumulative impacts are predicted to result in effects of negligible to moderate adverse significance, which is not significant in EIA terms when considered against the seascape and visual resources assessment methodology.
- 5.2.4.53 The assessment of Landscape and Seascape effects has had regard to the relevant requirements for assessment set out in EN-1, EN-3 and EN-5 and been carried out in accordance with those requirements.
- 5.2.4.54 The proposals are in accordance with the relevant policies identified regarding land scape and seascape in North Norfolk, and landscape effects in Broadland and South Norfolk Districts.
- 5.2.4.55 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that whilst significant effects are anticipated as a result of the construction and operation of the HVAC booster station and HVDC converter/HVAC substation, the most significant effects are expected to be contained to within the sites themselves, as a result of the permanent degree of change experienced. In the case of the HVAC booster station it is concluded that beyond the immediate area around the site, landscape effects dissipate to quite quickly become negligible. The same conclusion applies, generally, to the HVDC converter/HVAC substation in most views.
- 5.2.4.56 Whilst Hornsea Three would lead to some conflict with landscape policies and objectives set out in the NPS's and the development plan, this is balanced against the significant benefit of the project in the delivery of renewable energy. With that in mind and on the basis that potential environmental effects have been mitigated as far as is possible, it is concluded overall there would not be a conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on landscape or seascape grounds.
- 5.2.5 Historic environment (Onshore)**
- 5.2.5.1 The following paragraphs identify relevant policy regarding Noise and Vibration as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.5.2 Volume 3, chapter 5: Historic Environment of the Environmental Statement addresses onshore historic environment matters.

National Policy Statements

NPS EN-1

5.2.5.3 The Historic Environment is considered within NPS EN-1 at section 5.8: Historic Environment. Paragraph 5.8.8 identifies that applicant's assessment should include the following:

'Provide a description of the significance of the heritage assets affected by the proposed development and the contribution of their setting to that significance. The level of detail should be proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset. As a minimum the applicant should have consulted the relevant Historic Environment Record (or, where the development is in English or Welsh waters, English Heritage [Historic England] or Cadw) and assessed the heritage assets themselves using expertise where necessary according to the proposed development's impact.

The applicant should ensure that the extent of the impact of the proposed development on the significance of any heritage assets affected can be adequately understood from the application and supporting documents'.

5.2.5.4 Table 5.1 of volume 3, chapter 5: Historic environment of the Environmental Statement confirms how Hornsea Three has responded to the provisions of EN-1 that are relevant to the Historic Environment.

5.2.5.5 Paragraph 5.8.9 goes on to say that:

'Where a development site includes, or the available evidence suggests it has the potential to include, heritage assets with an archaeological interest, the applicant should carry out appropriate desk-based assessment and, where such desk-based research is insufficient to properly assess the interest, a field evaluation. Where proposed development will affect the setting of a heritage asset, representative visualisations may be necessary to explain the impact.'

5.2.5.6 Hornsea Three has characterised the relevant Historic Environment baseline, drawing on relevant national and local planning policy, and conducting desk-based research and site visits to better understand the potential impacts on any historic features identified. In addition, Hornsea Three has regularly consulted with the Norfolk County Council Archaeologist and Historic England providing project updates, as well as discussing and agreeing scopes for the heritage walkover surveys and geophysical survey campaign.

5.2.5.7 Volume 3, chapter 5: Historic Environment of the Environmental Statement addresses onshore historic environment matters. Impacts that are scoped out of the assessment of the Historic Environment are set out in Table 5.9 of volume 3, chapter 5: Historic Environment of the Environmental Statement.

5.2.5.8 As stated at paragraph 5.2.5.6 above, Hornsea Three has characterised the relevant Historic Environment baseline, drawing on relevant national and local economic development and planning policy, and assessing data regarding World Heritage Sites, Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, Battlefields, Conservation Areas, as well as undesignated assets and results from the onshore Geophysical survey results (Table 5.7 volume 3, chapter 5: Historic Environment of the Environmental Statement).

5.2.5.9 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on the Historic Environment. Table 5.13 in volume 3, chapter 5: Historic Environment of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures have been proposed to reduce the potential for impacts on noise and vibration sensitive receptors. These measures are considered standard industry practice for this type of development. These designed in measures include:

- Buried cables rather than above ground;
- Programme of advance archaeological investigation following consent; and
- Landscape planting scheme around onshore HVAC booster station and HVDC converter/HVAC substation.

5.2.5.10 Table 5.17 of volume 3, chapter 5: Historic Environment of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

5.2.5.11 EN-1 is the primary policy with respect to the Historic Environment, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment. Hornsea Three has appropriately investigated and presented information on the historic environment to characterise the area in those terms, and engaged in an appropriate programme of stakeholder discussions involving key parties, including Historic England and NCC.

NPS EN-3

5.2.5.12 NPS EN-3 provides guidance specific to renewable energy infrastructure proposals. Section 2.6 of EN-3 (specifically 2.6.137 to 2.6.146) refers to the impacts associated with Offshore Wind Farms. EN-3 focuses on the potential marine effects of offshore wind farms however, rather than onshore heritage. EN-3 defers to EN-1 with regard to onshore heritage (2.6.137). Matters related to offshore heritage are considered further in respect of Marine Archaeology above.

NPS EN-5

5.2.5.13 NPS EN-5 notes that developers will be influenced by Schedule 9 to the Electricity Act 1989, which places a duty on all generation, supply, transmission and distribution licence holders, in formulating proposals for new electricity networks infrastructure, to have regard to the desirability of protecting sites, buildings and objects of architectural, historic or archaeological interest (paragraph 2.2.6, NPS EN-5). With regard to the Historic Environment, NPS EN-5 refers to NPS EN-1.

Local planning policy

North Norfolk District Council

5.2.5.14 NNDC Local Plan Policy EN8 states that *'development proposals... should preserve or enhance the character and appearance of designated assets, or other important historic buildings, structures, monuments and landscapes, and their settings through high quality, sensitive design. Development that would have an adverse impact on their special historic or architectural interest will not be permitted'*.

5.2.5.15 Hornsea Three has identified and considered all relevant sensitive heritage receptors that may be affected by the onshore cable corridor, and the landfall area, onshore HVAC booster station and HVDC converter/HVAC substation sites. As part of the assessment that has been carried out, Hornsea Three has considered the potential effects on the setting and character of designated assets, as required by Policy EN8, during all phases of Hornsea Three.

5.2.5.16 As set out in table 5.13 of volume 3, chapter 5: Historic Environment of the Environmental Statement, landscape planting is proposed around the HVAC booster station. The effect of the development however remains significant in EIA terms. However, it is noted that the assessment reports the operation and maintenance phase effects as being long-term reversible effects, and that the proposed planting will be in place. There is potential for conflict with Policy EN8, however, on balance, it is considered that the significant benefits of the project in terms of the delivery of renewable energy, is material to this application and would outweigh that conflict.

5.2.5.17 The NNDC Emerging Local Plan is at an early stage in production and at present, no emerging policies are available for consideration.

Broadland District Council

5.2.5.18 The Joint Core Strategy Policy 1 briefly addresses the Historic Environment, stating that *'the built environment, heritage assets, and the wider historic environment will be conserved and enhanced through the protection of buildings and structures which contribute to their surroundings, the protection of their settings, the encouragement of high-quality maintenance and repair and the enhancement of public spaces'*.

5.2.5.19 The construction of the onshore cable corridor, including storage areas and temporary compounds in Broadland District, have the potential to lead to temporary impacts on the setting of heritage assets, as reported in volume 3, chapter 5: Historic Environment of the Environmental Statement. These effects are not considered to be significant however, in EIA terms. Hornsea Three would comply with Joint Core Strategy Policy 1, in Broadland District.

South Norfolk Council

5.2.5.20 The Joint Core Strategy Policy 1 is also relevant to South Norfolk District, where the HVDC converter/HVAC substation would be located. Whilst the cable corridor construction and operation would not have a significant effect on the historic environment, the construction and operation of the HVDC converter/HVAC substation could result in long term reversible effects on the settings of heritage assets. As with the HVAC booster station, table 5.13 of volume 3, chapter 5: Historic Environment of the Environmental Statement, confirms that landscape planting is proposed around the HVDC converter/HVAC substation, but it is concluded that the effect of the development remains significant in EIA terms.

5.2.5.21 Again, as with the HVAC booster station, it is noted that the assessment reports the operation and maintenance phase effects as being long-term reversible effects, and that the proposed planting will be in place. There is potential for conflict with Joint Core Strategy Policy 1 in South Norfolk District however, on balance, it is considered that the significant benefits of the project in terms of the delivery of renewable energy, is material to this application and would outweigh that conflict.

Norfolk County Council

5.2.5.22 NCC Core Strategy and Minerals and Waste Development Management Policy DM9: Archaeological Sites addresses the impacts of development proposals on Archaeological sites, but is considered more relevant to minerals projects than to Hornsea Three.

The Secretary of State's decision

5.2.5.23 Part 5.8 of EN-1 set out matters relevant to the Historic Environment at national level. It is recognised that *'the construction, operation and decommissioning of energy infrastructure has the potential to result in adverse impacts on the historic environment'*. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects. Paragraph 5.8.13 of EN-1 also recognises that new development can make a positive contribution to the character and local distinctiveness of the historic environment. Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.3 requires that the following matters relevant to the historic environment are taken in account when considering any proposed development:

'potential adverse impacts, including long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts'.

5.2.5.24 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *"environmental, social and economic benefits and adverse impacts, at national, regional and local levels"*.

5.2.5.25 Paragraphs 5.8.11 to 5.8.18 set out matters the Secretary of State should have regard to in reaching a decision, including proposed mitigation, specifically in respect of matters relating to the Historic Environment. It is confirmed that the Secretary of State should seek to identify and assess the particular significance of any heritage asset that may be affected by the proposed development, including by development affecting the setting of a heritage asset taking account, *inter alia*, of:

- Evidence provided with the application;
- Any designation records;
- The Historic Environment Record, and similar sources of information;
- The heritage assets themselves;
- The outcome of consultations with interested parties; and
- Where appropriate and when the need to understand the significance of the heritage asset demands it, expert advice.

5.2.5.26 The assessment of the Historic Environment has had regard to the relevant requirements for assessment set out in EN-1, and been carried out in accordance with those requirements.

5.2.5.27 The proposals are in accordance with the relevant policies regarding the Historic Environment in North Norfolk, Broadland, South Norfolk and Norfolk County.

5.2.5.28 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on Historic Environment grounds.

5.2.6 Land Use, Agriculture and Recreation (Land Use)

5.2.6.1 The following paragraphs identify relevant policy regarding Land Use as set out within NPS EN-1, EN-3 and EN-5, and the development plan. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.6.2 Volume 3, chapter 6: Land Use and Recreation of the Environmental Statement addresses onshore land use matters.

National Policy Statements

NPS EN-1

5.2.6.3 Land use matters are considered within NPS EN-1 at section 5.10: Land use including open space, green infrastructure and Green Belt. Hornsea Three does not affect any land designated as Green Belt, and therefore those aspects in respect to Green Belt are not relevant (paragraphs 5.10.10 to 5.10.12). Paragraphs 5.10.5 to 5.10.19 therefore set out the matters which the assessment may include.

5.2.6.4 EN-1 requires that applicants identify and consider potential effects on proposed land uses near to the project, including the effects of replacing an existing development or preventing a development or use on a neighbouring site from continuing.

5.2.6.5 EN-1 also requires that applicants consult local communities where proposals are in place to build on open space, sports or recreational buildings or land and the loss of such facilities should only be considered when appropriate replacement facilities are provided. Applicants are required to seek to minimise impacts on Best and Most Versatile (BMV) land and to preferably use land in areas of poorer quality (grades 3b, 4 and 5). In all cases, appropriate measures should be put in place to mitigate effects on soil quality.

5.2.6.6 Applicants are also required to consider the safeguarding of any minerals deposits as far as possible, and consider the longer-term potential for that land use following project decommissioning.

5.2.6.7 Table 6.1 of volume 3, chapter 6: Land Use and Recreation of the Environmental Statement confirms how Hornsea Three has responded to the provisions of NPS EN-1, relevant to land use.

5.2.6.8 Hornsea Three has characterised the relevant land use and recreation baseline, drawing on relevant national and local economic development and planning policy, desk top information on soils, survey, public rights of way, land uses and arming data. This has been supplemented through consultation with local planning authorities, including Norfolk County Council's PRow officers. Further information, including ALC data, has been obtained both on a desktop basis and through discussions with land agents, landowners, and field work. The methodology used to inform the baseline is set out in more detail at section 6.6 of volume 3, chapter 6: Land Use and Recreation of the Environmental Statement.

5.2.6.9 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on land use.

5.2.6.10 Table 6.28 in volume 3, chapter 6: Land Use and Recreation of the Environmental Statement sets out the measures that have been designed in to Hornsea Three. These measures have been embedded in the project from an early stage and are committed via the DCO. Land use matters were also built into the original site selection exercise, with key objectives for the project to avoid existing and planned land uses, such as industrial/commercial sites, residential areas, and other land use designations. Insofar as was possible, the interface with BMV and minerals safeguarded areas has been minimised, amongst other land use considerations.

5.2.6.11 The designed in measures for Hornsea Three include:

- Identify and appropriately manage soil materials on site, to understand their physical characteristics and aid restoration;
- To separate topsoil and subsoil during site clearance works;
- To locate topsoil and subsoil separately to avoid cross-contamination;
- To maintain soil heaps during construction to reduce potential for losses and compaction;

- To manage the timings of soil handling and selection of soil handling machinery to reduce potential for compaction and losses; and
 - Timing of works to avoid disruption to farmers, landowners, and recreational users.
- 5.2.6.12 The measures summarised above, and set out in full at table volume 3, chapter 6: Land Use and Recreation of the Environmental Statement are secured through the DCO, requiring the agreement and implementation of a final construction traffic management plan, rights of way management plan, and CoCP.
- 5.2.6.13 Table 6.39 of volume 3, chapter 6: Land Use and Recreation of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.
- 5.2.6.14 EN-1 is considered to be the primary policy with respect to the approach to the assessment of potential effects on Land Use, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment.
- NPS EN-3
- 5.2.6.15 NPS EN-3 does not address matters relating to Land use, with regard to offshore wind development.
- NPS EN-5
- 5.2.6.16 NPS EN-5 does not address matters relating to Land use, with regard to offshore wind development.
- NPPF***
- 5.2.6.17 Paragraph 112 of the NPPF confirms the objective to avoid BMV where possible, consistent with EN-1. Paragraph 143 further reinforces this, considering the safeguarding of BMV.
- Local planning policy***
- North Norfolk District Council
- 5.2.6.18 The Local Plan for North Norfolk currently guides development in the district and includes, amongst other documents, the Core Strategy (North Norfolk District Council, 2008), which sets out local planning policies.
- 5.2.6.19 Policy SS2 "Development in the Countryside" limits development to certain categories including renewable energy projects. Hornsea Three would not conflict with this policy.
- 5.2.6.20 Policy SS4 "Environment" which includes the protection and enhancement of natural and built environmental assets, protection of open spaces and the creation of green networks. Hornsea Three would not conflict with this policy.
- 5.2.6.21 Policy SS6 "Access and Infrastructure" which includes the protection and enhancement of existing provision/facilities, open space, walking and cycling networks and PRoWs. Hornsea Three will have temporary moderate adverse effects on the operation of a number of national and local PRoWs during the construction phase. These will be managed through temporary diversions and traffic management as required. Hornsea Three have discussed the principles of those management measures with NCC, as managers of the PRoW network in Norfolk, and the District Council as relevant. Hornsea Three recognises the importance of the PRoW network, and the need to maintain its operation throughout the project stages. Although potentially significant effects are reported in the Environmental Statement, it is concluded that provided appropriate management measures are agreed, and secured through the DCO, the PRoW network would continue to operate with management where necessary, and there would be conflict with Policy SS6. No effects on the network are reported during the operation and maintenance, and decommissioning phases of Hornsea Three.
- 5.2.6.22 Policy CT1 "Open Space Designations" which restricts development in areas designated as "Open Land Areas" or "Educational and Formal Recreation Areas". Hornsea Three does not affect any areas under these designations, and does not conflict with this policy.
- 5.2.6.23 The NNDC emerging local plan is at an early stage in production and at present, no emerging policies are available for consideration.
- Broadland District Council
- 5.2.6.24 Planning policy for South Norfolk and Broadland is currently contained within the adopted Joint Core Strategy between SNC, BDC, Norwich City Council and Norfolk County Council.
- 5.2.6.25 Policy 1 "Addressing climate change and protecting environmental assets" includes the protection, maintenance, restoration and enhancement of environmental assets; the expansion and linking of valuable open space and areas of biodiversity importance to create green networks. Hornsea Three will not conflict with this policy.
- 5.2.6.26 Policy 6 "Access and Transportation" includes the improvement of the bus, cycling and walking network. Hornsea Three will not conflict with this policy.
- South Norfolk Council
- 5.2.6.27 There are no policies specific to South Norfolk within the Joint Core Strategy, which are not referred to above.

Norfolk County Council

5.2.6.28 The adopted NCC Core Strategy and Minerals and Waste Development Management Policies DPD Recognises the finite nature of resources and the importance of considering safeguarding those resources. NCC also recognise that the safeguarding of existing and proposed minerals sites is not *necessarily* to prevent other development taking place in those areas, rather it is intended to ensure that issues of compatibility between different forms of development are considered through the planning process. Hornsea Three does not conflict with this policy objective.

The Secretary of State's decision

5.2.6.29 Paragraphs 5.10.13 to 5.10.18 of EN-1 sets out a series of principles that will be taken into account when reaching a decision. Paragraphs 5.10.16 to 5.10.18 consider matters relevant to the Green Belt and as such are not relevant to Hornsea Three. EN-1 (5.10.13) requires that where a project conflicts with a proposal in a development plan, account should be had of the stage at which the development plan has been reached when considering what weight to give to it in the decision-making process. Hornsea Three sought to avoid land that was allocated for development in both adopted and emerging development plans for the area as part of the site selection and alternatives process. As a result, at the point of application submission, it is anticipated that no such conflict with sites allocated for development will occur. In the event that sites come forwards for development during the application process, regard will need to be had at the time. Any such sites would be at an early stage in the development plan process however so it is likely that limited weight would be given to them.

5.2.6.30 EN-1 does not refer to sites outside the development plan, but which may nevertheless be in planning process. Hornsea Three monitor the submission, progress and decision making with regard to planning applications that fall wholly or partly within the onshore project area, on an ongoing basis. Hornsea Three continues to monitor planning applications in this way and will liaise with landowners, applicants and local planning authorities as may be required going forwards. Hornsea Three meets the requirements of EN-1 in this regard.

5.2.6.31 As mentioned above, consent should not be granted (5.10.14) for development on existing open space, sports and recreational buildings and land unless an assessment has been carried out that determines it is surplus to requirements, or the benefits of the project outweigh the potential loss of such facilities. Hornsea Three does not propose the loss of any such facilities and as such there is no conflict with EN-1.

5.2.6.32 EN-1 requires applicants to ensure projects are not sited on BMV without justification. Hornsea Three will result in some temporary losses, during the construction phase, and some permanent losses, from the construction of joint/link boxes and the HVAC booster station and HVDC converter/HVAC substation.

5.2.6.33 The permanent loss of BMV for the development of the HVAC booster station and HVDC converter/HVAC substation is 23.56 ha. Taking a precautionary approach, assuming that all link boxes would be located on BMV, a further 0.3 ha of BMV could be lost (although Hornsea Three would seek to avoid BMV when siting link boxes, where possible). Hornsea Three has sought to minimise the amount of BMV lost, temporarily and permanently, as a result of the development, and to commit to appropriate designed in measures to help achieve reinstatement of land to its former condition post construction.

5.2.6.34 Temporary construction work, including the onshore cable corridor and associated compounds, would lead to a further temporary loss of 100.24 ha of BMV. Although a loss of BMV is reported, Hornsea Three has sought to minimise the potential impact of that loss through the site selection process, balancing the need to minimise with other engineering, environmental and economic considerations, and adopted mitigation measures to safeguard soils quality during the construction phase to ensure the temporary loss of BMV during the does not result in longer term effects. Hornsea Three is concluded to be justified in this respect.

5.2.6.35 At the end of each phase, soils would be reinstated across the temporary land take areas and the land reinstated to a standard capable of being returned to its former agricultural use, as far as possible. The stripping, storage and reinstatement of the soil materials would be undertaken in accordance with a Soil Management Strategy, the principles of which are described in volume 3, chapter 6: Land Use and Recreation of the Environmental Statement. The detailed soil survey work that has been undertaken as part of this assessment provides information on the likely characteristics, including likely topsoil and subsoil depths and soil textures of soil profiles within the different soil types along the route.

5.2.6.36 EN-1 provides further guidance on impacts on coastal recreation sites and features. Hornsea Three directly crosses the North Norfolk Coastal Path, which joins the England Coastal Path to the east of Weybourne. EN-1 states that, in particular, applicants should take advantage of opportunities to maintain and enhance access to the coast, and in doing so regard shall be had to the overarching objective of creating a continuous signed and managed route around the coasts, as provided for in the Marine and Coastal Act 2009.

5.2.6.37 If HDD is used the Coastal Path will maintain its current alignment and if open trenching is used at landfall it would be temporarily diverted along existing tracks, for a maximum of three months, on up to two occasions. In the event the Coastal Path requires temporary diversion, Hornsea Three has committed to prepare a Rights of Way management plan which would be agreed with stakeholders, including the NCC rights of way team, prior to the commencement of development.

5.2.6.38 The Coastal Path would not be cut off as a result of the Hornsea Three, and continuous access would be maintained, with management where necessary, during construction in both HDD and open cut operations. Hornsea Three does not conflict with EN-1 in this regard.

5.2.6.39 The assessment of land use and recreation effects has had regard to the relevant requirements for assessment set out in EN-1, and been carried out in accordance with those requirements.

5.2.6.40 The proposals are in accordance with the relevant policies identified regarding land use in North Norfolk, Broadland and South Norfolk Districts.

5.2.6.41 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on land use grounds.

5.2.7 Traffic and Transport

5.2.7.1 The following paragraphs identify relevant policy regarding Traffic and Transport as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.7.2 Volume 3, chapter 7: Traffic and Transport of the Environmental Statement addresses onshore traffic and transport matters.

National Policy Statements

NPS EN-1

5.2.7.3 Traffic and Transport is considered within NPS EN-1 at section 5.13: Traffic and Transport. Paragraphs 5.13.3 to 5.13.5 state that applicant's assessments should:

'Include a transport assessment, using the NATA/WebTAG methodology stipulated in Department for Transport guidance, or any successor to such methodology. Applicants should consult the Highways Agency and Highways Authorities as appropriate on the assessment and mitigation.'

5.2.7.4 Table 7.1 of volume 3, chapter 7: Traffic and Transport of the Environmental Statement confirms how Hornsea Three has responded to the provisions of EN-1 that are relevant to Traffic and Transport.

5.2.7.5 Paragraph 5.13.4 goes on to say that:

'Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts.'

5.2.7.6 Where appropriate it is expected that movement by sustainable means is facilitated and encouraged. However, it is recognised that the linear nature of the works, the absence of a fixed permanent work site along the Hornsea Three onshore cable corridor and the rural nature of much of the onshore cable corridor may make it difficult to implement a standard travel plan for onshore cable corridor working.

5.2.7.7 Hornsea Three has characterised the relevant Traffic and Transport baseline, drawing on desk-based research using existing studies and datasets. Full details can be found in section 7.7 'Baseline Environment'.

5.2.7.8 Volume 3, chapter 7: Traffic and Transport of the Environmental Statement addresses onshore traffic and transport matters. Impacts that are scoped out of the assessment of Ecology and Nature Conservation are set out in Table 7.10 of volume 3, chapter 7: Traffic and Transport of the Environmental Statement.

5.2.7.9 As stated at paragraph 5.2.7.7 above, Hornsea Three has characterised the relevant Traffic and Transport baseline, drawing on relevant national and local planning policy and legislative framework. The Hornsea Three onshore cable corridor is accessed using roads listed on the Route Hierarchy map wherever possible, although some use of narrow single carriageway and single-track roads is necessary to reach some access points.

5.2.7.10 As part of the project design process, a number of designed-in mitigation measures have been identified to reduce the potential for impacts on traffic and transport. These are set out in Table 7.25 of volume 3, chapter 7: Traffic and Transport of the Environmental Statement. These measures are considered standard industry practice for this type of development and are secured as a requirement of the DCO. Mitigation measures include:

- Identifying suitable HGV routes;
- Video condition surveys; and
- Measures to minimise the spread of dirt and dust associated with construction movements.

5.2.7.11 Table 7.25 of volume 3, chapter 7: Traffic and Transport of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase. The mitigation identified will help mitigate the effects of air emissions from transport (see paragraph 5.2.25.4).

5.2.7.12 EN-1 is the primary policy with respect to Traffic and Transport, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment.

NPS EN-3

5.2.7.13 NPS EN-3 paragraph 2.6.4 states that the extent to which generic impacts set out in EN-1 are relevant may depend upon the phase of the proposed development being considered. Land-based traffic and transport and noise issues may be relevant during the construction and decommissioning periods only, depending upon the specific proposal. Paragraph 2.6.5 sets out that applicants should identify the impacts of a proposal and these impacts, together with proposals for their avoidance or mitigation wherever possible, should be set out in an Environmental Statement that should accompany each project application. The Hornsea Three satisfies this requirement.

NPS EN-5

5.2.7.14 NPS EN-5 does not address matters relating to Traffic and Transport with regard to offshore wind development.

NPPF

5.2.7.15 Paragraph 32 of the NPPF confirms all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.

Local planning policy

North Norfolk District Council

5.2.7.16 NNDC Local Plan Policy CT5: The Transport Impact of New Development sets out the criteria that development proposals will be considered against with regards to transport matters. Policy CT5 seeks to manage the transport effects of the operation and maintenance phase of new development, for example new residential schemes. Policy CT5 is relevant to Hornsea Three so far as the permanent HVAC booster station and HVDC converter/HVAC substation sites will generate some very modest operation and maintenance phase activity once completed. Hornsea Three will not conflict with Policy CT5.

5.2.7.17 Policy CT7: Safeguarding Land for Sustainable Transport Uses seeks to protect former railway trackbeds and other railway land from development that would be prejudicial to the re-use of the railway, or sustainable transport links and facilities. Hornsea Three will not conflict with the objectives of this policy.

5.2.7.18 The NNDC Emerging Local Plan is at an early stage in production and at present, no emerging policies are available for consideration.

Broadland District Council

5.2.7.19 The Joint Core Strategy Policy 6: Access and transportation identifies the relevant policy considerations relating to Traffic and Transportation, leading to the overall enhancement of Norwich as a Regional Transport Node. Hornsea Three itself will not contribute to the specific objectives, but neither would it conflict with their delivery.

5.2.7.20 The Broadland District Council Development Management DPD paragraphs 8.1 to 8.31 sets out topic relevant to Traffic and Transportation specific to Broadland. Policy TS2 requires that Transport Assessments be prepared for major developments, and in some cases transport plans. Hornsea Three satisfies the requirements of Policy TS2.

South Norfolk Council

5.2.7.21 The Joint Core Strategy Policy 6: Access and transportation applies equally to South Norfolk District. Hornsea Three would not conflict with Policy 6 with regard to South Norfolk District.

Norfolk County Council

5.2.7.22 NCCs Minerals and Waste Core Strategy and Development Management Policy DM10: Transport relates to development but does not contain any transport related policies relevant to Hornsea Three.

The Secretary of State's decision

5.2.7.23 Part 5.13 of EN-1 set out matters relevant to the Traffic and Transport at national level. It is recognised that 'The transport of materials, goods and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, for example through increased congestion. Impacts may include economic, social and environmental effects. Environmental impacts may result particularly from increases in noise and emissions from road transport'. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.2.7.24 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.3 requires that the following matters relevant to Traffic and Transport are taken in account when considering any proposed development:

- *'its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and*
- *'its potential adverse impacts, including long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts'.*

5.2.7.25 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to "environmental, social and economic benefits and adverse impacts, at national, regional and local levels".

5.2.7.26 Paragraphs 5.13.6 and 5.13.7 set out matters the Secretary of State should have regard to in determining an application for development consent. This include, *inter alia*, the following:

- A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the Secretary of State should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the Secretary of State should consider requirements to mitigate adverse impacts on transport networks arising from the development; and
- Should the applicant be willing to enter into planning obligations or requirements can be imposed to mitigate transport impacts identified in the NATA/WebTAG transport assessment... then development consent should not be withheld, and appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure.

5.2.7.27 The construction of the Hornsea Three onshore cable corridor will generate the greatest number of vehicle movements, with operational traffic flows negligible in comparison. Decommissioning will generate fewer HGV movements than construction.

5.2.7.28 The assessment of Traffic and Transport has had regard to the relevant requirements for assessment set out in EN-1 and EN-3, and been carried out in accordance with those requirements.

5.2.7.29 The proposals are in accordance with the relevant policies regarding Traffic and Transport in North Norfolk, Broadland and South Norfolk.

5.2.7.30 The construction, operation and maintenance, and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on Traffic and Transport grounds.

5.2.8 Noise and Vibration

5.2.8.1 The following paragraphs identify relevant policy regarding as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.8.2 Volume 3, chapter 8: Noise and Vibration of the Environmental Statement addresses onshore noise and vibration matters.

National Policy Statements

NPS EN-1

5.2.8.3 Noise and Vibration is considered within NPS EN-1 at section 5.11: Noise and Vibration Paragraph 5.11.4 identifies that applicant's assessment should include the following within the noise assessment:

- *'A description of the noise generating aspects of the development proposal leading to noise impacts, including the identification of any distinctive tonal, impulsive or low frequency characteristics of the noise;*
- *Identification of noise sensitive premises and noise sensitive areas that may be affected;*
- *The characteristics of the existing noise assessment;*
- *A prediction of how the noise environment will change with the proposed development;*
- *In the shorter term such as during the construction period;*
- *In the longer term during the operating life of the infrastructure;*
- *At particular times of day, evening and night as appropriate;*
- *An assessment of the effects of predicted changes in the noise environment on any noise sensitive premises and noise sensitive areas;*
- *Measures to be employed in mitigating noise; and*
- *The nature and extent of the noise assessment should be proportionate to the likely noise impact'.*

5.2.8.4 EN-1 confirms at paragraphs 5.11.5 to 5.11.7 the assessments should consider all ancillary activities of the development, use the appropriate British Standards and other guidance, and identifies the appropriate statutory consultees for this exercise.

5.2.8.5 Table 8.1 of volume 3, chapter 8: Noise and Vibration of the Environmental Statement confirms how Hornsea Three has responded to the provisions of EN-1 that are relevant.

5.2.8.6 Hornsea Three has considered the relevant Noise and Vibration baseline, as well as potential for links to other impact assessments, specifically those found in volume 3, chapter 7: Traffic and Transport of the Environmental Statement and volume 3, chapter 3: Ecology and Nature Conservation of the Environmental Statement. The baseline environment is set out in section 8.7 of volume 3, chapter 8: Noise and Vibration of the Environmental Statement.

5.2.8.7 Impacts that are scoped out of the assessment for noise and vibration are set out in Table 8.10 of volume 3, chapter 8: Noise and Vibration of the Environmental Statement.

5.2.8.8 Hornsea Three has characterised the relevant baseline, drawing on relevant national and local economic development and planning policy.

5.2.8.9 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts. Table 8.21 in volume 3, chapter 8: Noise and Vibration of the Environmental Statement provides a summary of the measures adopted as part of Hornsea Three. These measures have been proposed to reduce the potential for impacts on sensitive receptors. These measures are considered standard industry practice for this type of development. These designed in measures include:

- Using "Best Practice Means" utilising quieter equipment; and
- Designing mitigation measures directly into onshore infrastructure to reduce the impacts of noise and vibration.

5.2.8.10 Table 8.41 of volume 3, chapter 8: noise and vibration of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.

5.2.8.11 Measures that would be implemented to control construction noise are set out in the Outline CoCP (document reference A8.5), that will be agreed with the relevant local planning authorities. A post-consent operational Noise Management Plan is secured through the DCO.

5.2.8.12 EN-1 is the primary policy with respect to, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment.

NPS EN-3

5.2.8.13 NPS EN-3 provides guidance specific to renewable energy infrastructure proposals. Paragraph 2.4.2 of EN-3 refers to the need for renewable energy infrastructure proposals to demonstrate noise mitigation in the design. However this guidance are focused specifically on Onshore wind farms, which are not directly relevant.

- 5.2.8.14 There are elements of onshore infrastructure (e.g. onshore substations) that the applicant should identify the impacts of a proposal and these impacts, together with proposals for their avoidance or mitigation. With regard to, NPS EN-3 refers to NS EN-1.
- NPS EN-5
- 5.2.8.15 NPS EN-5 states in paragraph 2.9.1 that:
- ‘Generic noise effects are covered in Section 5.11 of EN-1. In addition, there are specific considerations which apply to electricity networks infrastructure as set out below’*
- 5.2.8.16 NPS EN-5 provides guidance primarily relating to noise from overhead transmission lines, which is not directly relevant to Hornsea Three. It also refers to audible noise effects from substation equipment such as transformers. The guidance states that relevant assessment methodologies should be used and that the appropriate mitigation options have been considered and adopted. With regard to assessment, NPS EN-5 refers to NPS EN-1.
- NPPF**
- 5.2.8.17 Paragraph 109 of the NPPF confirms that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution. Paragraph 123 sets out planning policy and decision-making guidance relating to noise impacts.
- Local planning policy**
- North Norfolk District Council
- 5.2.8.18 NNDC Local Plan Policy EN7 states that proposals for renewable technology and associated infrastructure *‘will only be permitted where individually, or cumulatively, there are no significant adverse effects on... residential amenity (noise...)*. Policy EN13 states that *‘all development proposals should minimise, and where possible reduce, all emissions and other forms of pollution, including... noise pollution’*.
- 5.2.8.19 As discussed above, Hornsea Three have committed to a number of designed in measures to mitigate and manage noise generation during the construction phase of the project. With the benefit of those commitments, no significant environmental effects are anticipated as a result of the construction works onshore. During the operation and maintenance phase of Hornsea Three the only sources of onshore noise will be the HVAC booster station and HVDC converter/HVAC substation. It has been concluded that it will be feasible achieve mitigation on site such that there would be no more than minor adverse effects at all residential noise sensitive receptors. Details will be developed in the final design stage, prior to the commencement of development.
- 5.2.8.20 It is concluded that Hornsea Three would not conflict with Policy EN7.
- 5.2.8.21 The NNDC Emerging Local Plan is at an early stage in production and at present, no emerging policies are available for consideration.
- Broadland District Council
- 5.2.8.22 The Joint Core Strategy has no specific policies related to noise and vibration.
- South Norfolk Council
- 5.2.8.23 The Joint Core Strategy has no specific policies related to noise and vibration.
- Norfolk County Council
- 5.2.8.24 There are no policies in the NCC Core Strategy and Minerals and Waste Development Management Policy document that relate to noise and vibration, and are relevant to Hornsea Three.
- The Secretary of State’s decision**
- 5.2.8.25 Part 5.11 of EN-1 set out matters relevant to noise and vibration at national level. It is recognised that *“excessive noise can have wide-ranging impacts on the quality of human life, health and use and enjoyment of areas of value such as quiet places and areas with high landscape quality”*. It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.
- 5.2.8.26 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.3 requires that the following matters relevant to Air Quality are taken in account when considering any proposed development:
- ‘potential adverse impacts, including long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts’*.
- 5.2.8.27 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *“environmental, social and economic benefits and adverse impacts, at national, regional and local levels”*.
- 5.2.8.28 Paragraphs 5.11.8 to 5.11.10 set out matters the Secretary of State should have regard to in reaching a decision, including proposed mitigation, specifically in respect of matters. It is confirmed that the Secretary of State should not grant development consent unless it is satisfied that the proposals will avoid significant adverse impacts on health and quality of life from noise; mitigate and minimise other adverse impacts on health and quality of life from noise; and where possible, contribute to improvements to health and quality of life through the effective management and control of noise.
- 5.2.8.29 The assessment of Noise and Vibration has had regard to the relevant requirements for assessment set out in EN-1, and been carried out in accordance with those requirements.
- 5.2.8.30 The proposals are in accordance with the relevant policies regarding Noise and Vibration in North Norfolk; there are no relevant policies for Broadland and South Norfolk Districts.

5.2.8.31 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on noise and vibration grounds.

5.2.9 Air Quality

5.2.9.1 The following paragraphs identify relevant policy regarding Air Quality as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.9.2 Volume 3, chapter 9: Air Quality of the Environmental Statement addresses onshore Air Quality matters.

National Policy Statements

NPS EN-1

5.2.9.3 Air Quality is considered within NPS EN-1 at section 5.2: Air Quality and Emissions (in particular paragraphs 5.2.6 and 5.2.7).

5.2.9.4 With regards to matters relevant to the form of Hornsea Three, EN-1 paragraph 5.2.6 identifies that applicant's assessment should:

'undertake an assessment of the impacts of the proposed project as part of the Environmental Statement (ES). The ES should describe:

- *Any significant air emissions, their mitigation and any residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project;*
- *The predicted absolute emissions levels of the proposed project, after mitigation methods have been applied;*
- *Existing air quality levels and the relative change in air quality from existing levels; and*
- *Any potential eutrophication impacts.'*

5.2.9.5 Hornsea Three has considered the potential for links to other impact assessments, specifically those found in volume 3, chapter 9: Air quality of the Environmental Statement.

5.2.9.6 The following matters were scoped out in the scoping opinion:

- Potential eutrophication (construction phase);
- Operation of the underground onshore cables, onshore HVAC booster station and HVDC converter/HVAC substation (operation and maintenance phase);
- Potential eutrophication (operation and maintenance phase);
- Traffic impacts (decommissioning phase); and
- Potential eutrophication (decommissioning phase).

5.2.9.7 There are no designated Air Quality Management Areas (AQMAs) within North Norfolk, Broadland or South Norfolk Councils, as concentrations of all pollutants are below the relevant objective and limit values; therefore, there are no AQMAs within the Hornsea Three air quality (construction dust and traffic emissions) study areas. The assessment of Air Quality effects has reported there would be no significant effects in terms of Air Quality as a result of any stage of the Hornsea Three.

5.2.9.8 As part of the design process, several designed-in measures have been proposed to reduce the potential for Air Quality Impacts. Table 9.29 in volume 3, chapter 9: Air Quality of the Environmental Statement provides a summary of the dust control measures adopted as part of Hornsea Three. These measures are considered standard industry practice for this type of development, and are implemented under the Outline CoCP (document reference A8.5).

5.2.9.9 EN-1 paragraph 5.2.11 states that a construction management plan may help codify mitigation measures. As stated previously in this statement, the implementation of Hornsea Three will be controlled through a final CoCP that will be agreed with, and signed off by, the relevant local planning authorities prior to the commencement of development.

5.2.9.10 EN-1 is the primary policy with respect to Air Quality and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment.

NPS EN-3

5.2.9.11 NPS EN-3 at section 2.6: Offshore Wind (in particular paragraph 2.6.37) states that:

'Where the applicant has identified a precise route for the cable from the wind farm to a precise location for the onshore substation and connection to the transmission network, the EIA should assess the effects of the cable'

5.2.9.12 This guidance applies to all disciplines within the EIA and is not specific to air quality, but is a consideration nonetheless. Overall, Air Quality is not identified as a key impact for such infrastructure within NPS EN-3.

NPS EN-5

5.2.9.13 Air Quality is not identified as a key impact for such infrastructure within NPS EN-5 or the offshore wind farm section of NPS EN-3.

5.2.9.14 Hornsea Three considers that there are no additional matters that EN-5 raises with respect to air quality, which are not already addressed by the provisions of EN-1.

NPPF

5.2.9.15 Paragraph 109 of the NPPF confirms that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution.

Local planning policy

North Norfolk District Council

5.2.9.16 NNDC Local Plan Core Aim 3 sets out a number of aims and objectives, including 'to improve river water quality and minimise air, land and water pollution'. Policy EN3 states that proposals will only be permitted where, individuals or cumulatively, there are no unacceptable impacts on, *inter alia*, air quality'. Volume 3, chapter 9: Air Quality of the Environmental Statement, concludes there would be no significant environment effects in terms of air quality. On that basis it is concluded there would be no conflict with Core Aim 3.

5.2.9.17 The NNDC Emerging Local Plan is at an early stage in production and at present, no emerging policies are available for consideration.

Broadland District Council

5.2.9.18 The Joint Core Strategy sets out a spatial planning objective of relevance to air quality (Spatial Planning Objective 9) 'to protect, manage and enhance the natural, built and historic environment, including key landscapes, natural resources and areas of natural habitat or nature conservation value. However, there is no specific policy related to Air Quality within the Joint Core Strategy.

South Norfolk Council

5.2.9.19 As for Broadlands District Council, Hornsea Three note the Joint Core Strategy sets out a spatial planning objective of relevance to air quality (Spatial Planning Objective 9), but that there is no specific policy related to Air Quality within the Joint Core Strategy.

Norfolk County Council

5.2.9.20 NCC Core Strategy and Minerals and Waste Development Management Policy DM13 relates specifically to Air Quality. There are no policies relevant to Hornsea Three however.

The Secretary of State's decision

5.2.9.21 Parts 5.2 of EN-1 set out matters relevant to Air Quality at a national level. It is recognised in EN-1 that to produce the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.2.9.22 Part 4 of EN-1 sets out a series of general principles that will be taken in account when reaching a decision. Paragraph 4.1.3 requires that the following matters relevant to Air Quality are taken into account when considering any proposed development:

'potential adverse impacts, including long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts'.

5.2.9.23 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to "environmental, social and economic benefits and adverse impacts, at national, regional and local levels". NPS EN-3 paragraphs 5.2.8 to 5.2.10 set out matters the Secretary of State should have regard to in reaching a decision, including proposed mitigation, specifically in respect of Air Quality matters. It is confirmed that the Secretary of State must have regard to the following:

- Give air quality considerations substantial weight where a project would lead to a deterioration in air quality in an area, or leads to a new area where air quality breaches any national air quality limits; potential Air Quality effects; and
- in the event that a project will lead to non-compliance with a statutory limit the Secretary of State should refuse consent.

5.2.9.24 The assessment of Air Quality has had regard to the relevant requirements for assessment set out in EN-1 and EN-5, and been carried out in accordance with those requirements.

5.2.9.25 The proposals are in accordance with the relevant policies regarding Air Quality in North Norfolk and Norfolk County; there are no relevant policies for Broadland and South Norfolk Districts.

5.2.9.26 The construction, operation and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate that there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on Air Quality grounds.

5.2.10 Socio-Economics

5.2.10.1 The following paragraphs identify relevant policy regarding Socio-economics as set out within NPS EN-1, EN-3 and EN-5. It then goes on to consider how that policy is addressed by Hornsea Three, and identifies where evidence of that is set out in the DCO application.

5.2.10.2 Volume 3, chapter 10: Socio-economics of the Environmental Statement addresses onshore and offshore Socio-economic matters.

National Policy Statements

NPS EN-1

5.2.10.3 Socio-economics matters are considered within NPS EN-1 at section 5.12: Socio-economics. Paragraphs 5.12.2 to 5.12.5 consider the matters which the assessment may include:

- *"the creation of jobs and training opportunities;*
- *the provision of additional local services and improvements to local infrastructure, including the provision of educational and visitor facilities;*
- *effects on tourism;*
- *the impact of a changing influx of workers during the different construction, operation and decommissioning phases of the energy infrastructure. This could change the local population*

- dynamics and could alter the demand for services and facilities in the settlements nearest to the construction work (including community facilities and physical infrastructure such as energy, water, transport and waste). There could also be effects on social cohesion depending on how populations and service provision change as a result of the development; and
- cumulative effects – if development consent were to be granted to for a number of projects within a region and these were developed in a similar timeframe, there could be some short-term negative effects, for example a potential shortage of construction workers to meet the needs of other industries and major projects within the region”.
- 5.2.10.4 Table 10.1 of volume 3, chapter 10: Socio-economics of the Environmental Statement confirms how Hornsea Three has responded to the provisions of NPS EN-1, relevant to socio-economics.
- 5.2.10.5 Paragraph 5.12.4 goes on to say that:
- ‘Applicants should describe the existing socio-economic conditions in the areas surrounding the proposed development and should also refer to how the development’s socio-economic impacts correlate with local planning policies.’*
- 5.2.10.6 Hornsea Three has characterised the relevant socio-economic baseline, drawing on relevant national and local economic development and planning policy, including local economic data held by the relevant Local Enterprise Partnerships (LEPs), and relevant Office for National Statistics (ONS) data on population, labour market and employment information.
- 5.2.10.7 Paragraph 5.12.5 confirms:
- ‘Socio-economic impacts may be linked to other impacts, for example the visual impact of a development is considered in Section 5.9 but may also have an impact on tourism and local businesses.’*
- 5.2.10.8 Hornsea Three has considered the potential for links to other impact assessments, specifically those found in volume 3, chapter 4: Landscape and Visual Resources of the Environmental Statement, chapter 6: Land Use and Recreation of the Environmental Statement, chapter 7: Traffic and Transport of the Environmental Statement, chapter 8: Noise and Vibration of the Environmental Statement, and volume 2, chapter 10: Seascape and Visual Resources of the Environmental Statement.
- 5.2.10.9 As stated at paragraph 5.2.10.6 above, Hornsea Three has characterised the relevant socio-economic baseline, drawing on relevant national and local economic development and planning policy, including local economic data held by the relevant LEPs, and relevant ONS data on population, labour market and employment information.
- 5.2.10.10 As part of the design process, several designed-in measures have been proposed to reduce the potential for impacts on Socio-economics. Table 10.31 in volume 3, chapter 10: Socio-economics of the Environmental Statement sets out the measures that have been designed in to Hornsea Three. These measures have been adopted in order to *Increase the level socio-economic benefit captured in the local economic development study area.* The designed in measures require Hornsea Three to:
- Identify opportunities for companies to access supply chain opportunities; and
 - Identify opportunities for local people to access employment associated with Hornsea Three.
- 5.2.10.11 Table 10.68 of volume 3, chapter 10: Socio-economics of the Environmental Statement provides a summary of the potential environmental effects, and identifies approaches to mitigation and proposed monitoring during the construction phase, operation and maintenance phase, and decommissioning phase.
- 5.2.10.12 EN-1 is considered to be the primary policy with respect to the approach to the assessment of socio-economics, and Hornsea Three has carried out an assessment that responds to and satisfies the guidance it provides on what an applicant should undertake and include in their assessment.
- NPS EN-3
- 5.2.10.13 NPS EN-3 does not address matters relating to Socio-economics, with regard to offshore wind development.
- NPS EN-5
- 5.2.10.14 Matters relating to the potential Socio-economic effects of NSIPs at paragraphs 1.7.4, 1.7.5, and 2.2.1. However, this does not present any matters relevant to the assessment of Socio-economic effects, nor Socio-economic criteria or objectives against which the proposal might be considered. NPS EN-5, therefore, is not considered to be relevant to the assessment of Socio-economic effects.
- NPPF
- 5.2.10.15 While the NPPF does not contain specific policy statements for nationally significant infrastructure projects, it outlines the dimensions for sustainable development which are a relevant consideration. These are economic, social and environmental. This chapter is concerned with both the economic and social dimensions of sustainable development which are defined in the NPPF as follows:
- An economic role – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure; and
 - A social role – supporting strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generations; and by creating a high quality built environment, with accessible local services that reflect the community’s needs and support its health, social and cultural well-being.
- Local planning policy
- North Norfolk District Council
- 5.2.10.16 NNDC Local Plan Policy EN7 seeks to deliver community benefits. It states that:

“Large scale renewable energy proposals should deliver economic, social, environmental or community benefits that are directly related to the proposed development and are of reasonable scale and kind to the local area.”

5.2.10.17 Hornsea Three will seek to maximise the amount of economic benefit which can be delivered in the local economic area. Should consent be forthcoming, Hornsea Three will continue to work with local partners including the LEPs to maximise the ability of local communities to access employment opportunities created by the development. It is not possible to commit to specific measures at this stage, given uncertainty about the scale of the economic opportunities likely to arise as a result of Hornsea Three, but where opportunities present themselves going forwards, these will be maximised where possible. Hornsea Three will not conflict with Policy EN7.

5.2.10.18 The NNDC emerging local plan is at an early stage in production and at present, no emerging policies are available for consideration.

Broadland District Council

5.2.10.19 Policy 5 of the Joint Core Strategy for Broadland, Norwich and South Norfolk states that:

“The local economy will be developed in a sustainable way to support jobs and economic growth in both urban and rural locations”.

5.2.10.20 As discussed above, Hornsea Three will seek to identify and maximise opportunities to deliver local economic and employment benefits as a result of the development. Hornsea Three does not conflict with Policy 5.

5.2.10.21 Policy 21 of the Joint Core Strategy for Broadland, Norwich and South Norfolk states that, in the Broadland part of the Norwich Policy Area BDC will *“work proactively with applicants jointly to find solutionsto secure development that improves economic, social and environmental conditions in the area”.*

5.2.10.22 Again, Hornsea Three will seek to identify and maximise opportunities to deliver local economic and employment benefits as a result of the development. Hornsea Three does not conflict with Policy 21.

South Norfolk Council

5.2.10.23 While the Joint Core Strategy contains policies designed to generally promote the economy, there are no policies specific to South Norfolk considered relevant to the Socio-economic effects of Hornsea Three specifically.

Norfolk County Council

5.2.10.24 There are no policies in the adopted NCC Core Strategy and Minerals and Waste Development Management Policies DPD considered relevant to the Socio-economic effects of Hornsea Three specifically.

The Secretary of State’s decision

5.2.10.25 Parts 2 and 3 of EN-1 set out matters relevant to Socio-economic effects at national level. It is recognised that *“energy is vital to economic prosperity and social well-being and so it is important to ensure that the UK has secure and affordable energy”.* It is recognised in EN-1 that producing the Energy required by the UK, significant infrastructure will be required, including large scale projects.

5.2.10.26 Part 4 of EN-1 sets out a series of general principles that will be taken into account when reaching a decision. Paragraph 4.13 requires that the following matters relevant to Socio-economics are taken into account when considering any proposed development:

- *“its potential benefits including its contribution to meeting the need for energy infrastructure, job creation and any long-term or wider benefits; and*
- *its potential adverse impacts, including any long-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts”.*

5.2.10.27 Paragraph 4.1.4 of EN-1 states that, in reaching a decision, the Secretary of State should have regard to *“environmental, social and economic benefits and adverse impacts, at national, regional and local levels”.*

5.2.10.28 Paragraphs 5.12.6 to 5.12.9 set out matters the Secretary of State should have regard to in reaching a decision, including proposed mitigation, specifically in respect of Socio-economic matters. It is confirmed that the Secretary of State must have regard to potential Socio-economic effects, and give limited weight to assertions not backed up by evidence. Regard should also be had to any positive provisions proposed to make or mitigate impacts and any legacy benefits that may arise.

5.2.10.29 The assessment of Socio-economic effects has had regard to the relevant requirements for assessment set out in EN-1, and been carried out in accordance with those requirements.

5.2.10.30 The proposals are in accordance with the relevant policies identified regarding Socio-economics in North Norfolk, Broadland and South Norfolk Districts.

5.2.10.31 The construction, operation and maintenance, and decommissioning of Hornsea Three will be in accordance with the relevant NPSs and other identified material planning policy matters. The environmental information and assessment carried out for Hornsea Three demonstrate there is no conflict with any of the conditions set out by the NPSs which would lead to a refusal of development consent on Socio-economic grounds.

5.2.11 Other matters

Electromagnetic fields (EMF)

- 5.2.11.1 Section 2.10 of NPS EN-5 considers the potential for Electro-Magnetic Fields (EMF) to arise as a result of new power transmission projects, and suggest an approach to mitigation for EMF effects, where they might occur (section 2.10.15). Hornsea Three has considered the potential for the generation of EMFs as a result of the onshore components of the project, and the findings are presented at volume 4, annex 3.3: EMF Compliance Statement. That study concludes that levels of EMFs generated by Hornsea Three would be well below the guideline public exposure reference levels set to protect health. Hornsea Three is therefore considered to comply with the objectives of EN-5 in that regard.

6. Balance of Considerations and Overall Conclusions

6.1.1.1 The statutory framework for determining applications for Development Consent such as Hornsea Three is provided by the Section 104(2) of the 2008 Act, as follows:

"In deciding the application, the Secretary of State must have regard to—

- (a) any national policy statement which has effect in relation to development of the description to which the application relates (a "relevant national policy statement"),*
- (aa) the appropriate marine policy documents (if any), determined in accordance with section 59 of the Marine and Coastal Access Act 2009*
- (b) any local impact report (within the meaning given by section 60(3)) submitted to the Secretary of State before the deadline specified in a notice under section 60(2),*
- (c) any matters prescribed in relation to development of the description to which the application relates, and*
- (d) other matters which the Secretary of State thinks are both important and relevant to the Secretary of State's decision."*

6.1.1.2 Section 104(3) confirms that the Secretary of State should decide applications in accordance with relevant NPSs except to the extent that one or more of the matters set out in section 104 (4) to (8) applies. The key test therefore is to assess whether, on balance, the application is in accordance with the relevant NPSs.

6.1.1.3 In determining this application, the wider benefits of offshore wind energy must be weighed against the adverse impacts that have been identified as well as any local issues and concerns. This balancing exercise must also consider the context of national, UK and European policies and obligations that seek to tackle climate change, deliver security of the UK's energy supply and promote a shift to renewable energy.

6.1.1.4 This Planning Statement has sought to identify and 'signpost' the necessary information forming part of the application to assist the Secretary of State in applying the test in section 104.

6.1.1.5 The starting point in terms of the relevant NPSs (EN-1, EN-3, and EN-5) is a presumption in favour of NSIPs, such as Hornsea Three, in light of the need for energy infrastructure including renewable energy infrastructure. This presumption prevails unless, taking into account issues identified by the NPSs, the adverse effects outweigh the benefits. Hornsea Three will provide a necessary renewable energy resource and meet this overarching policy aim, contributing substantially towards the Government's renewable energy and carbon reduction targets. When Hornsea Three is fully operational, and mitigation measures implemented, any residual significant effects, will therefore be considered in that context.

6.1.1.6 The submitted Environmental Statement covers all the relevant offshore and onshore likely environmental effects associated with Hornsea Three and their mitigation. In addition, the potential effects upon European Sites have been considered within the RIAA. Further, the application is accompanied by key management plans presenting detailed mitigation plans and commitments, including an Outline CoCP (document reference A8.5), EMP (document reference A8.6) and LMP (document reference A8.7). These documents have been developed in consultation with key stakeholders, and will set out appropriate mitigation measures that are secured through the DCO.

6.1.1.7 The application documents will set out how appropriate consideration has been given to the relevant issues and how the likely significant effects of Hornsea Three have been avoided, minimised or mitigated where it is practicable and/or reasonable to do so.

6.1.1.8 This Planning Statement identifies how the considerations set out within the relevant NPSs have been complied with by the applicant and addressed in the preparation of Hornsea Three and/or the documents that have been submitted with the application. It is concluded that Hornsea Three satisfies the requirements of the NPSs in terms of the assessment that should be carried out, and the criteria the Secretary of State is directed towards in making a decision on the application.

7. References

Broadland District Council (2011). Joint Core Strategy DPD (amended 2014) and Development Plan Documents (DPDs).

Department for Communities and Local Government (2015), The Planning Act 2008 (as amended) (The Act). London, Department for Communities and Local Government.

Department for Communities and Local Government (2012) National Planning Policy Framework (NPPF). London, Department for Communities and Local Government.

Department of Energy and Climate Change (DECC) (2011a). *Overarching National Policy Statement for Energy (EN-1)*. London, The Stationery Office.

Department of Energy and Climate Change (DECC) (2011b). *National Policy Statement for Renewable Energy Infrastructure (EN-3)*. London, The Stationery Office.

Department for Energy and Climate Change (DECC) (2011c). *National Policy Statement for Energy Infrastructure (EN-5)*. London, The Stationery Office.

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](#).

Greater Norwich Growth Board (2014) Joint Core Strategy for Broadland, Norwich and South Norfolk. [Online]. Available at: <http://www.greaternorwichgrowth.org.uk/planning/joint-core-strategy/> (Accessed 10/03/2018).

HMSO (1981). *Wildlife and Countryside Act 1981*. London. The Stationary Office.

HMSO (2011). UK Marine Policy Statement. Printed in the UK by The Stationery Office Limited on behalf of the Controller of Her Majesty's Stationery Office ISBN: 978 0 10 851043 4.

HMSO (2017). *The Conservation of Habitats and Species Regulations 2017 (as amended)*. London. The Stationary Office.

Institute of Environmental Management and Assessment (IEMA) (2004). *Guidelines for Environmental Impact Assessment*.

Marine Management Organisation (MMO) (2009) *Marine and Coastal Access Act*. London, The Stationary Office

Marine Management Organisation (MMO). (2014). East Marine Plans. [Online]. <https://www.gov.uk/government/publications/east-inshore-and-east-offshore-marine-plans>. Accessed on 14 March 2017

Norfolk County Council (2011). Core Strategy and Minerals and Waste Development Management Policies and Development Plan Documents (DPDs)

Norfolk County Council (2013a). Mineral Site Specific Allocations Development Plan Document (with amendments December 2017)

Norfolk County Council (2013b). Waste Site Specific Allocations Development Plan Document.

North Norfolk District (2008). The Adopted Core Strategy and Development Management Policies Development Plan Documents (DPDs)

Ørsted (2018). Report to Inform the Appropriate Assessment for Hornsea Three Offshore Wind Farm.

PINS (2012) Advice note six: Preparation and submission of application documents. Bristol, PINS.

Planning Inspectorate (PINS) (2012). *Advice Note Nine*. Rochdale Envelope. Version 2.

South Norfolk Council (2011). Joint Core Strategy DPD (amended 2014) and Development Plan Documents (DPDs).

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.