Partners in UK offshore wind

MORGAN OFFSHORE WIND PROJECT: GENERATION ASSETS

Annex 4.3 to Response to Hearing Action Point 12: Examining Authority's Recommendation Report of Triton Knoll Offshore Wind Farm Order 2013

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Image of an offshore wind farm

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The Planning Inspectorate

The Planning Act 2008

Triton Knoll Offshore Wind Farm

Panel's Report to the Secretary of State for Energy and Climate Change

Panel:

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Panel's Report of Findings and Conclusions and Recommendation in respect of an application for a Development Consent Order for Triton Knoll Offshore generating station.
Date: 17 April 2013

File Ref EN010005

The Proposed Triton Knoll Offshore Wind Farm Order

- The application, dated 31 January 2012, was made under Section 37 of the Planning Act 2008.
- The applicant is Triton Knoll Offshore Wind Limited.
- The application was accepted for examination by the Infrastructure Planning Commission (IPC) on 23 February 2012.
- The examination of the application began on 23 July 2012, following the transfer of IPC functions to the Secretary of State for Communities and Local Government[1], and was completed on 21 January 2013.
- The development proposed is an offshore wind farm comprising up to 288 wind turbine generators and associated offshore infrastructure, with a generating capacity of up to 1,200MW, located approximately 33km off the coast of Lincolnshire and 46km off the coast of North Norfolk.

Summary of Recommendation:

The Panel recommends the Secretary of State make the Order with modifications in the form appended.

[1] The Localism Act 2011, with effect from 1 April 2012, abolished the IPC and transferred s83(1) responsibilities to examine and make a report of findings, conclusions and a recommendation on Nationally Significant Infrastructure Projects (NSIPs), to Examining Inspectors, appointed by the Planning Inspectorate, on behalf of the Secretary of State for Communities and Local Government. Decision taking on NSIPs was transferred to the relevant Secretary of State.

Contents

The Planning Inspectorate

ERRATA SHEET – Triton Knoll Offshore Wind Farm - Ref. EN010005

Examining authority's Report of Findings and Conclusions and Recommendation to the Secretary of State for the Department of Energy and Climate Change, dated 17 April 2013

Corrections agreed by the Examining Authority prior to a decision being made

Page No.	Paragraph	Error	Correction
46	Para 5.1.38	Unnecessary full stop	Remove full stop from the beginning of the paragraph
53	Para 5.2.20	Typographic error	Change "sand" to "sand**wich"**
56	Para 5.2.33	Typographic error	Replace "reply" with "rely"
57	Para 5.2.38	Incorrect terminology	Replace "assessment" with "analysis" so that it reads "population viability analysis"
57 and 60	5.2.40 and 5.2.51	Typographic error	Replace "9" with "8", in reference to worst-case additional mortality[1].
65	5.2.78	Typographic error	Replace "(in matrix 3.4)" with "(in matrix 3.**5**)"
74	Para 5.4.12	Grammatical error	Replace "is" with "are" in the phrase "the fish is very sensitive to sound"
83	Para 5.5.40	Lack of clarity	The sentence, "[…]the applicant's responses to its questions provided in deadline I Annex 12 [REP19]." Should be amended to read, "[…]the applicant's responses to its

[1] At paragraphs 5.2.40 and 5.2.51 the Examining Authority has incorrectly referred to the mortality figure for ALL Sandwich tern mortalities ((9) as identified in the Applicants HRA report see Tables 14 and 15, page 63). The reference should in actual fact be to the 8 additional ADULT Sandwich tern mortalities identified in the DECC Southern Wash AA, relied upon by the Applicant in their report to inform the HRA and accurately identified at Table 5.3 of the Examining Authority's report. In addition Matrix 3.1 (g) of the RIES incorrectly referred to the mortality figure for ALL Sandwich tern mortalities 9. The reference should in actual fact be to the 8 additional ADULT Sandwich tern mortalities.

Page No.	Paragraph	Error	Correction
			questions provided **on IP** deadline I **in** Annex 12 [REP19].”
96	Para 5.9.1	Missing word	“Environmental Assessment” should read “Environmental **Impact** Assessment”.
107	Para 5.11.21	Typographic error	Replace “The Energy Act 1989” with “The **Electricity** Act 1989”
A11	Abbreviations appendix	Duplication of abbreviations, clarity.	The abbreviation CA is defined both as “Compulsory Acquisition” and “Cruising Association”. The only usage of the abbreviation “CA” in the recommendation report is for the term “Compulsory Acquisition”. Delete abbreviation for ‘Cruising Association’.
A12	Abbreviations appendix	Unwanted text	The term SNCB is defined as, “Statutory Nature Conservation Body (needs to be defined)”. This should be replaced with, ““Statutory Nature Conservation Body, being Natural England and Joint Nature Conservation Committee”
Within Appendix E	Deemed Marine Licence, Part 2 Conditions	Typographical error	The Longitude figure for Point C is incorrectly stated as 0° 54' 07.534" E. This should be replaced with 0° 54' 07.5**2**4" E.

1 INTRODUCTION

1.0.1 On 24 May 2012 the Secretary of State for Communities and Local Government appointed the following Panel of three Examining Inspectors as the Examining Authority (ExA) for the application under section(s)65 of the Planning Act 2008 as amended (PA2008) [PD4]:

- Gideon Amos OBE RIBA MRTPI – Lead Member of the Panel;
- Jim Claydon MRTPI – Member of the Panel, and
- Rynd Smith LLB MA MRTPI - Member of the Panel.

1.0.2 This document is the Panel's Report to the Secretary of State for Energy and Climate Change (SoS). It sets out the Panel's findings and conclusions and the recommendation as to the decision to be made on the application, as required by s83(1) of the PA2008.

1.0.3 The proposed development for which consent is required under s31 of PA 2008 is as follows:

- the construction and operation of up to 288 wind turbine generators with a maximum tip height of up to 220 metres above Lowest Astronomical Tide (LAT) with a generating capacity of up to 1200MW;
- offshore substations;
- meteorological stations, and
- underwater cabling to connect the turbines with the substations.

It is a nationally significant infrastructure project (NSIP) as defined by s14 and s15 of the PA 2008.

1.0.4 The proposed development does not include export cabling or onshore grid connection infrastructure, elements which will require subsequent consenting applications. In line with the tests set out in National Policy Statement (NPS) EN-1[2], the Panel has considered the indirect, secondary and cumulative effects of any future connection to the terrestrial electricity network as part of the examination. Based on the information provided by the applicant, the Panel has considered whether or not it is satisfied that there are no obvious reasons why a grid connection would not be possible or, when applied for separately, would be likely to be refused.

1.0.5 The application is Environmental Impact Assessment (EIA) development as defined by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009. It was accompanied by an environmental statement (ES) which in the view of the Panel met the definition given in Regulation 2(1) of

[2] Overarching National Policy Statement for Energy (EN-1)

these Regulations. Additional clarifying environmental information was received during the course of the examination. In reaching the recommendation, the environmental information as defined in Regulation 2(1) (including the ES and any other information on the environmental effects of the development) has been taken into consideration in accordance with Regulation 3(2) of these Regulations.

1.0.6 The accepted application was advertised by the applicant and 57 Relevant Representations were received [RR1 to RR57].

1.0.7 A Preliminary Meeting was held on 23 July 2012 at which the applicant and all other Interested Parties, Statutory Parties and other invitees [PD6, PD7, PD8] were able to make representations about how the application should be examined. The timetable for the examination, a procedural decision of the ExA under Rule 8 of the Infrastructure Planning (Examination Procedure) Rules 2010 (EPR), was issued to Interested Parties on 30 July 2012 [PD10]. It was accompanied by the ExA's written questions and notification of the publication of the note of the Preliminary Meeting. Other procedural decisions, including those to vary the timetable, follow below. A letter requesting Interested Parties' views on recent amendments to the relevant onshore and offshore habitats regulations (considered in more detail in Chapter 3 below), was issued on 9 August 2012 [PD11]. This letter included errata to some of the ExA's written questions.

1.0.8 An onshore inspection of sites to which the application related was carried out along the Lincolnshire coast in the company of Interested Parties on 9 October 2012.

1.0.9 In addition, the Panel conducted the following unaccompanied site inspections:

- onshore inspection - Lincolnshire coast and Lincolnshire Wolds Area of Outstanding Natural Beauty, 23 and 24 July 2012;
- offshore inspection – constructed offshore wind farms near Barrow-in-Furness, 5 September 2012;
- onshore inspection – constructed onshore wind farms near Barrow-in-Furness viewed from the Cumbrian coast, 5 and 6 September 2012;
- onshore inspection - North Norfolk coast, 25 September 2012, and
- onshore inspection by night – constructed offshore wind farms near Skegness viewed from Mablethorpe, 5 November 2012.

1.0.10 The Rule 8 letter timetabled an onshore site inspection in the company of Interested Parties in North Norfolk for 10 October 2012. The Planning Inspectorate received no notifications from

Interested Parties wishing to attend this inspection, and it was therefore cancelled by the ExA. This constituted a variation to the timetable and notice of this was sent to all Interested Parties [HE25].

1.0.11 As set out in the timetable for the examination [PD10], and as a result of requests made, the following hearings were held:

- specific issue hearing on the draft Development Consent Order (DCO) and Related Matters on 6, 7 and 8 November 2012 at the Storehouse Conference Centre, North Parade, Skegness, and
- open-floor hearing on 13 November 2012 at the Embassy Theatre, Grand Parade, Skegness.

1.0.12 The Rule 8 letter [PD10] reserved time for an Open Floor hearing in North Norfolk. The Planning Inspectorate received no notifications from Interested Parties wishing to attend this hearing, and it was therefore cancelled. This constituted a variation to the timetable and notice of this was sent to all Interested Parties [HE25].

1.0.13 No invitation was required to be issued, under s60 of the PA2008, to any local authority to submit a Local Impact Report (LIR) because the application was not on land within nor on land bounded by any local authority's area in the terms described by s56A of the PA2008. However a LIR was received from East Lindsey District Council (ELDC) [LIR1], this was the only LIR received during the examination. This is considered further in Chapter 3.

1.0.14 The Panel issued one round of written questions [PD10, PD11] and a number of requests for further information or written comment under Rule 17 of the EPR, which each constituted an amendment to the examination timetable [PD19, PD20, PD21].

1.0.15 Under Regulation 5(2)(g) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 (APFP) an application must be accompanied with sufficient information to enable the SoS to meet his statutory duties as the competent authority under the Habitats and Marine Regulations[3] relating to European protected sites. In order to inform the Panel's report and recommendation to the SoS on the application under s74 of the PA2008 and to provide standalone information to the SoS in order for him to carry out his statutory duties, the Panel requested as part of its first written questions for the applicant to complete the following:

[3] Conservation of Habitats and Species Regulations 2010 (as amended) (the Habitats Regulations) and the Offshore Marine Conservation (Natural Habitats &c.) Regulations 2007 (as amended) (the Marine Regulations) (referred to jointly here as the Habitats and Marine Regulations).

- matrices to summarise the screening for likely significant effects [RIES5], and
- matrices to summarise the implications for the integrity of the site [RIES4].

1.0.16 All Interested Parties were then invited to comment upon the applicant's matrices. The matrices were subsequently updated to produce the 'Report on the Implications for European Sites' (RIES) which compiles, documents and signposts the information received with the application and during the examination of the application [RIES1 to RIES5].

1.0.17 Following completion of the RIES, all Interested Parties were invited on 29 November 2012 [PD18], to provide comments upon it. Two comments were received [REP32 REP34]. The RIES on which they commented and the comments and responses themselves are listed in Appendix D and made available to the SoS in the online library of examination documents on the Planning Portal website for this application. This information would enable the SoS to carry out an Appropriate Assessment if required as part of his statutory duties as the competent authority.

1.0.18 In addition to the consent required under the PA 2008 (which is the subject of this report and recommendation), the proposal is subject to the need for the following separate consents and permits:

- Protected Species Licence under the Conservation of Habitats and Species Regulations 2010;
- Safety Zones under the Energy Act 2004, and
- Marine Licences for spoil disposal and moorings under the Marine and Coastal Access Act 2009.[4]

1.0.19 At the time the examination was completed on 21 January 2013, the consents above had not yet been obtained. The likelihood of these consents being obtained is considered in the last part of Chapter 5 of this Report.

1.0.20 The Report Chapters below set out respectively the main features of the proposal and its site, the legal and policy context, the extent and adequacy of the environmental assessment (a matter on which the Panel received a number of substantive representations), the Panel's findings and conclusions on all the important and relevant issues, and finally its recommendation. The Order as recommended to be made by the SoS is attached as an appendix, as are, a summary of examination events, a list of abbreviations, a list of

[4] These Marine Licence applications would be for activities beyond those provided for by the Deemed Marine Licence (DML) that forms part of the recommended Order.

examination documents and a list of participants in the hearings.

2 MAIN FEATURES OF THE PROPOSAL AND ITS SITE

2.1 THE SITE AND SURROUNDING AREA

2.1.1 The Application was made by Triton Knoll Offshore Wind Farm Ltd for development consent to construct a new offshore wind farm and associated offshore infrastructure with a total generating capacity of up to 1,200MW.

2.1.2 The proposed application site is on the bed of the North Sea approximately 33km off the coast of Lincolnshire and 48km off the coast of North Norfolk. The site lies 131km from the Netherlands' Exclusive Economic Zone, the nearest EEZ of any other EU member state. The proposal would be within the UK's Renewable Energy Zone[5] (REZ) and lies entirely outside the 22.2km limit usually known as 12 nautical mile (nm) limit, of the United Kingdom's territorial waters.

2.1.3 Water depths within the proposed project area range from approximately 8.8m to 31m below chart datum, the extreme tidal range being approximately 5.9m. The seabed is formed predominantly of sand and gravels.

2.1.4 In the vicinity of the proposed project site, there are a number of shoals and channels, notably Triton Knoll Shoal immediately to the south, and the Outer Dowsing Channel and Shoal approximately 7.4km to the east. The site is East-South-East of and adjacent to Silver Pit, a valley in the sea bed [APP24]. The nearest proposed turbine would be positioned circa 0.9km (0.5nm) from this feature.

2.1.5 The project would occupy an area of 135km^2 and is up to 23km wide in the east-west direction and 11km wide in the north-south direction.

2.2 THE PROPOSAL

2.2.1 Proposed Work no.1, as described in the application version of the DCO and in the ES [DCO5 & APP27], comprises up to 288 wind turbine generators with a maximum blade tip height of up to 220 metres above LAT, and hub height of up to 140 metres above LAT. Each of the turbines would be fixed to the seabed by one of five foundation types namely, monopile, jacket, tripod, suction bucket monopod or gravity base foundation. These terms are interpreted in Article 2 in the recommended Order (Chapter 7) and further described in the ES [APP27].

[5] The Renewable Energy Zone (Designation of Area) Order 2004 designates the area of the zone beyond the United Kingdom's territorial waters which may be exploited for energy production. http://www.ukho.gov.uk/ProductsandServices/Services/Documents/Renewable_Energy_Web%20Page_Jan06_v2.pdf

2.2.2 In addition to the above, proposed Work no.1 comprises up to four collector substations fixed to the seabed by jacket or monopile foundations. They would be used to collect power from multiple wind turbine generators and electrically convert it for transmission.

2.2.3 It is also proposed that up to four meteorological monitoring stations would be constructed, which would be used to collect meteorological and oceanographic data and would be fixed to the seabed by either monopile, jacket, tripod, suction bucket monopod or gravity based foundations.

2.2.4 Approximately 200km to 400km, of 33 or 66 kV inter-array cables would be laid. It is proposed that the total length would be determined by final design considerations including the voltage capacity and turbine layout. In addition, approximately 40km to 75km, of 132 to 220kV cables would be laid to interconnect the offshore substations. Proposed Requirement 6 of the application DCO is that the total extent of these cables would be limited to 475km.

2.2.5 Proposed Work no.2 is associated development within the meaning of s115(2) of the PA 2008 and would comprise up to four High-Voltage Direct Current (HVDC) substations (up to 77m x 65m in area on plan) or up to 2 large HVDC substations (up to 100m x 75m in area on plan) fixed to the seabed by gravity, jacket or monopile foundations. Article 2 of the application version of the DCO defines the term "substations." The HVDC substations would enable high voltage direct current to be used to convey the power output of the offshore wind turbine generators to shore. However the Environmental Statement [APP27] shows that export of electricity via alternating current has also been fully assessed. In that case there would be no requirement for conversion to direct current in the offshore substations.

2.2.6 Proposed ancillary works may include temporary landing places, or other means of accommodating vessels in the construction and/or maintenance of the authorised development; and buoys, beacons, fenders and other navigational warning or ship impact protection works.

2.3 DEVELOPMENT DESCRIBED IN THE ENVIRONMENTAL STATEMENT

2.3.1 For the purposes of the Environmental Impact Assessment (EIA), the project was initially assessed against a maximum development envelope of 333 wind turbine generators. In order to mitigate potential effects on gannet and sandwich tern, as described in Volume 2: Chapter 6 of the ES [APP36] it was decided by the applicant that a revised maximum number of 288 turbines would be applied for. Therefore in the ES, 333

turbines are considered as the basis for the 'worst case scenario' impacts, however relevant ornithological impacts have been re-assessed against the lower number of 288 turbines, the maximum that would be consented by the recommended Order.

2.3.2 It should be noted that although indicative locations for the offshore structures have been developed and assessed as set out in the ES, the DCO seeks to retain flexibility in the final project design using the Rochdale envelope approach [APP27]. The application of the Rochdale envelope approach within the ES is considered in Chapter 4 of this Report.

2.3.3 The Panel has taken into consideration all of the environmental information as defined in regulation 2(1) of the Infrastructure Planning (Environmental Impact Regulations) 2009 (EIA Regulations). The main measures to avoid, reduce or offset the significant adverse effects of the development are described in Chapter 5 by reference to particular requirements and conditions of the recommended Order in Chapter 7.

2.4 GRID CONNECTION WORKS

2.4.1 The application does not include any works to connect the offshore wind farm to the national grid. Subsea export cables and onshore works required to connect the project to the national grid would require separate consent(s) at a later date. The ES [APP27] included an outline description of the grid connection approach and this is addressed in Chapter 4 of this Report. In addition, in response to the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 (APFP Regulation 6(1)(b)(i)) the applicant was required to provide a statement of details of the proposed route and method of installation for any cable. This Cable Statement [APP69] set out similar descriptive details and includes at Figure 2 an indicative "Electrical Infrastructure Area of Search" extending from the wind farm, across the sea to the shore and along the south coast of Lincolnshire where it is approximately 15km in width. The cable statement indicates a possible connection to the national grid at the Bicker Fen substation at the southwestern end of this area.

2.4.2 In its written representation [REP19] the applicant informed the Panel that it was also considering the option of connection via alternating current (AC) as referred to in Chapter 1, which would require different connection infrastructure. This option would be likely to require 3 rather than 2 cables per circuit onshore, a subsea cable corridor of 1600m (rather than 1100m) wide, a substation of up to 20Ha (rather than 8Ha), a reduction in height of structures in the substation from 22 to 15m and the additional requirement for a Reactive Compensation Compound (RCC). This would be located at a point along the onshore cable corridor, when this had been established.

2.4.3 Whilst sufficient detail of the two connection approaches was provided for EIA purposes, this detail did not and does not form part of this application. Furthermore the Order as now recommended would not secure or limit any areas of search for connection elements and relates only to works within the Order Limits 33km off the coast. The assessment of the direct, indirect, secondary and cumulative environmental impacts arising from the development along with its necessary connection elements is recorded in the ES under the sections relating to the various impacts.

2.5 CHANGES TO THE APPLICATION SINCE SUBMISSION

2.5.1 Minor changes, in particular to the proposed Order, were made by the applicant throughout the course of the examination. In terms of the proposed works, however, two notable proposed changes were made following submission of the application, as set out below.

2.5.2 As set out in Part 1 of Schedule 1 (Paragraph 1, Works Nos. 1(a) and 2 - Authorised Development) and Part 1 of Schedule 2 (Paragraph 2 - Licensed Marine Activities) of its December 2012 Revision E draft DCO [DCO5], the applicant proposed a new additional option of steel monopile foundations for up to the eight proposed offshore substations.

2.5.3 As set out in Part 3 of Schedule 1 (Requirement 4) and Part 2 of Schedule 2 (Deemed Marine Licence Condition 2) of its December 2012 Revision E draft DCO [DCO5], the applicant proposed an alteration to the location co-ordinates of the Pipeline Exclusion Zone.

2.5.4 The consistency of the change to the Pipeline Exclusion Zone with the proposals as assessed in the EIA is considered in the relevant section of Chapter 5 on this pipeline below. EIA and jacket foundation design is considered in Chapter 4 on the adequacy of the EIA.

2.5.5 The ExA at the time consulted [PD19] all Interested Parties on these changes to the proposed Order and considered all representations received on them prior to reaching its recommendation in Chapter 6. In summary it was concluded by the Panel during the examination, as set out in this Report, that these changes are within the scope of proposals as assessed in the EIA and were not substantive enough to constitute a different application from the one submitted. In addition given the consultation carried out at the time by the ExA, all Interested Parties had an adequate opportunity to comment upon them before the close of the examination.

3 LEGAL AND POLICY CONTEXT

3.0.1 S104(3) of the Planning Act 2008 (as amended) (PA 2008) requires that the SoS must decide the application in accordance with any relevant national policy statement (NPS), except to the extent that the SoS is satisfied that, in summary:

- doing so would lead to the United Kingdom being in breach of its international obligations;
- doing so would lead to the SoS being in breach of any duty imposed on him under any enactment;
- doing so would be unlawful under any enactment;
- the adverse impact of the proposed development would outweigh its benefits, or
- that any prescribed condition for deciding the application otherwise than in accordance with the NPS would be met.

S104(2) PA2008 sets out the matters to which the SoS must have regard in deciding an application submitted in accordance with PA 2008. In summary, the matters set out in s104(2) include any relevant national policy statements, any appropriate marine policy documents, any local impact report and any other matters the SoS thinks are both important and relevant to the decision.[6]

This Report sets out the Panel's findings and conclusions taking these matters fully into account.

3.0.2 The following application documents contain a detailed description of the legislative and policy framework that the applicant considers relevant to the proposal:

- ES Volume 1: Chapter 2 - The Need for Offshore Wind Generation [APP23], and
- ES Volume 1: Chapter 4 – Consenting Process [APP25].

3.0.3 The principal European Directives referred to during the examination and which the Panel has taken into account as relevant are those dealing with renewable energy, habitats and wild birds, identified below along with the relevant domestic UK legal provisions transposing those. This is followed by identification of the important and relevant policy provisions at the time of the examination.

3.1 RENEWABLE ENERGY DIRECTIVE 2009

3.1.1 The Renewable Energy Directive[7] sets out legally binding targets for member states with the expectation that by the year

[6] S104 PA2008 also sets out the circumstances in which the SoS may decide the application otherwise than in accordance with a national policy statement, s104 needs to be considered in full alongside all other relevant legislation.
[7] Directive 2009/28/EC on the promotion of the use of energy from renewable sources

2020, 20% of the European Union's energy mix and 10% of transport energy will be generated from renewable energy sources. The UK's contribution to the 2020 target is that by then 15% of energy will be from renewable sources. This represents a seven-fold increase in UK renewable energy consumption from 2008 levels. The UK National Renewable Energy Strategy 2009 sets out how the UK proposes to meet the targets.

3.2 EUROPEAN MARINE STRATEGY FRAMEWORK DIRECTIVE

3.2.1 The Marine Strategy Framework Directive[8] (MSFD) forms the environmental pillar of the Integrated European Marine Policy which aims to provide a coherent legislative framework for the joined-up governance of the marine environment. The MSFD was formally adopted by the European Union in July 2008.

3.2.2 The MSFD establishes four European Marine Regions. The North East Atlantic Marine Region includes UK waters in the Celtic Seas and the Greater North Sea - the location of the TKOWF proposal. The Panel has therefore had regard to the MSFD in its examination of the application and in its compilation of this Report and Recommendation to the SoS.

3.3 THE HABITATS DIRECTIVE

3.3.1 The Habitats Directive[9] (together with the Birds Directive[10]) forms the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and the strict system of species protection. The directive protects over 1000 animals and plant species and over 200 habitat types (e.g. special types of forests, meadows, wetlands, etc.), which are of European importance.

3.4 THE EIA DIRECTIVE

3.4.1 The EIA Directive[11] sets out the framework for the examination of the potential environmental impacts of qualifying development applications. It also sets out, in Article 7, requirements relating to transboundary impacts. The principal function of the Directive is to establish the requirement for developers to compile and submit an environmental statement in support of any qualifying development application, presenting their assessment of the likely significant environmental impacts. This Directive is transposed into UK law, for the purposes of this

[8] Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy
[9] Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
[10] Directive 79/409/EEC on the conservation of wild birds
[11] Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment

application, by the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations).

3.4.2 Whilst setting out the indirect, secondary and cumulative impacts of a proposal is expected by policy in NPS EN-1, it is necessary to first consider the relevant legal requirements in the EIA Regulations on this matter. Regulation 2 defines an ES as a statement:

"(a) that includes such of the information referred to in Part 1 of Schedule 4 as reasonably required to assess the environmental effects of the development and of any associated development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile; but

(b) that includes at least the information referred to in Part 2 of Schedule 4…"

3.5 THE OFFSHORE HABITATS REGULATIONS

3.5.1 The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended)[12] (the Offshore Habitats Regulations) transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) and Council Directive 79/409/EEC on the conservation of wild birds (the Wild Birds Directive) into national law with respect to the marine environment. They came into force on 21 August 2007. These regulations apply to the UK's offshore marine area which covers waters beyond 22.2km (12 nm) within British Fishery Limits and the seabed within the UK Continental Shelf Designated Area. The Offshore Habitats Regulations therefore apply to the whole of the area of the site defined by the recommended Order Limits.[13]

3.5.2 The Offshore Habitats Regulations fulfil the UK's duty to comply with European law beyond inshore waters and ensure that activities regulated by the UK that have an effect on defined species and habitats in the offshore marine environment can be managed. Under the Regulations, competent authorities i.e. any Minister, government department, public body, or person holding public office, have a general duty, in the exercise of any of their functions, to have regard to the EU Habitats and Wild Birds Directives.

[12] The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (as amended)

[13] Correspondingly The Conservation (Natural Habitats, &c.) Regulations (GB: 1994 (as amended in 2007) form the legal basis for the implementation of the Habitats and Wild Birds Directives in terrestrial areas of the UK and territorial waters out to a distance of 22.2km (12nm).

3.5.3 The Department for Environment Food and Rural Affairs (DEFRA) concluded in 2012, that further action was required to transpose the provisions of Articles 2, 3, 4(4) (the second sentence) and Article 10 of the Wild Birds Directive. On 25 July 2012, DEFRA laid The Conservation of Habitats and Species (Amendment) Regulations 2012 and The Offshore Marine Conservation (Natural Habitats, &c.) (Amendment) Regulations 2012 before Parliament. These Regulations in particular insert into the Offshore Habitats Regulations new duties on public bodies to take such steps in the exercise of their functions as they consider appropriate to secure the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the offshore marine area. These duties fall under the new regulation 6, they relate to wild birds habitats generally and are not limited to European sites[14] impacts. These amendment regulations came into force on 16 August 2012. As noted in Chapter 1, the ExA at the time consulted Interested Parties upon any implications of the new duties for their representations on the proposed project.

3.6 NATURAL ENVIRONMENT & RURAL COMMUNITIES ACT 2006

3.6.1 The Natural Environment and Rural Communities (NERC) Act established a new body, Natural England (NE), to apply its functions in ensuring that the natural environment in England is conserved, enhanced and managed for the benefit of present and future generations, thereby contributing to sustainable development. The NERC Act came into force on 1 October 2006.

3.6.2 S40 of the NERC Act requires all public bodies to have regard to biodiversity conservation when carrying out their functions. The Panel adhered to this legislation in its examination of the application and in the compilation of this Report and Recommendation and has therefore honoured its duties under the requirements of the NERC Act (its 'biodiversity duty').

3.6.3 The provisions of the NERC Act were considered relevant to the extent that there would be impacts of the proposed development on receptors in England[15], including in relation to biodiversity, as referred to in Chapter 5. They would also be relevant to other connection elements related to this project, assuming these would be located in England. These elements were considered in a cumulative context but would be subject to subsequent applications for consent.

[14] European sites are defined by Regulation 24 of the Offshore Habitats Regulations.
[15] England here encompasses inshore waters up to the 12nm limit.

3.7 WILDLIFE AND COUNTRYSIDE ACT 1981

3.7.1 The Wildlife and Countryside Act 1981 (WCA) provides, primarily in s1, protections for all wild birds, eggs and nests, interference with which is an offence under this Act.

3.7.2 The application, the Panel finds, does not impact on any sites of special scientific interest and therefore there are no requirements to provide any notifications to NE under s281(2) of the WCA.

3.7.3 The provisions of the WCA would be relevant to the extent that there would be impacts of the proposed development on receptors such as wild birds, eggs and nests onshore. These are set out in full in Chapter 5. They would also be relevant to other connection elements related to this project, assuming these would be located in England. These elements were considered in a cumulative context but would be subject to subsequent consenting applications.

3.8 OTHER DEVELOPMENT CONSENT ORDERS

3.8.1 The first development consent Order made under the PA2008 is The Network Rail (Ipswich Chord) Order 2012. Only this Order and The Network Rail (North Doncaster Chord) Order 2012 (the second Order made under PA2008) were available during the examination of the application. Whilst rail projects are very different in nature to proposed wind farms any precedents in legal terms established by these Orders were taken into account by the Panel in the examination. No Orders under the PA2008 relating to wind farm development had been made during the period of the examination.

3.8.2 The Kentish Flats Extension Order 2013 was made on 19 February 2013, it was the third Order to be made under the PA2008 and the first relating to a wind farm development. Subsequently the Brechfa Forest West Wind Farm Order 2013 was made on 12 March 2013. However these two Orders were made after the completion of the examination which occurred on 21 January 2013. It was therefore not possible to consult parties on any issues regarding the draft DCO in relation to this application arising from matters (such as of legal drafting) included in these made Orders. Given this, and the need to consider each application on its merits, this Report therefore reflects the Panel's findings and conclusions on the evidence provided by all Interested Parties during the examination, taking into account only Orders that had been made before its completion.

3.9 NATIONAL POLICY STATEMENTS

3.9.1 S104(1) of PA 2008 applies *"…in relation to an application for an order granting development consent if a national policy*

statement has effect in relation to development of the description to which the application relates." The application is for a nationally significant infrastructure project (NSIP), namely an offshore generating station of up to 1,200MW, together with associated offshore infrastructure. The Panel agrees that the proposal falls within the terms of s14(1) the construction of a generating station and s15(3) an offshore generating station with a capacity in excess of 100MW.

3.9.2 S104(3) requires that the SoS must decide the application in accordance with the NPS. S104(2) of PA 2008 further requires that in deciding the application the SoS must have regard to any national policy statement (NPS) which has effect in relation to development of the description to which the application relates. The NPSs most relevant to this application are EN-1 and EN-3, which were designated by the SoS on 19 July 2011 in accordance with s5 of PA 2008. They therefore provided the primary basis for the Panel's examination of the application.

3.10 OVERARCHING NPS FOR ENERGY (EN-1)

3.10.1 This NPS sets out national policy for energy infrastructure, including the role of offshore wind which is expected to provide the largest single contribution towards the 2020 renewable energy targets. Part 4 of EN-1 makes clear that the assessment of applications for energy NSIPs "should start with a presumption in favour of granting consent" and sets out the assessment principles to be applied in considering applications for development consent. The Panel has applied the tests set out in EN-1 as the primary basis for its examination of the application.

3.10.2 Section 4.2 of NPS EN-1 sets out the policy principles applicable to the use of a Rochdale envelope approach in energy development consenting. It states:

"[w]here some details [of a proposal] are still to be finalised the ES should set out, to the best of the applicant's knowledge, what the maximum extent of the proposed development may be in terms of site and plant specifications, and assess, on that basis, the effects which the project could have to ensure that the impacts of the project as it may be constructed have been properly assessed." [16]

3.10.3 NPS EN-1 also makes clear that the PA2008 aims to create a holistic regime. The Government envisages that wherever possible applications for new generating stations and related infrastructure should be contained in a single application. However it also recognises that due to different lead-in times, legal entities and regulatory frameworks this will not always be

[16] NPS EN-1 at paragraph 4.2.8 and footnote 78.

possible and it recognises that applicants may decide to submit an application for only one element, but containing some information on the second. In such cases it states that applicants must have regard to the EIA Directive and must ensure that sufficient information is supplied, including on *"the indirect, secondary and cumulative effects which will encompass information on grid connections."* The requirements of the EIA regulations on this matter are considered above.[17]

3.10.4 NPS EN-1 summarises the government's biodiversity strategy objectives as follows:

- *"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."*[18]

3.10.5 NPS EN-1 however does go on to suggest that decision-makers should consider these objectives in the context of climate change, where, *"failure to address this challenge will result in significant adverse impacts to biodiversity"*[19]*.* This policy direction is relevant to a renewables/low carbon generation project such as the proposal considered in this Report. The decision-maker is enjoined to *"avoid significant harm to biodiversity"*, whilst ensuring 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 biodiversity: out of biodiversity […] within the wider environment"* [20].

3.10.6 NPS EN-1 is clear in this regard that the most important tier of biodiversity sites are those identified through the means of international conventions and European Directives. Decision-makers are also enjoined to afford the same tier of protection to potential Special Protection Areas (pSPAs) and to listed Ramsar sites, even though these sites are not afforded formal statutory protection under the Habitats Regulations.

3.10.7 The NPS requires decision-makers to have regard to sites that are protected nationally, regionally and locally for their biodiversity significance. It requires decision-makers to have regard to the effects of a proposal on such Marine Conservation Zone proposals (MCZ) as may be relevant. It draws attention to the need to safeguard the interests of other habitats and

[17] NPS EN-1 at paragraph 4.9.2 and 4.9.3.
[18] From "Working with the Grain of Nature" cited in NPS EN-1 paragraph 5.3.5.
[19] NPS EN-1 paragraph 5.3.6
[20] NPS EN-1 at paragraphs 5.3.7-8.

species that have their own, sometimes individual protection, under a range of legislative provisions. It draws attention to the opportunities for safeguarding and enhancing biodiversity within a development.

3.10.8 Where harm is unavoidable the NPS suggests that the applicant should include appropriate mitigation, discussed in the following terms:

- *"during construction, they will seek to ensure that activities will be confined to the minimum areas required for the works;*
- *during construction and operation best practice will be followed to ensure that risk of disturbance or damage to species or habitats is minimised, including as a consequence of transport access arrangements;*
- *habitats will, where practicable, be restored after construction works have finished, and*
- *opportunities will be taken to enhance existing habitats and, where practicable, to create new habitats of value within the site …"* [21]

3.10.9 Further aspects of NPS EN-1 are referred to as relevant throughout this Report.

3.11 NPS FOR RENEWABLE ENERGY INFRASTRUCTURE (EN-3)

3.11.1 This NPS sets out additional policy specific to renewable energy applications, including offshore wind generation exceeding 100MW. Section 2.6 of EN-3 sets out detailed assessment principles for offshore wind proposals, and these have been applied by the Panel as the primary basis for its examination of the application.

3.11.2 Section 2.6 of NPS EN-3 goes on to consider the implications of the Rochdale envelope approach in the context of renewable energy development. It states:

"…the IPC [now the Secretary of State] should accept that wind farm operators are unlikely to know precisely which turbines will be procured for the site until some time after any consent has been granted. Where some details have not been included in the application to the IPC, the applicant should explain which elements of the scheme have yet to be finalised, and the reasons. Therefore, some flexibility may be required in the consent. Where this is sought and the precise details are not known, then the applicant should assess the effects the project could have (as set out in EN-1 paragraph 4.2.8) to ensure that the project as it may be constructed has been properly assessed (the Rochdale Envelope). In this way the maximum adverse

[21] NPS EN-1 paragraph 5.3.18.

case scenario will be assessed and the IPC should allow for this uncertainty in its consideration of the application and consent."

3.11.3 As a matter of policy, NPS EN-3 makes clear that matters such as the:

- *"precise location and configuration of turbines and associated development;*
- *foundation type;*
- *exact turbine tip height;*
- *cable type and cable route, and*
- *exact locations of offshore and/or onshore substations..."*

may not be able to be specified precisely in an application. Nor is this an exclusive list. The NPS provides them as an example, but does not seek to closely prescribe which matters must be precisely assessed and which matters are capable of assessment within a more flexible Rochdale envelope based approach.

3.11.4 NPS EN–3 sets out more detailed considerations relevant to the consenting of offshore wind farms. In terms of generic impact it makes clear that the designation of an area as a Natura 2000 site (a European site) *"does not necessarily restrict the construction or operation of offshore wind farms in or near that area"* [22]. It makes clear that mitigation should be considered in terms of the careful design of the development itself but also in terms of the construction techniques employed. Ecological monitoring is likely to be appropriate, both to enable the better management of the proposal itself and also given the lack of scientific knowledge to provide further useful information relevant to the management of future projects.

3.11.5 In terms of impacts on birds, NPS EN-3 policy considerations relevant to this project include effects relating to:

- collisions between birds and rotating blades;
- bird disturbance due to construction activities;
- bird displacement during the operational phase, resulting in the loss of foraging areas, and
- impacts on bird flight-lines and associated increased energy use by birds.[23]

3.11.6 The use of collision-risk modelling and policy on the approach to be taken by decision-makers to such analysis, is considered in full in the NPS. [24] It is a widely used predictive technique in assessing the impact of offshore wind farms on birds.

[22] NPS EN-3 at paragraphs 2.6.69 – 71.
[23] NPS EN-3 at paragraph 2.6.101
[24] NPS EN-3 Section 2.6 and 2.7

3.11.7 NPS EN-3 policy also identifies however that it has been possible to locate wind farms in ecologically sensitive areas following careful siting of turbines and that mitigation is possible through careful design. It does however caution against the use of shut down routines to mitigate seasonal collision impacts as *"unlikely to offer suitable mitigation."*[25].

3.11.8 In terms of impacts on marine mammals, policy considerations relevant to this project include effects relating to:

- feeding areas;
- migration or commuting routes;
- baseline noise levels;
- predicted construction and operational noise levels, and
- the duration of any potentially disturbing activity.[26]

3.11.9 Decision-makers are asked to pay close regard to the proposed methods of construction and decommissioning, particularly ensuring that foundation design and piling are managed to minimise significant disturbance effects on marine mammals, also having regards to the potential for incombination effects with other projects. The conservation status of marine European and other protected species (and therefore the relative significance of disturbance to them) is a relevant consideration[27].

3.11.10 The NPS highlights that, once construction is complete, sub-sea structures such as offshore wind farm foundations are not considered to pose a high risk to marine mammals due to collisions. It suggests that the key mitigation measures for marine mammals are likely to be implemented during the construction phase, including monitoring for the presence of key species prior to start-up, and using routines such as soft start-up for piling[28].

3.11.11 Further aspects of NPS EN-3 are referred to as relevant throughout this Report.

3.12 THE UK MARINE POLICY STATEMENT

3.12.1 The UK Marine Policy Statement (MPS) was prepared and adopted for the purposes of s44 of the Marine and Coastal Access Act 2009 and was jointly published on 18 March 2011 by all the UK Administrations as part of a new system of marine planning being introduced across UK seas. The MPS is the framework for preparing Marine Plans and taking decisions affecting the marine environment.

[25] NPS EN-3 paragraphs 2.6.109 – 110.
[26] NPS EN-3 paragraph 2.6.92
[27] NPS EN-3 paragraph 2.6.68
[28] NPS EN-3 paragraphs 2.6.97 - 99

3.12.2 The UK marine area includes the territorial seas and offshore area adjacent to the UK, which includes the area of sea designated as the UK Exclusive Economic Zone (the Renewable Energy Zone (REZ), until the Exclusive Economic Zone comes into force) and the UK sector of the continental shelf. It includes any area submerged by seawater at mean high water spring tide, as well as the tidal extent (at mean high water spring tide) of rivers, estuaries and creeks.[29]

3.12.3 The TKOWF proposal lies wholly within the UK marine area and therefore in view of s104(2)(aa) PA2008 the Panel considered the tests applied in the MPS in its examination of the application and in its compilation of this Report and Recommendation to the SoS.

3.13 EAST INSHORE AND OFFSHORE MARINE PLANS

3.13.1 Plans for the East Offshore and East Inshore marine areas - which stretch from Flamborough Head in the north to Felixstowe in the south - are being prepared by the Marine Management Organisation (MMO). A formal public consultation on the draft marine plan for the East of England is expected to begin in Spring 2013 with the aim of adoption by the end of 2013. A number of documents have been published in this regard including 'Draft vision and objectives for East marine plans: update' in May 2012, MMO. The Panel had regard to the emerging objectives of the plans and the extent to which the TKOWF proposal contributed to those objectives.

3.14 LOCAL POLICY AND THE DEVELOPMENT PLAN

3.14.1 NPS EN-1 indicates that the decision-maker may consider Development Plan Documents or other documents in the Local Development Framework both important and relevant to his consideration of the application. In addition a number of Regional Strategies during the examination formed part of the development plan for applications under the Town and Country Planning Act 1990 (as amended) [30]. Because of this, and to the extent that these supplemented NPS policies in relation to onshore impacts of this proposed development and cumulative impacts arising from possible related onshore connection infrastructure (if located in England), they were found by the Panel to be relevant and important to the examination.

3.14.2 The application by TKOWL does not include any onshore works, and policy relating the terrestrial environment was therefore only relevant to the examination of any onshore direct, indirect, secondary and cumulative impacts which would arise from the

[29] Marine and Coastal Access Act 2009 S42(3) and S42(4)
[30] The development plan is defined term in planning legislation under S38(3) Planning and Compulsory Purchase Act 2004 as amended.

development. Direct onshore impacts, for example, would include traffic and transportation and socio-economic impacts arising from the works themselves. Indirect, secondary and cumulative impacts onshore, would include any visual impacts of the development with its connection elements (notwithstanding the lack of knowledge on where these would take place). The development plan was therefore relevant only to onshore impacts of this kind. Weight afforded to the development plan was therefore limited in this way.[31]

3.14.3 It was clear from the examination that full assessment of the impacts of onshore elements would only be possible in the event of an application being made for these to the relevant authority(s).

3.14.4 Since all the proposed works would lie 33km offshore, no part of the proposed Order Limits extend over any local authority boundary as defined s56A PA2008. Therefore no local authority was required, by s60(2) PA2008, to be invited by the SoS to submit a LIR. Notwithstanding these circumstances the definition of a LIR as provided in s60(3) PA2008 is simply *"a report in writing giving details of the likely impact of the proposed development on the authority's area (or any part of that area)."* There is therefore nothing legally requiring that LIRs can only be made by authorities that have been invited by the SoS to submit them. Therefore, following notice given to the Panel by ELDC (recorded in PD10 the note of the Preliminary Meeting) that it intended to submit an LIR, an LIR was subsequently timetabled [PD10] including a period for comments to be made on it, and received [LIR1]. The LIR from ELDC was the only LIR received during the examination. The submitted LIR was indeed a report in writing that gave details of the likely impact of the proposal on ELDC's area. It is therefore an LIR for the purposes of the s60(3) and in our view the SoS should have regard to it in accordance with s104(2)(b) PA2008.

3.14.5 The LIR listed the following documents as the policy framework for land under its jurisdiction:

- East Lindsey Local Plan 1995 (Alteration 1999);
- East Midlands Regional Plan 2009, and
- Emerging East Lindsey Core Strategy.

[31] Given that the examination was held within the twelve-month period immediately following publication of the National Planning Policy Framework, its paragraph 214 provided that within this period decision takers on Town and Country Planning Act 1990 planning applications "may continue to give full weight to relevant policies" in development plans. Following the completion of the examination, on 27 March 2013, this provision expired and paragraph 215 took effect requiring such decision takers to give due weight to relevant policies in existing plans according to their degree of consistency with the Framework. This change in Framework policy therefore applies only to what it describes as relevant development plan policies and does not apply directly to applications under the PA2008. No Interested Parties raised this in response to consultations on the important and relevant policies and the Panel considers this matter to be of little relevance to this application.

3.14.6 The LIR pointed out that the ELDC Local Plan has been used to determine planning applications and to direct new development since 1995. The Local Plan is in the process of being replaced by a new East Lindsey Local Plan (formerly the East Lindsey Local Development Framework). Until such time as this is adopted, relevant policies from the East Lindsey Local Plan 1995 (Alteration 1999) have been 'saved' and continue to provide the policy framework for the district.

3.14.7 The content of the LIR [LIR1] from ELDC largely related to the indirect, secondary and cumulative effects referred to in the Cable Statement [APP69] provided by TKOWL as part of the application.

3.14.8 In addition the Panel identified the East of England Regional Strategy (EERS) as part of the development plan and relevant to the consideration of onshore impacts of this development to the extent that it supplemented NPS policies. Its relevance was therefore limited as set out above. This was in force at the outset of the examination. However during the examination strategic environmental assessment of the proposed revocation of this and other regional strategies was being carried out. On 11 December 2012, during the examination, the Secretary of State for Communities and Local Government laid an Order in Parliament revoking the East of England Regional Strategy, which came into force on 3 January 2013. The Panel considered whether it was necessary to consult Interested Parties on the revocation of this policy. However since no representations had been received directly relying on the EERS and because the onshore impacts could be assessed against the NPSs and Development Plan Documents, the panel concluded that to do so would have been unnecessary. It should be noted that the relevance of the EERS to the examination was in any case limited and its content would not have been determinative of the recommendation made in the this Report.

3.14.9 During the examination the East Midlands Regional Strategy also formed part of the development plan. Since the revocation of this regional strategy occurred after the completion of the examination, this revocation is not a matter which the Panel has been able to take into account. It is noted however that as in the case of the East of England Regional Strategy, its relevance to the examination was limited and was not determinative of the recommendation made in this Report.

3.15 OTHER POLICY DOCUMENTS

3.15.1 NPSs provide the primary policy framework for deciding this application, as confirmed in paragraph 3 of the National Planning Policy Framework (the Framework). This and other relevant Government policy has been taken into account by the Panel, including:

- the Energy White Paper: Meeting the Challenge (May 2007);
- the UK Low Carbon Transition Plan, National Strategy for Climate and Energy (July 2009);
- the UK Renewable Energy Strategy (July 2009);
- Planning our electric future: a White Paper for secure, affordable and low carbon electricity (July 2011);
- Circular 11/95: The Use of Conditions in Planning Permissions (as referred to in paragraph 4.1.7 of NPS-EN1);
- the National Infrastructure Plan 2011, and
- the National Infrastructure Plan: update 2012.

4 EXTENT OF ENVIRONMENTAL ASSESSMENT

4.0.1 Key processes and outcomes considered by the Panel have been:

- the extent of the Environmental Impact Assessment (EIA) carried out by the applicant and the adequacy of the information provided;
- the sufficiency of the information provided to enable the SoS to fulfil his statutory duties as competent authority (including carrying out any Appropriate Assessment) for the purposes of the Habitats Regulations, and
- in respect of both of these processes, whether any significant transboundary effects are likely and have been identified and responded to adequately.

These are dealt with in turn in the sections of this Chapter set out below.

4.1 ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

The process

4.1.1 The application engaged the EIA Directive[32] and is Schedule 2 development under the EIA Regulations, on the basis that it is for a wind farm[33]. EIA is not mandatory for Schedule 2 development. Whether or not EIA is required depends, amongst other matters, on the sensitivity of the receiving environment, the likelihood of significant environmental effects and the scale of the proposals.

4.1.2 During the pre-application process, the applicant submitted a scoping report to the former Infrastructure Planning Commission (IPC) [APP49], seeking an opinion on the scope and content of a prospective Environmental Statement (ES). The IPC in turn responded with a scoping opinion [APP50]. The scoping opinion made clear that, by virtue of the applicant having provided a scoping report, it accepted that the application was Environmental Impact Assessment development[34] [35] for which an ES was required.

4.1.3 When the application was submitted, an ES was submitted with it. Examination documents [APP21 to APP67] inclusive form the

[32] Directive 85/337/EEC, as subsequently amended and codified in Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
[33] Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 (the EIA Regulations), Schedule 2, paragraph 3(i)
[34] "Environmental Impact Assessment development" has the same meaning as given to "EIA development" by regulation 2(1) of the EIA Regulations.
[35] [APP50] at paragraph 1.4 records that "the Applicant is deemed to have notified the [former IPC] under Regulation 6(1)(b) of the EIA Regulations that it proposes to provide an ES in respect of the proposed Triton Knoll Offshore Wind Farm. Therefore the proposed development is determined to be EIA development in accordance with Regulation 4."

ES. The Panel has had close and careful regard to all of these documents throughout the examination.

Issues raised

4.1.4 In general the ES provided a thorough and robust analysis of the effects of the proposal inside the application site and, with the exception of specific issues raised during the examination and addressed in Chapter 5 below, these did not give rise to concerns about the adequacy of the ES. To this extent, the Panel has found that the ES was adequate to its task.

4.1.5 However it was important and relevant to the examination to consider the adequacy of the EIA recorded in the ES in some depth. This was because the application did not include any design drawings of the proposed wind farms structures and because the application did not include significant works that would be necessary to make a connection with the national grid. Interested Parties also raised these issues including:

- the breadth of potential design and construction options included within the Rochdale envelope for the proposal and the degree to which the proposal was sufficiently well defined to be capable of undergoing EIA, and

- the decision by the applicant to exclude the detail of all works associated with the making of a grid connection for the proposal from the application and the EIA process.

4.1.6 These issues were examined and are reported upon below.

Adequacy and the Rochdale envelope

4.1.7 The submitted ES did not assess the effects of a specific configuration of the proposal. Rather it assessed a range of potential options for delivery, identifying a realistic worst-case impact scenario with respect to each aspect of the proposal. Therefore, it is likely that the effects described in the ES would exceed those arising from the actual proposal as it would be implemented. This approach sought to establish a Rochdale envelope [APP28][36] for the proposal, where delivery leads to a no greater (and in most cases lesser) environmental effect than that assessed in the relevant worst-case scenario documented in the ES. On the basis that a given worst-case scenario is considered to be acceptable, then by definition a less adverse effect is within the assessed environmental carrying capacity and is also deemed to be acceptable.

[36] See R. v Rochdale MBC ex parte Milne (No. 1), R. v Rochdale MBC ex parte Tew [1999] and R. v Rochdale MBC ex parte Milne (No. 2) [2000]

4.1.8 The applicant's purpose in preparing an ES for the proposal using a Rochdale envelope approach was to ensure that, should the DCO be granted, it retained design and operational flexibility in respect of aspects of delivery about which it could not yet be certain.

4.1.9 ES Volume 1 Chapter 7 [APP28] documents the basis for the applicant's approach to the use of the Rochdale envelope and provides a justification for the range of flexibility sought. This document provides a clear and logical explanation for the need for flexibility in the face of changing turbine technology (where prospectively fewer, taller and larger installed capacity turbines could provide the same energy output as a larger number of currently market-ready smaller turbines). The basis for similar flexibility in respect of elements such as the micro-location of turbines, the design and seabed take requirements of foundations for turbines and other structures, volumes of spoil produced, volumes of material scoured from the seabed, the seabed area taken by scour protection, the seabed area disturbed by jack-up vessels during construction and the seabed area disturbed by inter-array and inter-substation cables is also established.

4.1.10 The ES incorporated the precautionary principle into the application of the Rochdale envelope approach, by adopting worst-case scenarios that describe the worst assessable effects for each assessed aspect of the proposal. For many of these, such as the height of turbines with respect to visual impact or the design of foundations with respect to seabed area taken and benthic impacts, the Panel agrees with the applicant that a worst-case scenario can be quantified[37].

4.1.11 It is important to note that a constructed proposal cannot combine all of the most adverse impacts that represent the worst-case scenario for the Rochdale envelope. For example, if the worst-case foundation design option in terms of seabed take and benthic impact is selected, a decision to construct fewer, larger turbines than the prospective maximum number would have the effect of reducing the area of foundation seabed take from the maximum adverse impact that has been assessed. In this respect, a significant precautionary margin is built in to the Rochdale envelope assessment: a margin from which the Panel suggests the SoS may take considerable comfort.

4.1.12 In a number of key respects, the ES does not comprehensively quantify the most adverse impact due to limitations in current knowledge about the marine environment and the innovative nature of the proposal. In such cases, it has included qualitative analysis which has instead provided an adequate

[37] See for example [APP28] Table 7.1 and paragraph 7.62, from which the worst-case foundation design approach in terms of seabed take and benthic impact can easily be discerned.

basis for assessment. This has typically been the case where complex analysis of multiple and variable factors is required in order to identify a worst-case. For example, impacts in respect of changes to the wave climate or tidal currents are influenced by differences in foundation design together with the interposition of a wide range of factors not emerging from the proposal, especially where relevant sensitive receptors (such as European sites) are located on the coast or a long way from the proposal site[38].

4.1.13 As is normal in such cases, the ES includes qualitative analysis, deploying the best judgement of experts, and sensitivity analysis, resolution of the degree to which variations in particular factors contribute towards possible significant changes in outcome as the bases for its assessment. It is important to note that as both the preliminary environmental information (PEI) contributing to the ES and then the ES itself were subject to iterative rounds of consultation with relevant statutory consultees and expert bodies, such judgements have been subject to adequate challenge and review throughout the EIA process.

4.1.14 In a number of other instances and particularly where high levels of qualitative judgement was deployed, rather than rely on this alone, the applicant had added a further level of precaution to its assessments in the ES. For example, the approach taken to fishing industry or navigation impact has been to assume the exclusion of commercial take and navigation from the entire area of the wind farm, for the duration of its operational life. This approach is likely to overstate the adverse nature of some assessed impacts[39].

4.1.15 The Panel has considered the range of variable parameters provided for in the ES Rochdale envelope for the proposal with great care. Noting the relatively early developmental stage of much of the technology required to deliver it, whilst also taking into account the policy approach to flexibility set out in NPS EN-1 section 4.2[40] and NPS EN-3 section 2.6[41], the Panel concludes that the degree of flexibility provided for in the ES is both reasonable and necessary. In our view the degree of design and development flexibility is compliant with the flexibility intended in the relevant NPSs.

4.1.16 Further, the extent to which precaution has been factored into the assessments that have been undertaken means that any conceivable constructed proposal will have a less adverse impact than the impact of the proposals assessed in the ES.

[38] See [APP28] paragraphs 7.64 – 8.
[39] See [APP28] paragraphs 7.69
[40] NPS EN-1 at paragraph 4.2.8 and footnote 78.
[41] NPS EN-3 at section 2.6.

Most conceivable constructed proposals will have an impact which is considerably less than that which has been assessed in the ES.

4.1.17 The Panel is satisfied therefore that the assessment in the ES is based on an appropriate scientific understanding of the impacted environment, is reliable and has been appropriately precautionary.

Adequacy and the grid connection corridor

4.1.18 Adequacy issues raised with respect to the ES by both Interested Parties and by the Panel during the examination related to treatment of the effects from consequential development (connecting infrastructure) outside of the DCO application site and not provided for within the DCO.

4.1.19 The ES does not assess a detailed proposal for a connection between the proposed offshore wind farm and the national grid onshore, nor does such a connection, either onshore or offshore, form part of the application before the Secretary of State. The applicant's reason for this approach [REP19] was that the advice it received from National Grid about prospective onshore grid connection points changed during the pre-application stage of the project.

4.1.20 During the early pre-application stages, the applicant had carried out a number of consultations with respect to onshore grid connection locations and cable alignments. These had not led it to any firm proposals due to lack of certainty from National Grid about the eventual location for the grid connection. However, it is fair to record that dialogue with potentially affected communities did give rise to high levels of concern about factors such as the effect of the onshore cable route construction and operation on agricultural operations and land drainage. There were similar levels of concern about the potential effects of onshore cable route construction on traffic and tourism. Concerns were also expressed about the location and design of substations and related facilities on residential amenity, the character of the rural environment and tourism [APP15]. [42]

4.1.21 At the time of the examination, the applicant was able to confirm that National Grid had offered it an onshore grid connection at Bicker Fen and to include an indicative cable statement [APP69] with the application documents. However, the applicant was unable to provide precise detail of any eventual connection and despite the offer of a connection no part of the Order sought by the applicant and recommended by the Panel, would consent or secure any connection works. Its

[42] These issues are identified and responded to in detailed terms in Chapter 5.1 below.

rationale was that the detail of the grid connection offer had come to it too late. On that basis, it had taken the decision to proceed with the preparation of an ES and an application for development consent with reference to an indicative grid connection corridor. To take any other approach would have significantly delayed the application preparation, environmental assessment and development consenting processes.

4.1.22 In respect of this issue, a considerable number of parties to the examination made representations that the grid connection for the project should form part of the application and be assessed in detail within the ES. Natural England [REP14 HE10] questioned the degree to which it was possible to assess the whole proposal in the absence of clarity about the detail of the grid connection. It pointed out that the area of search for the cable corridor lay very close to the Lincolnshire Wolds Area of Outstanding Natural Beauty [HE10]. The LIR [LIR1] argued that because the offshore wind farm and its grid connection were so interdependent, it was not be possible to meaningfully assess the impacts of the offshore wind farm without assessing the impacts of its offshore and onshore grid connection. Fishing interests were concerned with the impacts of the offshore cable alignment for the grid connection. On land, farmers, residents and bodies with interests in the natural environment, landscape and tourism and amenity were concerned about the uncertain effects of the grid connection onshore.

4.1.23 Chapter 5 below considers the substance of these and other representations, whereas this Chapter responds to the question in principle about whether an adequate EIA could still be made without the detail of a precise grid connection alignment. However, it is important to be clear that the analysis in this Chapter and the conclusions reached within it were undertaken in an integrated manner, simultaneously with the analysis and conclusions set out in Chapter 5.

4.1.24 NPS EN-3 considers those aspects of grid connection issues that are particular to offshore wind farms[43]. It makes clear that *"where an applicant does not know the precise location of any cabling or any necessary onshore and/or offshore substations, a corridor should be identified within which the cable and any offshore substation is likely to be located. The EIA for the proposed project should assess the effects of including this infrastructure within that corridor."*

4.1.25 It is a long-established principle of EIA that an assessment should take account of the direct and indirect effects of a project[44], including the effects of linked and associated development. However, the extent to which it includes an

[43] NPS EN-3 at paragraphs 2.6.36 – 2.6.41.
[44] Directive 2011/92/EU, Article 3.

exhaustive analysis of all prospectively linked or associated development is not limitless. It is accepted that in setting the information requirements associated with EIA, member states can accept that the information to be submitted by an applicant is limited to that 'which is relevant to a given stage of the consent procedure and to the specific characteristics of a particular project or type of project and of the environmental features likely to be affected'. Similarly, the submitted information may be limited by the current state of knowledge[45].

4.1.26 Turning to the domestic context provided by the EIA Regulations, the information required here is limited to that which can be *"reasonably required"* having regard *"in particular to current knowledge"*[46]. The applicant made clear in its project description that there were a number of areas [APP27] where its limited knowledge of the proposed impacts necessarily constrained the ES insofar as it related to grid connection impacts

4.1.27 Sections 4.9 of NPS EN-1 and 2.6 of NPS EN-3 set out the policy framework within which a judgement about the adequacy of an ES in this respect should be taken. EN-1 clearly envisages that an applicant can proceed with a proposal without a firm grid connection offer, whilst noting that the commercial risk associated with taking such a step rests with the applicant alone[47]. NPS EN-1 states however that in such circumstances the applicant: *"must ensure they provide sufficient information to comply with the EIA Directive including the indirect, secondary and cumulative effects, which will encompass information on grid connections."*[48] [49]

4.1.28 In the light of this and representations about the adequacy of the EIA, the Panel therefore examined whether the ES demonstrated adequate assessment of these indirect, secondary and cumulative effects. In addition it examined whether the assessment sufficiently encompassed information on grid connections.

4.1.29 The information required to meet the EIA Regulations includes a *"description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects*" and *"[t]he data required to identify and assess the main effects which the development is likely to have on the environment."*[50]

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[45] Directive 2011/92/EU, Article 5 (a) and (b).
[46] Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 at Regulation 2 and Schedule 4.
[47] NPS EN-1 at paragraphs 4.9.1 – 4.9.4.
[48] NPS EN-1 at paragraph 4.9.2
[49] In order to consider this policy requirement of the NPS it is necessary also to consider the relevant requirements (Regulation 2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009.
[50] These requirements are set out respectively in paragraphs 25 and 26 of Part 2 Schedule 4 to the Regulations.

An opportunity was provided for Interested Parties [PD10] to respond to a written ExA's question with details of any impacts they believed had not been sufficiently assessed. The responses received and the issues they raised are considered in Chapter 5 of this Report. In response to a further question from the ExA [PD10] a table was provided by the applicant as Annex 4 to its responses [REP19] setting out where, within each part of the ES, the assessments of impacts relating to the future grid connection elements are recorded.

4.1.30 Given the information identified in response to this question, the extensive nature of the ES, and the fact that the relevant paragraphs of the EIA Regulations require only the "significant" and "main" effects be addressed, and the late change to the grid connection available to the applicant, the Panel concludes that the ES constitutes adequate assessment of the indirect, secondary and cumulative effects of the development. It also concludes, for the same reasons, that the ES encompasses this information on grid connections to the extent necessary for this offshore proposal.

4.1.31 Mention must also be made of a minor change to the proposed development that emerged during the examination process, as documented in the applicant's Deadline IV written response on 21 December 2012 [REP34]. This representation contained a *"[c]larification note on the use of steel monopile foundations for offshore substations".* That document made clear the applicant's request for a change to the proposed DCO to enable collector and or HVDC substations to be founded on monopiles as an alternative option to the jacket foundations initially proposed.

4.1.32 Parties including the Statutory Nature Conservation Bodies (SNCBs) and English Heritage[51] were happy to accept that such a change was within the Rochdale envelope.

4.1.33 The Panel notes that this change to the proposed foundation design of the substations would reduce the adverse impact due to piling and seabed disturbance when compared with the assessed impact of jacket foundations for these structures. It follows that these changes were not significant and the Panel concludes they did not take the proposals beyond those assessed in the Environmental Statement [APP27].

4.2 HABITATS REGULATIONS ASSESSMENT (HRA)

The process

4.2.1 The application also engaged the Habitats Directive[52], the Birds Directive[53] and the Habitats Regulations Assessment (HRA)

[51] See [REP34] Annexes 13 – 15.

process[54] on the basis of its potential to adversely affect European protected sites including:

- the North Norfolk Coast Special Protection Area (SPA);
- the Flamborough Head and Bempton Cliffs SPA;
- the Humber Estuary Special Area of Conservation (SAC);
- the Wash and North Norfolk Coast SAC, and
- the Inner Dowsing, Race Bank and North Ridge candidate SAC (cSAC).

4.2.2 Department of Communities and Local Government (DCLG) guidance, Planning for the Protection of European Sites: Appropriate Assessment[55] identifies three broad stages for HRA. More detailed advice is provided in the Planning Inspectorate's Advice Note 10: "Habitat Regulations Assessment relevant to nationally significant infrastructure projects" (AN10)[56], where the process is articulated in Figure 1. The key stages in summary terms are:

- **Screening:**
  Deciding whether a proposal 'either alone or in combination with other plans or projects' is likely to have a significant effect on a European site (or sites).

- **Appropriate Assessment:**
  Deciding whether, in view of the European site's conservation objectives, a proposal 'either alone or in combination with other plans or projects' would risk an adverse effect on the integrity of the site. If it does not, the plan can proceed.

- **Mitigation and Alternatives:**
  A step that is only taken if a risk of adverse effect on integrity is found, under which mitigation of impacts and alternative solutions are reviewed. If these do not have the effect of removing the risk of adverse effect, then it becomes necessary to establish that the proposal and its acknowledged harm should proceed due to 'imperative reasons of overriding public interest' (IROPI).

4.2.3 The applicant submitted documentation with the application [APP19] and [APP20], setting out the steps that it had taken in this regard, in respect of which it is not a matter of dispute that the application is subject to an HRA process.

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[52] Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora.
[53] Directive 2009/147/EC on the conservation of wild birds.
[54] The Offshore Marine Conservation (Natural Habitats, & c.) Regulations 2007 (as amended)
[55] See:
http://webarchive.nationalarchives.gov.uk/20061101113831/http:/www.communities.gov.uk/staging/embedded_object.asp?id=1502353
[56] See:
http://infrastructure.planningportal.gov.uk/wp-content/uploads/2013/01/Advice-note-10-HRA.pdf

4.2.4 The Panel does not carry out an Appropriate Assessment or any subsequent stage of assessment or decision making under the Offshore Habitat Regulations. This is reserved to the SoS as the competent authority. The Panel has therefore been mindful throughout the examination process of the need to ensure that the SoS has an adequate basis of information from which to carry out his duties as competent authority. In accordance with the advice provided by AN10, it has drawn together all submitted evidence in respect of the HRA process into a Report on the Implications for European Sites (RIES) [RIES1 - 3]. The RIES has been the subject of consultation with Interested Parties in the examination process[57], to enable the SoS to carry out his duties as competent authority. It is considered further in the section on European sites in Chapter 5.

4.2.5 Drawing together the work conducted throughout the examination, the Panel concludes that there is an adequate body of information to enable the SoS to fulfil his duties.

4.3 TRANSBOUNDARY EFFECTS

4.3.1 The Panel has paid careful regard to the degree to which the proposal has implications beyond the United Kingdom. The site lies in the UK's Exclusive Economic Zone which adjoins the Exclusive Economic Zones of other EEA states including Belgium and Germany. The proposed Order Limits are 131km from the nearest of these, the Netherlands' Exclusive Economic Zone.

4.3.2 Pursuant to Article 7 of the European EIA Directive[58] (transposed into UK law as it relates to the PA 2008 regime by the EIA Regulations) the former Infrastructure Planning Commission, which was responsible for acceptance of the application prior to the beginning of the examination[59], therefore prepared a matrix to establish potential transboundary impacts [TB1]. The impacts identified related to commercial fisheries, commercial vessels, marine mammals and birds. It considered the environmental importance of these receptors. The exercise then considered the cumulative potential impacts with other wind farms and the extent, magnitude, probability duration, frequency and reversibility of the impacts. It concluded that the development was likely to have significant effects on the environment in other European Economic Area (EEA) states.

[57] See examination documents [REP26] to [REP35] for responses made to the RIES published during the examination by the ExA. Of these it should be noted that only two, that from the applicant [REP34] and that from Natural England [REP32] contained substantive comment on the RIES.
[58] EU Directive 2011/92/EU
[59] Functions under the PA2008 which are now those of the Planning Inspectorate and of Secretaries of State, were carried out by the IPC until 1 April 2012.

4.3.3 Letters were therefore sent by officials in the Inspectorate[60] to the relevant government contacts (identified under the Espoo Convention[61]) of the EEA States identified in the matrix inviting their comments. Two responses were received from the Belgian and from the Dutch governments [TB3 & TB4]. In turn the Inspectorate wrote to these governments advising them how to view the application documents and inviting them to comment on them within six weeks.

4.3.4 The Panel took these documents into account as examination documents [TB1 – 4]. All the impacts identified in the Transboundary Screening Matrix [TB1] were considered in full in the ES and during the examination, including their potential transboundary nature. The Panel took into account all potential significant transboundary impacts, in particular this Report considers in detail impacts on shipping, fisheries, marine mammals and birds. No communications further to those referred to above, were received from any EEA States in relation to the application either before or during the examination. The Panel concludes therefore that transboundary effects have been adequately identified and assessed in the examination.

4.4 CONCLUSION ON ENVIRONMENTAL ASSESSMENT

4.4.1 Drawing the issues and analysis set out above together, the Panel has reached the following broad conclusions:

- the environmental information submitted by the applicant and EIA process undertaken by it have been adequate;
- the Panel agrees that the range of potential design and construction options for the proposal provided for within the ES Rochdale envelope was appropriately identified and the proposal was described with sufficient certainty to identify relevant impacts and to support the EIA process;
- the Panel agrees that it was not necessary or indeed possible for the applicant to submit detailed information about the anticipated grid connection for the proposal as part of the application or to assess this in the ES, given in particular that any grid connection will have to be the subject of subsequent approval(s) and assessment(s);
- there is sufficient information provided in the application documentation identified above which, when taken together with the Panel's RIES and Interested Party responses to the RIES will enable the Secretary of State to fulfil his statutory duties as the competent authority under the Habitats Regulations, and

[60] By this stage the functions of the IPC had been transferred to the Planning Inspectorate acting on behalf of the Secretary of State for Communities and Local Government.

[61] UN Convention on Environmental Impact Assessment in a Transboundary Context done at Espoo (Finland), on 25 February 1991

- for the purposes of both of these processes, sufficient information has been submitted to enable the identification of transboundary effects.

4.4.2 Substantive findings and conclusions relating to impacts on specific sites and species are reserved to Chapter 5 of this Report below.

5 FINDINGS AND CONCLUSIONS

5.0.1 Following the Panel's initial assessment of eleven principal issues [PD4], the examination tested all the issues listed at that stage. In this Report, following the examination of further information received during the course of the examination the Panel now consider there to be ten principal issues represented by the following subsections of this Chapter. None of the issues listed in the initial assessment, the Panel finds, have ceased to be relevant to the examination, the ten principal issues of this Report simply represent a reworking and re-ordering of those initially assessed in the light of the examination process. The order in which these are considered below does not indicate any value judgement about their relative importance:

- impacts of the infrastructure connection elements;
- European Sites and protected species impacts;
- species and habitats protected by other law and policy
- fish and fishing impacts;
- landscape, seascape and visual impacts;
- historic environment impacts;
- impacts on the marine aggregates industry;
- shipping, operational, navigational safety and lighting impacts;
- socio-economic and transportation impacts;
- design and phasing, and
- other important and relevant impacts.

5.0.2 This Chapter also considers the relationship between the application proposal and the need for other consents that are outside the scope of consenting under the PA 2008.

5.1 IMPACTS OF THE INFRASTRUCTURE CONNECTION ELEMENTS

5.1.1 The application did not include any works to connect the wind farm to the national grid (as set out in Chapters 2 and 4 above). These works will require separate consents to be applied for at a later date.

5.1.2 The applicant did supply illustrative information in relation to their preferred connection point at Bicker Fen in the application documentation and this was further elaborated during the course of the examination. However it was explained by the applicant that they were not yet able to specify the exact route, identifying only an indicative corridor at sea, connecting the offshore wind farm to a landfall, and on land, connecting the landfall to the preferred connection point at Bicker Fen. Within this, there were optional areas of search for the landfall site for connecting cables.

5.1.3 It should also be noted that the applicant had not yet finalised the nature of the cable connection (which could for example be alternating current (AC) or high voltage direct current (HVDC)). This choice in turn would have implications for selection, siting and design of associated equipment and substations. The proposed Order would not and does not secure any of these connection details.

5.1.4 Under questioning [HE10] and as a result of evidence from other Interested Parties it also became clear that there remain other potential routes to Bicker Fen and alternatives to that point of connection with the National Grid.

5.1.5 It is clear from the NPS EN-1 paragraph 4.9.3 that where the applicant submits an application for an electricity generation plant without full information about the second 'elements'[62] (i.e. the connection), important assessment principles apply. In addition to supplying sufficient information to comply with the EIA Directive on the indirect, secondary and cumulative effects of a proposal with its grid connection (considered in Chapter 4), the decision-maker must also be satisfied that there are no obvious reasons why the necessary approvals for the other element are likely to be refused.

5.1.6 The principal issues in relation to the grid connection elements therefore are whether these effects are satisfactorily addressed and mitigated where necessary, as required by NPS policies and secondly whether there are any obvious reasons why the connection elements would be likely to be refused.

5.1.7 It is appropriate to record that one of the most widely perceived concerns put before the Panel related to the choice and location of landfall sites and the manner in which a grid connection would be developed between landfall sites and the eventual connection to the national grid. Even though it was clear that grid connection proposals did not form part of the application, numerous representations were received relating to the possible effects of the onshore connection associated with this proposal.

5.1.8 Residents, parish councils, local authorities and interest groups (referred to below) raised objections to the visual impact of overhead lines and substations; the disruption to tourism and the rural economy by the construction of infrastructure, burying of cables and traffic; the impact on wildlife, heritage, human health and the tranquillity of the rural environment; as well as questioning the practicality of crossing miles of low lying, complex drainage systems which exist in this part of Lincolnshire.

[62] NPS EN-1 at paragraph 4.9.2

5.1.9 Objections to the prospective onshore elements emanating from the wind farm development covered environmental and economic concerns both in the short term (during construction) and in the longer term. They can be categorised into four areas of concern bearing in mind that most representations covered more than one issue and that some issues have relevance to more than one category, as follows;

- disruption during construction;
- visual impact of completed works;
- long-term environmental damage, and
- long-term economic damage.

5.1.10 A number of parties developed these points to suggest that the application was incomplete in the absence of the grid connection elements, and that without them the Panel should recommend refusal of the application. One Interested Party [RR41] stated that community benefits should be provided through a s106 agreement[63].

5.1.11 Concerns over disruption during construction focused on the burying of cables and the expected construction of overhead lines, substations and converter stations, as well as on the noise and traffic generated by these activities. The laying of cables was considered thoroughly at the Open Floor hearing [HE23]: a series of concerns emerged and were elaborated upon.

5.1.12 The National Farmers' Union (NFU) [RR15] [REP12] [HE58] and Mrs Spence [HE23] and others expressed concerns about the disruption caused by cable laying to agricultural activity. They were concerned about the necessity for temporary land-take and disruption and the potential width and depth of the cable works. Questions were raised about, for example, how construction might be managed in a period of high rainfall, to avoid damage to soil structure and fertility.

5.1.13 ELDC highlighted the importance of coastal tourism to the economic life of the area in their written representation [REP2]. Their concern was particularly over the timing of cabling works, which ideally should avoid peak holiday periods. Steps should be taken to ensure that key transit and access routes were not severed or overly disrupted.

5.1.14 Likely disruption caused to drainage featured in representations from two drainage boards, Lindsey Marsh [RR57] and Witham Fourth [RR8]. The landscape and economy of east Lincolnshire are both maintained by an extensive network of watercourses and pumping stations. Their view was that any future cabling

[63] The provisions of s106 of the Town & Country Planning Act 1990 were amended by the Planning Act 2008 such that they apply to a DCO of the sort applied for in this application.

would need to be managed carefully to avoid disruption and damage to the network of drainage infrastructure.

5.1.15 Other representations addressed the issue of amenity impacts: noise and disruption from the construction of overhead cables, substations and converter stations. For example Mrs Yeadon [REP7] pointed out in her written representation that noise and pollution impacts would be detrimental to human health while Dr Yeadon [REP6] commented on the impact on wildlife and rural tranquillity. Whilst both Dr Yeadon and Mrs Yeadon referred to the potentially serious harm to their own health that would arise from noise, there was no independent evidence on this point submitted to the Panel.

5.1.16 Others (such as Bicker Parish Council) [REP23] raised concerns about the adverse amenity impact and disruption that now completed schemes, such as the substation or onshore wind farm located there, had caused to its community during construction. They and local residents were concerned about the implication that this proposal would lead to a further round of similar disturbance.

5.1.17 In relation to visual impact East Lindsay District Council (ELDC) in their written representation [REP2] referred to the *"industrialisation of the landscape"* as a result of the cumulative effects of a number of offshore wind farms looking to East Lindsey for landfall. It highlighted the impact of a number of substations, compounds and pylons specifically in relation to the "outmarsh", a low-lying area running south to north behind the duned coastline from Skegness to Tetney Lock [Appendices to REP2]. Local residents such as Dr and Mrs Yeadon also shared this concern.

5.1.18 Adverse short and long-term environmental impacts were themes addressed by some of the objectors. Dr and Mrs Yeadon in their relevant representations [RR12 & 13] both drew attention to the adverse effect on local fauna, while ELDC [REP2] mentioned the importance of the area for nesting and overwintering birds. That being said, these concerns were not mirrored by the statutory nature conservation bodies (SNCBs).

5.1.19 Related to these environmental impacts were economic impacts, particularly on tourism and agriculture.

5.1.20 The NFU [RR15] [REP12] [HE58] and Mrs Spence at the Open Floor Hearing (OFH) [HE23] and others expressed concerns about uncertainty caused by the threat of cable laying to agricultural investment plans and decisions.

5.1.21 Mrs Spence, at the OFH [HE23] clarified the impact that the uncertainty attached to the route of the proposed cable was having on the ability of farmers to make investment decisions.

The NFU, also represented at the OFH [HE23], added concerns over the long-term impact on farmers' ability to reuse affected areas for crops through effects such as heating or drying. There was similar uncertainty about the ability of farmers in the cable corridor to plan investment in facilities such as new agricultural buildings, drainage or irrigation, due to ongoing uncertainty about the location and width of the cable corridor or the depth at which cables would be buried.

5.1.22 The NFU also pointed out what they considered to be unnecessary agricultural impacts and costs to the region due to multiple cable connections from a series of offshore wind farms, when a more coordinated approach could reduce the cumulative impact of such activities. This could be, for example, through the use of shared routes and through maximising opportunities to lay cable offshore, via the Wash.

5.1.23 The Coal Authority [RR50] expressed concerns that the electrical infrastructure area of search in the Cable Statement [APP69] indicated that operations may involve the area which is licensed for Underground Coal Gasification operations.

5.1.24 In relation to adverse effects on property, representations were received from individual property owners, such as the Rogers family [REP5], corporate land and property owners, such as Magdalen College, Oxford [RR27], charitable organisations such as the National Trust [RR33] and communities such as Bicker Parish Council [REP23]. All expressed concerns over the impact that onshore development associated with the wind farm might have on their property and communities.

5.1.25 East Lindsay District Council in its Local Impact Report [LIR1] drew attention to policies contained in their Local Plan (Alteration 1999) and the emerging Core Strategy. The Local Plan contains policies relating to the general amenities of people living in the area and more specifically sections dealing with the distinctive character of the area and the quality and design of development which the authority believes to be in conformity with the Government's National Planning Policy Framework (the Framework) policy of protecting and enhancing valued landscapes.

5.1.26 The Council highlighted the policies in the emerging Core Strategy dealing with the cumulative impact of offshore and onshore renewable energy on the landscape of the area and supported by policy contained in the East Midlands Regional Plan, which is still part of the development plan for the area despite government intentions to abolish it in whole or part. The authority quoted from the Framework, which also supports ensuring that the cumulative adverse effects of renewable energy should be addressed satisfactorily.

5.1.27 Other local policies apply to parts of the area of search for a landfall for the wind farm export cable between Chapel St Leonards and Mablethorpe, which are designated as a Country Park and as part of the Lincolnshire Coastal Marshes Landscape Conservation Strategy area. The Country Park's objectives are to improve the landscape for the benefits of tourists and residents and the protection of wildlife. The Grazing Marshes Project combines a conservation strategy with habitat and biodiversity objectives while the area itself has considerable tourism potential.

5.1.28 As a consequence of the lack of detail provided on the onshore elements associated with the offshore wind farm, the local authority considered that the LIR was limited in its ability to respond to the proposal. The authority concluded that insufficient information was available to grant consent for the wind farm.

5.1.29 The Panel examined the application, the representations summarised above, and the impacts raised in the LIR through site inspections (in the company of Interested Parties and unaccompanied), posing targeted questions to the applicant and the parties at the hearings and in written responses. There was considerable concern expressed in representations about the potential landscape and visual impacts of the connection corridor. These made reference to the possible siting of onshore cable routes, the impact of facilities such as substations and grid connection facilities as well as construction and decommissioning works.

5.1.30 The examination included a careful consideration of the application documentation and an unaccompanied site inspection [HE5] of the electrical infrastructure area of search between possible landfall locations and the possible grid connection location at Bicker Fen. Possible landfall locations were also inspected in the company of interested parties [HE4].

5.1.31 NPS policy is clear that these indirect, secondary and cumulative impacts should be assessed (EN-1 paragraph 4.9.3) and NPS EN-1 is equally clear that the SoS should consider mitigation of such impacts (paragraph 5.1.2) through requirements and conditions (paragraph 5.1.3). EN-1 at paragraph 4.2.9 is also specific that appropriate requirement should be imposed on projects where details are yet to be finalised.

5.1.32 The Panel found that issues of short-term construction and long-term visual, economic and environmental impacts could not be addressed directly in this application because the applicant had not yet been able to accept a formal offer of grid connection. It was also noted, as set out in the previous Chapter, that the requirement for assessment was limited to

that of the main effects, up to the limits of current knowledge. The Panel is satisfied therefore that examining and recommending on the case for consenting the offshore element alone is acceptable in terms of NPS EN-1 policy, however it also took into account the concerns raised about the probable requirement to connect the output of the wind farm with the UK national electricity grid and the likely impacts arising from those connection works.

5.1.33 The Panel found in the light of these representations therefore, that if the wind farm were consented without any requirements that would mitigate these impacts, there were likely to be serious consequences for both local communities and landowners. In particular drainage interests and the ability of landowners in the vicinity of the connection infrastructure area of search to raise funding for investment, were likely to be compromised.

5.1.34 The Panel therefore examined the case for a Grampian style requirement[64] as proposed by Natural England (NE) at the Issue Specific Hearing (ISH) [HE16] supported by ELDC[HE16], and the MMO[HE17] that no works shall commence until the SoS had confirmed in writing that all necessary consents for the connection have been granted. This would overcome concerns that development of the offshore element could be commenced before all necessary connection applications had been made and granted and their impacts assessed.

5.1.35 The Panel considered whether some entity other than the SoS should be responsible for confirming that all such consents were in place, such as the applicant. However given the diversity of potential consenting regimes that may need to be engaged, the Panel concludes that the SoS as an appropriate authority would need to take a view, and make a judgement, in any discharging of this requirement.

5.1.36 There were concerns expressed through Panel questions and by various participants that such a requirement should meet the tests of Circular 11/95 and paragraph 4.1.7 of NPS EN-1. Consequently the applicant drafted the proposed requirement in consultation with representatives of Natural England, introduced it at the ISH [HE20] and subsequently introduced it into revision D of the DCO [DCO8].

5.1.37 Following the further examination of these matters in detail this requirement was included by the applicant in revision E of the

[64] by 'Grampian style requirement', the Panel refers to a requirement similar in intent to one which would be termed as 'Grampian condition' if it were to be attached to a grant of planning permission under the Town and Country Planning Act 1990. The term is derived from the decision in Grampian Regional Council v City of Aberdeen District Council (1984) 47 P&CR 633, which found lawful the use of a condition preventing the commencement of development until offsite works on land not controlled by the applicant but necessary for mitigation had been completed.

DCO, [DCO9] this firstly recognised the essential integrity of the two parts of the wider project and the current lack of knowledge of the onshore impacts.

5.1.38 .Without the requirement there would also be a risk that any financial contributions made under any s106[65] agreement pursuant to a future permission, would be restricted in scale[66] only to the subsequent applications and would not relate to the project as a whole. Imposing the requirement now therefore, whilst not in any way binding future decisions, would secure the functional and consenting link between the two elements of the same project. It would therefore allow the on shore and offshore elements to be considered cumulatively when the onshore impacts of the wind farm are better known at the time of subsequent applications for connection elements. In this way the requirement would therefore better ensure, the Panel finds, that any subsequent permissions and/or 106 agreements could relate to and mitigate the impacts of, the project cumulatively.

5.1.39 It was noted that future applications for the connection element may comprise a number of separate consents under different legislative provisions.

5.1.40 The Panel concludes therefore that whilst the onshore elements are not before the SoS to determine at this stage, the wind farm along with its indirect, secondary and cumulative off and onshore impacts are required to be mitigated for the reasons set out above. By applying the Grampian style requirement as set out above, future impacts would be mitigated. This requirement, now included by the applicant in the text of the Order now recommended, would also, by tying the applications together, address the concerns expressed by ELDC in the LIR [LIR1] and others that approval of the offshore element would prejudice future consideration of the connection.

5.1.41 The Panel took careful account of the policy in EN1 that there should be no obvious reasons why a second element of the project would be likely to be refused. On the understanding that the above requirement would be imposed (ensuring the full cumulative impacts of the wind farm would be addressed and mitigated at the appropriate time) and without prejudice to any of the objections raised by the interested parties, the Panel finds that there could not be any obvious reason why a second element would be likely to be refused.

[65] The provisions of s106 of the Town & Country Planning Act 1990 were amended by s174 of the Planning Act 2008 such that they apply to a DCO of the sort applied for in this application.
[66] NPS EN-1 paragraph 4.1.8 states that s106 agreements are restricted in that they must be "fairly and reasonably related in scale and kind to the proposed development". These same words appear in paragraph 204 of the Framework and would in this way therefore also restrict the scale of any obligations entered into pursuant to any applications made to a local planning authority for connection works under the Town and Country Planning Act 1990.

5.1.42 This is because the potential impacts of connection in the electrical infrastructure area of search considered above were not, the Panel finds, proven by substantive evidence to be incapable of satisfactory mitigation. The LIR [LIR1] for example from East Lindsey District Council, one of the local planning authorities most likely to be affected, did not conclude that connection elements would be refused. In addition in the applicant's words, although the connection route outlined to Bicker Fen was the *"best connection option on which to focus at present"* it was *"not the only option"* [HE16]. By definition therefore, in the applicant's view, there were other available options to explore should the preferred route present insurmountable consenting problems.

5.1.43 Given the fact that the applicant would be able to bring forward a number of alternative routes and or solutions to those indicated in the Cable Statement [APP69] and given the lack of any substantive evidence from relevant authorities on the matter, the Panel concludes that there are no obvious reasons why connection elements for the project would be likely to be refused.

5.2 EUROPEAN SITES, SPECIES AND HABITATS

5.2.1 The Panel's consideration of issues related to environmentally protected habitats and species includes:

- a review of the effects of the proposal on European protected species and habitat, enabling the Secretary of State to carry out any necessary Appropriate Assessment (AA);
- consideration of the effects of the proposal on other protected sites and species, and
- consideration of issues relating to the mitigation of particular species impacts beyond the proposed Order Limits of the site.

5.2.2 It concludes with the Panel's examination of issues relating to the mitigation of particular species impacts offsite from the DCO area.

5.2.3 Concerns about the effects of the proposal on European protected species and habitat arose in representations from the SNCBs (Natural England and the Joint Nature Conservation Committee) [RR47 and 48] [REP14, 32 and 40], the RSPB [RR45] [REP17] and the Lincolnshire Wildlife Trust [RR35]. Specific concerns were raised about the following issues:

- potential proposal-specific and incombination effects with other offshore wind farms on the sandwich tern in respect of the North Norfolk Coast SPA and Ramsar site;
- the same potential effects on the Gannet in respect of Flamborough Head and Bempton Cliffs SPA, and

- other potential effects on the lesser black-backed gull(LBBG), great black-backed gull(GBBG) and kittiwake.

5.2.4 Concerns about these and other habitats and species were also expressed in a more generic form in a number of other representations.

5.2.5 Whilst the examination commenced with a number of parties expressing concerns, detailed engagement focussed on the SNCBs who participated formally throughout. That being said, all parties were consulted about all relevant steps in the Panel's examination.

5.2.6 The Panel's review of matters relating to environmentally protected species and habitat commences with an examination of issues relating to species and habitat protected under the Habitats Directive, the Birds Directive and hence subject to Habitats Regulations Assessment (HRA).

5.2.7 As Chapter 4 of this Report has set out, the Panel is not the competent authority to make an Appropriate Assessment: the SoS performs this role. It follows that this section of the Report undertakes two tasks:

- to identify and respond to issues raised in representations, and
- to place the SoS into a position where all the information necessary to the carrying out of his duties as competent authority has been drawn together and placed within a clear analytical framework.

5.2.8 The Planning Inspectorate secretariat has worked with the Panel to produce a "Report on the Implications for European Sites" (RIES) for the Triton Knoll application. This report has been compiled from relevant material throughout the examination period. Following guidance in the Planning Inspectorate's Advice Note 10: "Habitat Regulations Assessment relevant to nationally significant infrastructure projects"[67], this process commenced with the issue of empty draft matrices. These enabled the applicant to screen their proposal for likely significant effects on relevant European sites and each of their qualifying features[68] [REIS5] and then, where any significant effect was suggested as likely, to record evidence as to whether there is an adverse effect on the integrity of that site, in respect of each relevant qualifying feature [RIES4]. The applicant submitted these completed matrices during the examination to the ExA on 14 September 2012.

[67] PINS AN10 including the standard form of empty draft matrices can be downloaded from: http://infrastructure.planningportal.gov.uk/wp-content/uploads/2013/01/Advice-note-10-HRA.pdf
[68] "European Sites" refer to Natura 2000 sites (designated SACs, candidate SACs and designated SPAs) together with proposed and possible SACs, listed or proposed Ramsar sites and sites identified or required to provide compensatory measures relevant to any of these types of sites.

5.2.9 Following completion of this work by the applicant, revised (essentially final draft versions of the) matrices were compiled into a RIES for the ExA [RIES1 – 3]. This was made available for consultation with all Interested Parties ending on 21 December 2012. All RIES documentation [RIES1 – 5] and responses to consultation upon it [REP26 – 35] can be accessed electronically through the examination library.

5.2.10 It should be noted that whilst a number of responses to the final draft RIES were received [REP26 – 35], formal responses raising specific issues in respect of the RIES were only received from two Interested Parties: Natural England [REP32] and the applicant itself [REP34]. Both of these responses were in broad agreement with its findings in all significant respects. All other interested parties either indicated their complete acceptance of the RIES as drafted or made no comment upon it [REP26 – 35 excluding REP32 and REP34].

5.2.11 It follows that the RIES can be relied upon as a diagnosis of the effects of the project on European species and habitats, and it is therefore placed before the SoS to enable him to carry out his duties as competent authority, together with the two substantive responses to it from Natural England and the applicant when making his AA. It has also informed the Panel's recommendation on whether to grant development consent.

5.2.12 Since these matters inform the Panel's recommendation this Report sets out its findings and conclusions regarding the implications for European sites and on the species and features associated with those sites, in the same order as they are presented within the RIES.

5.2.13 The RIES reviewed potential implications in a two-tier process. The first tier summarised effects on European sites, species and features, screening for likely significant effects. The outcome of this process is presented in summary form in table 5.1 below, the detail of the potential impacts is set out in the RIES matrices [RIES2 & RIES3].

Table 5.1: Sites, Species and Features Screening

Site	**Species or feature in respect of which the potential for likely significant effect cannot be excluded**
North Norfolk Coast SPA	sandwich tern
Flamborough Head and Bempton Cliffs SPA	gannet kittiwake
Inner Dowsing, Race Bank & North Ridge cSAC	Sandbanks slightly covered by seawater at all times
Humber Estuary SAC	grey seal
Wash and North Norfolk Coast SAC	harbour seal

5.2.14 Having conducted this first tier of analysis, the second tier of the RIES went on to undertake a more detailed review of the evidence to catalogue specific effects on integrity, in respect of all instances in Table 5.1 where the potential for likely significant effect had not been excluded. The results of this exercise are summarised in Table 5.2.

Table 5.2: Sites, Species and Features with Integrity Effects

Site	**Species or feature with a potential adverse effect on integrity**
North Norfolk Coast SPA	sandwich tern ***No agreement*** *as to whether adverse integrity effect can be excluded.*
Flamborough Head and Bempton Cliffs SPA	gannet ***Agreement*** *that adverse integrity effects can be excluded.*
	Kittiwake ***Agreement*** *that adverse integrity effects can be excluded.*
Inner Dowsing, Race Bank & North Ridge cSAC	Sandbanks slightly covered by seawater at all times ***Agreement*** *that adverse integrity effects can be excluded.*
Humber Estuary SAC	Grey Seal ***Agreement*** *that adverse integrity effects can be excluded.*
Wash and North Norfolk Coast SAC	Harbour Seal ***Agreement*** *that adverse integrity effects can be excluded.*

5.2.15 Each European site, species and/or habitat is considered in turn below. As the RIES had been subject to consultation as described above, by the end of the examination, the remaining designation feature where disagreement remained over an outstanding potential adverse effect on integrity, was the sandwich tern population at North Norfolk Coast SPA. The issues underlying the absence of agreement are set out in detail below. All parties, notably including Natural England, agreed with the conclusion of the RIES that there were no other potential adverse effects on integrity.

5.2.16 A brief summary is then provided of the remaining sites, species or features in respect of which screening could not exclude

likely significant effects, but in respect of which agreement was reached following detailed analysis that adverse effects on integrity can be excluded.

North Norfolk Coast SPA and the Sandwich Tern

5.2.17 The North Norfolk Coast SPA encompasses much of the northern coastline of Norfolk in eastern England. The site comprises a complex mosaic of high quality coastal and wetland habitats along the North Norfolk coast, which support large populations of breeding waterbirds throughout the year. In the summer, the site holds large breeding populations of waders, four species of sandwich tern, bittern and wetland raptors such as marsh harrier. In winter, large numbers of geese, sea duck, other ducks and waders use the coastal habitats. The coast is also important for its role as a staging site for spring and autumn migration of waterbirds.

5.2.18 The sandwich tern, *Terna sandvicensis* is a qualifying feature of the North Norfolk Coast SPA. The designation population of this species was 3,457 pairs in 1989, its usual range is between 3,000 and 4,500 pairs at the site. It is part of the assemblage of species for which that site has been classified. For the site to make a full contribution to achieving the purposes of its designation, activities must be managed (subject to natural change) to maintain or restore the population of the sandwich tern (amongst other features) and the supporting processes on which that population relies. Such an approach includes ensuring that the sandwich tern is not subjected to avoidable population challenges due to factors induced by the proposed development. In this case, the only significant potential challenge arose from significantly raised mortality due to turbine blade collisions. It should be made clear that this challenge did not arise due to the Triton Knoll proposal alone, but arose only when potential mortality within the application site was taken in combination with mortality due to other constructed and proposed offshore wind farms in the greater Wash or southern North Sea area.

5.2.19 Sandwich tern nests in colonies at Blakeney Point and Scolt Head, and both of these colonies have been carefully monitored since the 1920s. There has been an overall increase in the size of the colonies since the early 1960s, with peak numbers of 5,600 breeding pairs in 1979. Stiffkey Binks has also previously been used as a nest site.

5.2.20 The sandwich tern ranges widely throughout the greater Wash or southern North Sea area and forages on waters including those within the proposed DCO area, albeit at a relatively low level of utilisation. It was a matter of general agreement between Interested Parties that development, operation and decommissioning of the proposed offshore wind farm at the

Triton Knoll site alone would not have an adverse effect on sand and hence on the integrity of the SPA.

5.2.21 The key concern raised in representations about the sandwich tern and this SPA therefore related to the potential for there to be adverse incombination effects, when this proposal was taken together with the effects of other operational, consented and proposed offshore wind farms in the Greater Wash area.

5.2.22 Natural England is the SNCB for England and for English waters within the 22.2km (12nm) limit which includes the North Norfolk Coast SPA. The Joint Nature Conservation Committee is a UK-wide SNCB, responsible amongst other matters, for UK waters beyond the 22.2km (12nm) limit. The European sites considered here are located in England and hence while these bodies participated jointly Natural England took the lead. They are jointly therefore referred to below as the SNCBs.

5.2.23 The SNCBs maintained a strong and consistent concern throughout the examination that the proposal as assessed and applied for would give rise to potential adverse incombination effects and that these effects were not sufficiently managed down or mitigated by design or operational measures [RR47-48] [REP13, 32 & 40] [SOCG9] [HE33-41].

5.2.24 The applicant's view was that it had reduced the number of turbines to be constructed at Triton Knoll, from the original maximum of 333 to 288, as a measure to mitigate sandwich tern mortality impacts, before this application was submitted. It took the view that this mitigation was sufficient and that no further mitigation was either necessary or feasible.

5.2.25 The nature of this disagreement between the applicant and the SNCBs was subjected to careful examination by the Panel, supported by thorough oral questioning of and by Interested Parties, in an ISH at which both the applicant and the SNCBs were represented by counsel and by ornithological expert witnesses.

5.2.26 The common starting point for the assessment of potential incombination effects of the Triton Knoll proposal on the sandwich tern is the SoS's existing AA carried out for the southern Wash area, as part of the approval processes for Docking Shoal, Race Bank and Dudgeon offshore wind farms. The AA document was prepared by DECC in December 2011 and revised for issue with the Secretary of State's development approval[69] decisions for those wind farms in July 2012. These documents and processes are referred to collectively below as the Southern Wash AA and decisions. They were put before Interested Parties at the ISH and can be found in the

[69] Made on 6 July 2012 under s36A of the Electricity Act 1989.

examination library [HE38]. Extensive references are made to this key source of evidence in the following paragraphs.

5.2.27 The Southern Wash AA examined the prospective incombination collision effects of the following offshore wind farms on the sandwich tern.

- Docking Shoal (as a single project and divided into phases);
- Race Bank;
- Dudgeon;
- Sheringham Shoal, and
- Triton Knoll.

5.2.28 Sandwich tern collision mortality became a key limiting factor for the greater Wash or southern North Sea area and for the Docking Shoal proposal within that area. The Southern Wash AA concluded that, *"Race Bank and Dudgeon may be consented to their maximum capacity without restriction on their initial build and shall not adversely affect the integrity of the sandwich tern population of the North Norfolk Coast SPA either alone or in-combination with Sheringham Shoal and Triton Knoll offshore wind farms provided that the Docking Shoal application is refused…"*[70] The Secretary of State's Docking Shoal decision letter issued on 6 July 2012 refused consent for that proposal. In doing so he concluded that as it had the highest average sandwich tern mortality per turbine of all the proposals assessed in the Southern Wash AA process, UK renewable energy and nature conservation objectives could most efficiently be achieved by refusing to consent that project, whilst enabling other projects to be consented without the need for any capacity limitations to be placed upon them to safeguard the sandwich tern.

5.2.29 It was not a point of dispute between the applicant and the SNCBs that the Triton Knoll offshore wind farm proposal would have the least adverse impact in terms of sandwich tern collision mortality of any of the projects considered within the Southern Wash area incombination assessment. It was also agreed that its mortality impact per turbine would be significantly lower than any of the other projects considered in that assessment, including projects that had already received consent. For illustration, the modelled bird mortality per turbine for each of the assessed schemes in the Southern Wash AA is summarised in Table 5.3 below.

Table 5.3: Modelled Sandwich Tern Mortality Effects of 6 Southern North Sea Proposals

[70] Southern Wash AA at paragraph 7.40.

	Annual average bird mortality/turbine[71]
Docking Shoal (540MW)	0.844
Docking Shoal (phase I)	0.750
Race Bank	0.488
Dudgeon	0.306
Sheringham Shoal	0.148
Triton Knoll	0.028[72]

5.2.30 What remained in dispute was the degree to which the mortality modelling undertaken for the sandwich tern for both the Southern Wash AA and the Triton Knoll ES had been sufficiently precautionary. The applicant took the view that the Southern Wash AA had been sufficiently precautionary and scientifically robust. It had relied upon it in its analysis and in the evidence that it provided to the Panel during the examination.

5.2.31 Conversely, the SNCBs took the view that the Southern Wash AA was wrongly decided. The SNCBs' position throughout the Triton Knoll examination was to maintain that the revision to the collision avoidance rate for the sandwich tern used in the Southern Wash AA was contrary to their advice and was not justified in scientific or legal terms, because it was insufficiently precautionary [HE14 – 15].

5.2.32 This in turn directed the Panel to consider the difference in underlying mortality modelling approach between that advocated by the SNCBs and that most recently accepted by the Secretary of State in the Southern Wash AA, which in turn entailed obtaining an understanding of sandwich tern population viability analysis (PVA) and the degree to which population might be impacted upon by collision risk – through the undertaking of collision risk modelling (CRM).

5.2.33 The key difference in CRM terms was substantial. It lay in the adoption by the SoS in the Southern Wash AA of a Collision Risk Model (CRM) known as the Folkerts Model. In contrast, the SNCBs continued to use an immediate predecessor model known as the Band Model. To the extent that the applicant was seeking a consent within the sandwich tern mortality framework

[71] Source: Southern Wash AA [HE38] and [APP19] at Table 18A.
[72] Note that by this point in the Southern Wash AA process, the Triton Knoll proposal had already been revised downwards from 333 to 288 turbines, a step which resulted in a modeled reduction in sandwich tern mortality of 1 bird/annum.

provided by the Southern Wash AA, its position in the examination process came to rely upon the approach taken by the SoS in that AA and hence came to reply on conclusions reached from the Folkerts rather than the Band model.

5.2.34 The Folkerts model had been specifically developed to respond to the different survey circumstances found in the marine environment and to incorporate a number of revisions that were argued to make it better adapted to the circumstances of offshore wind farm operation than the Band model. Paragraph 7.8 and 7.10 of the Southern Wash AA provides a detailed explanation of the innovations contained in the Folkerts Model, which it is sufficient to summarise here as taking greater account of empirical observations and providing a closer analogue to real-life conditions at sea, but having the effect of reducing the mortality output of the model. The MMO commissioned an independent review of this model, which found it to be scientifically robust and sound for use in the assessment of collision risk in the Greater Wash area.

5.2.35 In contrast, the Band Model is less adapted to take account of the specific circumstances of wind farm operation at sea, particularly of the sandwich tern wind turbine avoidance behaviours as empirically observed. In that respect it tends to be more conservative or precautionary. JNCC have estimated that the Folkerts Model can produce mortality estimates ranging between 17% and 48% lower than the Band Model as a consequence of these differences.

5.2.36 The collision avoidance rate deployed in modelling is a critical and highly sensitive factor in bird mortality modelling for wind energy projects. Collision avoidance rates can be generic, where essentially the same rate of turbine blade avoidance is assumed for a wide range of bird species, irrespective of any behavioural assumptions or empirical observations. They can be made for a species or a group of species on the basis of a qualitative assessment, taking known behaviours including manoeuvrability into account. They can also be derived from empirical data such as surveys of actual bird behaviours for example blade avoidance, or mortality impacts evidenced by recovered dead bird counts.

5.2.37 Significantly, the SoS in the Southern Wash AA and hence the applicant in this case accepted a collision avoidance rate of 98.83% as being relevant to the sandwich tern. This flowed through the Folkerts Model from empirical observations of sandwich tern behaviour at constructed wind farms, most notably at Zeebrugge. The Band Model deployed by the SNCBs in contrast adopted a generic avoidance rate of 98%. This rate is not adjusted to take account of any particular qualitative analysis or empirical observations of sandwich tern behaviour – indeed the same rate is used for a wide range of species,

including some acknowledged to be significantly less agile and responsive in flight than the sandwich tern.

5.2.38 The SNCBs' advice to the SoS during consideration of the Southern Wash AA had been that a generic 98% collision avoidance rate was the appropriate rate to be used for the sandwich tern. The adoption of this rate, when allied with population viability assessment, had the effect in modelling terms of leading to a prediction that a combined total of 75 additional annual sandwich tern mortalities could be caused incombination by the assessed proposals, before the sandwich tern reached a critical population threshold beyond which no more mortality could be absorbed.

5.2.39 If 75 additional mortalities were to be accepted as the threshold within the greater Wash or southern North Sea region in which Sheringham Shoal wind farm was constructed and Race Bank and Dudgeon were also consented, the effect would be that there would be no biological impact envelope within which the Triton Knoll proposal could be constructed, notwithstanding its substantially lower bird mortality per turbine rate than any of these other constructed, consented or proposed schemes.

5.2.40 In the Southern Wash AA, the Secretary of State expressly departed from the SNCBs' advice. He considered that it was more appropriate to adopt the 98.83% collision avoidance rate suggested through the deployment of the Folkerts model. Although a shift of 0.83% in the rate may appear to be minor, its consequences are weighty. It has the effect, when combined with the population viability analysis in the model, that a combined total of 94 additional annual sandwich tern mortalities could be caused by the assessed proposals incombination, before the sandwich tern reached a critical population threshold beyond which no more mortality could be absorbed. Proceeding on the basis that Docking Shoal was not consented and that its sandwich tern mortality impact could therefore be redistributed between other, lower mortality proposals, this in turn meant there was capacity within which Race Bank and Dudgeon could be consented. It also provided an envelope which allowed for Triton Knoll to be consented, on the basis that it would contribute no more than 9 additional sandwich tern mortalities per annum.

5.2.41 The difference in PVA terms was relatively minor and difficult to quantify with certainty. The sandwich tern population within the SPA is variable and fluctuates year on year as set out above, due to changing factors such as weather conditions, foraging success, predation rates and in and out migrations from sandwich tern populations in other locations.

5.2.42 In the Southern Wash AA, the SoS had been provided with initial advice from the SNCBs, whose PVA had suggested that

the 25 year effect of the wind farms being constructed in combination would reduce the SPA sandwich tern population to approximately 4% lower than its currently understood value of 6,914 birds[73], which suggested that any annual loss rate higher than 75 birds per annum would constitute an unacceptable risk to site integrity.

5.2.43 The SNCBs had also advised that the absolute risk of decline to the Sandwich sandwich tern population should be capped at less than 66%[74]. The approach taken in the Southern Wash AA[75] with regard to a reference population of 6914 birds was to find that an additional mortality of 75 birds per annum would be characterised as an absolute risk of 62.6%, where the risk of the population experiencing decline could be characterised as being "about as likely as not", rather than "likely". Following on from this position, the SoS in the Southern Wash AA extrapolated that the upper mortality boundary for the sandwich tern, above which the risk of the population experiencing decline could be characterised as likely, should be set at 94.8 birds per annum[76]. It was on this basis also that DECC advised that a maximum annual mortality of 94 birds should therefore be accepted as the upper level, rather than the 75 birds per annum initially proposed by the SNCBs. It should be noted that the SoS's finding in favour of a 94 bird/annum mortality envelope in the Southern Wash AA was justified using analysis derived from collision risk modelling and population viability assessment, both of which converge on a common outcome.

5.2.44 In taking this position, the SoS also had close regard to further PVA modelling of the SPA sandwich tern population (Mackenzie et al 2011[77]), which suggested that a population loss relative to the reference population of between 5 and 10% over 25 years might offer a reasonable chance of maintaining site integrity. This suggested an upper level maximum population loss of 157 birds per annum, considerably greater than the 94 bird loss proposed by DECC and accepted by the SoS in the Southern Wash AA. This in turn suggests that the DECC analysis is not an upper level outlier, rather it is a centre of field proposition, incorporating a considerable precautionary margin. In reaching its position, DECC had acknowledged that the adoption of a 94 bird, as opposed to a 75 bird annual mortality rate would increase the probability of population decline overall by 2%. However, the SoS accepted that increase as *"marginal and*

[73] Southern Wash AA [HE38] at paragraph 7.20
[74] JNCC/NE 2011a in Southern Wash AA [HE38] at paragraph 7.18.
[75] Southern Wash AA [HE38] at paragraph 7.19
[76] With reference JNCC/NE 2011a in DRD AA [HE38] at paragraph 7.18, the point at which the absolute risk of population decline was 66% or above and became 'likely' was equal to a mortality of 94.8 birds per annum.
[77] cited in Southern Wash AA [HE38] at paragraph 7.20 (pg 36 penultimate bullet)

acceptable" when considered in the light of the levels of precaution incorporated into the modelling[78].

5.2.45 It followed that in this examination the applicant, in adopting the SoS's reasoning from the Southern Wash AA, considered that there was sufficient biological capacity to construct and operate a maximum number of 288 turbines (assumed to be 3.6MW each in the ES as the worst case scenario in the EIA) at Triton Knoll allowed for in the recommended Order. The SNCBs in contrast remained strongly of the view that there was no such capacity.

5.2.46 In reaching its conclusions the Panel has, in the light of such a dispute, had regard to two key considerations of legal relevance.

- Firstly, the applicant strongly advanced the virtue of consistency in decision-making; unless it appeared that the SoS had been wrong in granting consent for wind farms based on the Southern Wash AA , then the Panel should consider this application consistently with the reasoning deployed there.
- Secondly however, the SNCBs put it to the Panel that the Southern Wash AA was "wrongly decided" with regard to its facts and the evidence.

5.2.47 Under questioning from the Panel, it was agreed between the applicant and the SNCBs that what would constitute a "wrong decision" was one that was unreasonable, having regard to the evidence deployed in reaching it, or superseded, having regard to a more recently achieved and better level of scientific certainty.

5.2.48 To test this, the Panel sought to elicit whether there was any new evidence to show that the assessment of incombination effects including the effects of Triton Knoll undertaken in the Southern Wash AA had been unreasonable, and/or whether a better level of scientific understanding had now been achieved that threw its findings into doubt.

5.2.49 On the first of these points, answers to oral questions made clear to the Panel that whilst the SNCBs disagreed with the Southern Wash AA, they were unable to demonstrate clearly that it was unreasonable. It was also noted by the Panel that there was no evidence in the examination that the decisions made by the SoS on these wind farms had been legally challenged. The applicant's expert witness [HE11] was clear that there was a credible scientific base for the Southern Wash AA and that reliance upon it in turn was also reasonable. For

[78] Soputhern Wash AA [HE38] at paragraph 7.23.

these reasons therefore the Panel accepts this proposition and finds accordingly.

5.2.50 On the second of these points, the Panel specifically asked the SNCBs whether the nature of the scientific analysis had changed: whether there was any new evidence since the Southern Wash AA, or whether this situation could better be characterised as an ongoing disagreement or dispute on the same evidence. A very clear answer was provided that it was the latter [HE11].

5.2.51 It therefore follows, that in the absence of demonstrated unreasonableness in the Southern Wash AA decision or of any new scientific evidence, the Panel considers that the applicant was justified in relying upon it and upon the Folkerts Model for the purposes of carrying out its ES and preparing evidence on impacts on European sites. This in turn leads the Panel to conclude that in its view, with a 9 bird worst-case additional mortality due to the construction of the maximum number of 288 turbines proposed within the DCO, the impact on sandwich terns is acceptable. This finding has been taken into account by the Panel in reaching its recommendation on development consent. It is however the SoS who is the competent authority to carry out an Appropriate Assessment (AA) and fulfil other statutory duties under the Offshore Habitats Regulations.

Potential Mitigation of Sandwich Tern Impacts

5.2.52 The Panel examined thoroughly the possibility of additional mitigation to address concerns expressed in respect of the sandwich tern in representations by the SNCBs in relation to sandwich tern impacts. This was carried out without prejudice to the final conclusions and recommendation that the Panel reached above in relation to impacts on sandwich tern.

5.2.53 Following detailed and sustained questioning of the applicant and SNCBs [HE13] the parties agreed, and the Panel found, that there were no specific changes to the configuration of development within the application site that could further mitigate the effects of the development on the sandwich tern.

5.2.54 Similarly without prejudice to its ultimate findings and conclusions the Panel examined, particularly at the ISH [HE13-16] held in Skegness on 6 and 7 November 2012, the topic of offsite mitigation. In particular it examined the degree to which possible residual impacts on the sandwich tern might if necessary be managed by offsite mitigation in addition to or in substitution for any possible onsite mitigation.

5.2.55 By offsite mitigation, the Panel meant the development of sandwich tern population management measures to be delivered in locations other than the application site, which

could have the effect of offsetting any residual sandwich tern mortality due to the operation of the proposed offshore wind farm by delivering a net stabilisation or reduction in this mortality. Possible examples of such measures could include action to increase sandwich tern breeding productivity, for example by reducing egg or chick predation at onshore nesting locations. It was envisaged that any such measures as might prove necessary could be funded by the applicant; for example pursuant to an agreement under s106 of the Town and Country Planning Act 1990 (as amended), but delivered by another entity with expertise in natural environment land and species management.

5.2.56 A number of caveats have to be placed around this issue and the questioning used to examine it during oral hearings.

- It was pursued at a point in the examination where it was not completely clear that the applicant would be able to provide a satisfactory account of the sandwich tern impact of the application as proposed and documented in the ES, sufficient to address the Waddenzee judgement requirements[79].
- At that point in the examination, given that the need for additional onsite mitigation of sandwich tern impacts had been ruled out, it remained possible that the Panel might need to consider whether offsite sandwich tern impact mitigation might offer a relevant reduction in mortality, necessary to be considered if the application was to be consented.
- However, following the completion of questioning on issues relating to population and mortality modelling recorded in paragraphs above, the Panel was satisfied that its general conclusions relating to sandwich tern impact were sufficiently robust such that it was not necessary to pursue questions in respect of offsite mitigation any further in this Report for the purposes of considering, and recommending for consent, this application before the Secretary of State.

5.2.57 It should be recorded that the applicant in this case was happy in principle to countenance making a contribution to the cost of mitigating sandwich tern impacts offsite [HE16]. The SNCBs remained of the view that the primary objective should be to manage relevant sources of mortality at source, within an application site. That being said, Natural England[80] was also willing to undertake investigations during the examination period of the degree to which sandwich tern nesting locations

[79] In the Waddenzee judgement (ECJ C-127/02), the European Court of Justice decided that a competent authority (in this case the SoS), must be certain that that a proposal will not adversely affect the integrity of the European protected site (cited in [APP19 & HE40]).

[80] Whilst representations on the sandwich tern were made primarily by JNCC it was NE which undertook to examine the prospects for offsite mitigation.

within its control or knowledge might be amenable to onshore management changes that could increase breeding productivity.

5.2.58 It should also be recorded that the results of Natural England's investigations were to advise the Panel that there was little immediate prospect of designing and implementing useful offsite mitigation measures. However, the Panel noted that these investigations were necessarily undertaken swiftly and were not supported by any detailed scientific evaluation of the potential outcomes of such measures.

5.2.59 Whilst such measures proved not to be critical to the Panel's recommendation in this case, the Panel takes the view that the prospects for such measures making a significant contribution towards mitigating the mortality of a range of potentially impacted avian species was important and relevant to its examination of this issue.

5.2.60 National policy envisages potential for a substantial programme of offshore wind farm developments, making a significant contribution to the UK's future energy supply. Since the proposed development would interact with highly mobile, particularly sea-foraging and migratory avian species in the Western European or East Atlantic Flyway[81] specifically sandwich tern, the maximum potential biological removal (PBR) of this species was potentially a limiting factor in the examination of new electrical generation capacity at Triton Knoll. Representations from the SNCBs suggested [REP14] that the number of turbines might be reduced and hence the volume of additional offshore wind generation capacity would have been constrained on the site in view of the relatively limited scope for mitigation of ornithological impacts.

5.2.61 In this context, the Panel asked questions that highlighted the absence of scientific research. Research was not available against which to test any propositions for offsite species mitigation measures to reduce net mortality. Such research, had it been available in respect of the sandwich tern, the Panel finds, could potentially have offered alternative and additional means of mitigation of the potential ornithological impacts it was examining. The Panel concludes however, as above, that in this case the impacts of the development on sandwich tern would be acceptable without offsite mitigation.

Flamborough Head and Bempton Cliffs SPA, Gannet & Kittiwake

5.2.62 Having set out detailed analysis in respect of the North Norfolk Coast SPA and the sandwich tern above, the situation in respect

[81] The West European or East Atlantic flyway is a broad migratory zone for birds passing from the Arctic to Western Europe or from both of these locations onwards to the west coast of Africa.

of the remaining European sites is somewhat less complex. The analysis set out here in respect of Flamborough Head and Bempton Cliffs SPA, the Gannet and the Kittiwake (and indeed for the remaining European sites considered in this Report) does not have to be to the same level of detail. By the end of the examination, there was broad agreement between Interested Parties, and the Panel finds, that whilst the potential for likely significant effect had not been excluded at the RIES screening stage, consideration of evidence in detail has not found any adverse effects on integrity.

5.2.63 Detailed examination was undertaken of the possible effects of the proposal upon both the black-legged kittiwake and the gannet as part of an assemblage of seabirds at the site since these are both qualifying features of the Flamborough Head and Bempton Cliffs SPA.

5.2.64 The RSPB [RR45], Lincolnshire Wildlife Trust [RR35] and the SNCBs [RR47 & RR48] had expressed concerns regarding the possibility of incombination effects in terms of blade collisions resulting in an unsustainable mortality rates in both of these species. These views proceeded on a similar basis from that set out for the sandwich tern above, in that it was suggested that the population take factored into modelling had been insufficiently precautionary.

5.2.65 However, in a Statement of Common Ground (SoCG) relating to Ornithology (11 October 2012) [SOCG9], the SNCBs considered the modelling undertaken for these species, having regard to new factors, including Gannet population increases and model re-calibration. Whilst acknowledging that the modelling was not devoid of uncertainty, the SNCBs agreed that *"no adverse effects on the interest features of breeding kittiwakes and gannet at Flamborough Head and Bempton Cliffs SPA are expected to arise from the Project, either alone or in combination."*

5.2.66 In a consultation response on the draft RIES on 18 December 2012 [REP32], Natural England made clear that it agreed with the RIES conclusion [RIES3 - Matrix 3.2] that adverse integrity effects on the SPA with respect to both species can be excluded. It was open for other natural environment expert bodies to respond to this draft in detail raising further concerns, but none did so.

5.2.67 Indeed, by this stage of the examination, no other bodies were raising concerns about the status of this site or these species and having reviewed the evidence submitted, the Panel itself had no residual concerns. It is therefore the Panel's view that the proposal would not adversely affect the Flamborough Head and Bempton Cliffs SPA through impact upon these qualifying features. This finding has been taken into account by the Panel

in reaching its conclusions and recommendation to make the Order as attached. However it is recognised that it is the SoS who is the competent authority to carry out any AA.

Inner Dowsing, Race Bank & North Ridge cSAC and Sandbanks

5.2.68 Sandbanks close to the water surface, but slightly covered by seawater at all times are a qualifying feature of the Inner Dowsing, Race Bank & North Ridge candidate SAC. Concerns had been raised in respect of first, the potential for changes to the sediment regime due to construction activities, and second changes to the wave climate due to the presence of foundations. Resulting changes to scour or sediment transportation pathways could also affect these features.

5.2.69 The applicant provided a technical note, Appendix 17 of their written statement of 14 September 2012 [REP19], which reviewed potential wave impacts on coastal designated sites and found that no significant effects were anticipated.

5.2.70 In a consultation response on the draft RIES on 18 December 2012 [REP32], Natural England made clear that it agreed with the RIES conclusion (in matrix 3.3) that adverse integrity effects on the cSAC with respect to sandbanks can be excluded.

5.2.71 Again, by this stage of the examination, no other bodies were raising concerns about the status of this site or these features and, having reviewed the evidence submitted, the Panel itself had no residual concerns. It is therefore the Panel's view that the proposal will not adversely affect this cSAC through impact on sandbanks. This finding has been taken into account by the Panel in reaching its conclusions and recommendation to make the Order as attached. However it is recognised that it is the SoS who is the competent authority to carry out HRA.

Humber Estuary SAC and the Grey Seal

5.2.72 Grey seal are a qualifying feature of the Humber Estuary SAC and are sensitive to piling noise during construction. Operational noise is considered in the ES [APP55] to be at too low a level to cause injury to marine mammals.

5.2.73 In a SoCG relating to Marine Mammals (11 October 2012) [SOCG8], the SNCBs agreed that a characterisation of no adverse impact was correct.

5.2.74 In a consultation response on the draft RIES on 18 December 2012 [REP32], Natural England made clear that it agreed with the RIES conclusion (in matrix 3.4) that adverse integrity effects on the SAC with respect to the grey seal can be excluded, noting that the proposed DCO includes measures to manage the cumulative effects of piling with other projects

through the piling monitoring and mammal mitigation protocols (DML Conditions 9(6) and 14) that are included in the Order as now recommended by the Panel to be made.

5.2.75 By this stage of the examination, no other bodies were raising concerns about the status of this site or the Grey Seal and, having reviewed the evidence submitted, the Panel itself had no residual concerns. It is therefore the Panel's view that the proposal will not adversely affect this SAC through impact on the grey seal. This finding has been taken into account by the Panel in reaching its conclusions and recommendation to make the Order as attached. However it is recognised that it is the SoS who is the competent authority to carry out any AA.

Wash and North Norfolk Coast SAC and the Harbour Seal

5.2.76 Harbour seal are a qualifying feature of the Wash and North Norfolk Coast SAC and are sensitive to piling noise during construction. Operational noise is considered to be at too low a level to cause injury to marine mammals in the ES [APP55].

5.2.77 In a SoCG relating to Marine Mammals (11 October 2012) [SOCG8], the SNCBs agreed that a characterisation of no adverse impact was correct.

5.2.78 In a consultation response on the draft RIES on 18 December 2012 [REP32], Natural England made clear that it agreed with the RIES conclusion (in matrix 3.4) that adverse integrity effects on the SAC with respect to the harbour seal can be excluded, noting that the proposed DCO includes measures to manage the cumulative effects of piling with other projects through mitigation and works protocols as above.

5.2.79 By this stage of the examination, no other bodies were raising concerns about the status of this site or the harbour seal and, having reviewed the evidence submitted, the Panel itself had no residual concerns. It is therefore the Panel's view that the proposal will not adversely affect this SAC through impact on the harbour seal, subject to the delivery of the construction programme, designed to minimise the occurrence of cumulative or sequential piling with other projects. This finding has been taken into account by the Panel in reaching its conclusions and recommendation to make the Order as attached. However it is recognised that it is the SoS who is the competent authority to carry out any AA.

Other Sites, Species and Features Identified in the RIES

5.2.80 As can be seen with reference to the final draft RIES [RIES1 – 3], the Panel has had regard to the potential for effects on a wider range of European protected sites, species and features than those identified in tables 5.1 and 5.2 above. However, by the end of the examination, it was a matter of agreement

between all Interested Parties that there were no likely significant effects of the proposal on these sites, species or features. It follows that the Panel limits its observations upon them to the content of the RIES. Following the reasoning set out there, the Panel finds that they are not likely to experience any significant effects.

5.2.81 This finding has been taken into account by the Panel in reaching its conclusions and recommendation to make the Order as attached. However it is recognised that it is the SoS who is the competent authority to carry out any AA.

5.3 SPECIES AND HABITATS OTHER THAN EUROPEAN SITES

5.3.1 In addition to the consideration of habitat and species protected pursuant to European sites legislation, it is important to consider those species protected under other relevant frameworks of law and policy. The remaining parts of the section therefore consider the effects of the proposal on sites and species which are not protected as European site species under the Habitats Directive/Offshore Habitats Regulations.

5.3.2 NPS EN-1 policy on biodiversity including a halting and if possible a reversal of declines in priority habitats and species, is set out above in Chapter 3.

5.3.3 All wild birds including the GBBG and LBBG are protected in the UK under the Wildlife and Countryside Act 1981 (WCA). As set out in Chapter 3, recent amendments to the Offshore Habitat Regulations aim to fully transpose the requirements of Article 3 of the Wild Birds Directive which requires member states to take measures to preserve maintain or re-establish sufficient diversity and area of habitats for all wild birds. This is set out in the amended Regulation 6 in the Offshore Habitats Regulations. The Panel was also aware of its duties under s40 of the Natural Environment and Rural Communities (NERC) Act 2006 when considering the effects of the proposed development.

Lesser Black-Backed Gull

5.3.4 LBBG are a feature of the Forth Islands SPA and a water bird assemblage species for which the Humber Estuary SPA is designated as a European Site, as considered in the RIES [RIES1]. Information provided by the Applicant demonstrates that the proposed Order Limits lie beyond the maximum foraging range of the population of this species at the Forth Islands SPA [APP56][82]. For these reasons the species was not considered further within the Applicant's HRA report [APP19].

[82] See particularly Volume 3, Annex H, Table 3.

5.3.5 The RIES [RIES3] screening matrices for both these sites indicate no likely significant effect for ornithological interest features. The SNCBs response to consultation on the RIES agreed with these findings. Therefore, the effects on this species are considered by the Panel in isolation from any European protected site as follows[83].

5.3.6 The Applicant's ES assessed the effects of collision risk on LBBG and determined them to be moderate but tolerable [APP36]. The SNCBs were unable to agree with the findings of this assessment and raised specific concerns in their representation [REP14]. Consequently these matters were further examined through questioning, including of expert witnesses, at the ISH on the DCO and related matters [HE13].

5.3.7 At the ISH on the draft DCO [HE13 and HE33] the SNCBs stated that following clarification of information in the ES provided at Appendix 2 of the SoCG on Ornithology [SOCG9], it was able to respond that there would be no significant impacts on the local breeding populations of LBBG.

5.3.8 The Panel acknowledges that the applicant's proposed mitigation to reduce effects involves the reduction in the scale of the development from 333 turbines assessed in the EIA to the maximum 288 turbines that would be consented under the recommended Order. In addition the SoCG [SOCG9] between the applicant and the SNCBs states that it is agreed that residual moderate but tolerable impacts are accurately identified for LBBG.

5.3.9 The Panel finds that even taking the most precautionary assessment into account the proposed development is unlikely to pose any material harm to biodiversity in relation to LBBG. The Panel also concludes that in taking this assessment and the impacts into account in deciding the Order as recommended in this Report, the SoS, would be taking appropriate steps in relation to his duties under Regulation 6 of the Offshore Habitats Regulations, under the WCA and under s40 of the NERC Act.

Great Black Backed Gull

5.3.10 Impacts upon GBBG remained a concern to the SNCBs. It was emphasised by the applicant at the ISH on the draft DCO [HE13] however that the GBBG was not a feature of any relevant European Site, a point on which there was no disagreement between Interested Parties.

[83] Regulation 6 of the Offshore Habitats Regulations provides protections for all wild birds not just those populations which are features of European sites.

5.3.11 The SNCBs' summary of case made at the ISH on the draft DCO [HE33] makes clear that it had previously requested the applicant to revise its assessments to cover the impacts on GBBG including the non-breeding marine component of its distribution. The applicant subsequently provided an update note on GBBG collision risks which addressed this issue [HE39].

5.3.12 The SNCBs also stated that because of *"the absence of specific collision risk data from wind farm developments an appropriate approach to cumulative assessment could be to replicate the level of mortality predicted at Triton Knoll at all other wind farms within the North Sea"* [HE33]. This SNCBs stated could generate a maximum total of 10,771 GBBG collisions, 63% in excess of the population viability threshold [HE33].

5.3.13 It is noted by the Panel that the SNCBs considered this could be an appropriate approach but it stopped short of recommending it and no further evidence to actively promote such an approach being taken was presented.

5.3.14 It was clear at the ISH [HE13] that the Triton Knoll assessment gave rise to significantly higher GBBG mortality than the average for wind farms. Both the applicant and the SNCBs agreed that density of the species across this region was considered average for the North Sea (around 0.8 birds per square km). However the reasons for the higher assessed collision rate at Triton Knoll could not be established by the applicant or the SNCBs. It was considered at the ISH that it may be due to a sustained level of density of the species at the site. There was a lack of knowledge in this area because collision rates for this species were usually lower than for other species. This had meant that further monitoring and studies which might have provided the necessary information on this species, were frequently not carried out or considered necessary.

5.3.15 There was no disagreement from the SNCBs that the assessment for Triton Knoll had projected higher than average mortality rates for this species. In the applicant's view this meant that the mortality rate identified by the SNCBs would be very precautionary.

5.3.16 There were therefore uncertainties on the part of the SNCBs in relation to the approach to cumulative collision risk for GBBG. The SNCBs also stopped short of advocating extrapolation of the Triton Knoll collision risk across other wind farms, simply saying it *"could be"* an appropriate approach. In addition typical data for bird collision risk presented by the applicant, the Panel finds, is more likely to represent collision risk at other wind farms than would be represented by the extrapolation of data from the Triton Knoll site alone. The Panel was therefore presented with the alternatives by the SNCBs of extrapolating the collision data

from one wind farm site, Triton Knoll, or instead relying on typical wind farm collision data drawn from much larger sample of sites. For these reasons therefore the Panel concludes that it is more appropriate to base GBBG collision risk assessment for all wind farms on the larger data set, as shown in the first scenario in the note provided [HE39] rather than on the data from one site which would lead to a far more uncertain outcome, in the Panel's view.

5.3.17 This first scenario leads to a collision risk of 6,545 GBBG, well within the allowance for potential biological removal of up to 7,327 individuals of this species. This assumes an avoidance rate of 98%, a rate which was agreed with the SNCBs in relation to this species.

5.3.18 This first scenario had however calculated collision risk according to the Folkerts model rather than the Band 2012 model recommended by the SNCBs. As a result the SNCBs believed that the collision risks in the applicant's update note [HE39] should be increased by 20%. This would increase the maximum mortality, according to the SNCBs [HE33], from 6,545 to 7,129 GBBG. This latter SNCBs figure for GBBG mortality would exceed the potential biological removal threshold by approximately 9%, described at the ISH on the DCO by the SNCBs as "on the threshold" in relation to the potential biological removal of this species.

5.3.19 However as noted in section 5.2 above the MMO had commissioned a study of the Folkerts model used by the applicant in relation to analysis of collision risk for this species. The MMO found the model to be robust.

5.3.20 Both the above estimates of collision risk mortality are total predicted rates of mortality arising as a result of all constructed wind farms plus all consented wind farms being built. Triton Knoll would represent only a small proportion of these totals.

5.3.21 There are therefore uncertainties in the assessment, although there is a degree of robustness in the Folkerts model as considered earlier in this Report and there are also potential biodiversity benefits of the project as part of transition to low carbon energy (NPS-EN1)[84]. For these reasons the Panel concludes that if all constructed and consented wind farms (including the proposed development at Triton Knoll) taken together were to exceed the potential biological removal threshold by 9%, this would be an acceptable level of impact.

5.3.22 In reaching this conclusion the Panel recognises that greater collision risk mortality scenarios exist. The SNCBs made clear that a range of scenarios on GBBG collision risk were possible

[84] See in particular NPS EN-1 Paragraph 5.3.6

and did not advocate any one in particular in the examination. Amongst the scenarios considered by the SNCBs the most extreme countenanced a total mortality of 10,771 GBBG, referred to above, which would exceed the threshold by 63%. For such a high, worst case mortality rate to be arrived at, the SNCBs considered it would be necessary to extrapolate the unusually high collision risk at Triton Knoll across all consented and constructed wind farms. It would also be necessary to consider that all consented wind farms were to be fully built out to their maximum number in each case (before any others were decommissioned). Finally it would be necessary to consider the Folkerts model to be unsound. However set against this possible scenario is another important factor which the Panel finds outweighs the likelihood of all three of these factors acting together as here set out. In addition the Panel has concluded upon the robustness of the Folkerts model elsewhere in this Report.

5.3.23 The outweighing factor is that it was established at the ISH that there was considerable doubt that the 2.5Gigawatt of wind farms in the German EEZ would all be built out. Interested Parties understood [HE13] that while they had been subject to plan level strategic environmental assessment and consent, these wind farms had not yet been subject to the full project level EIA necessary for construction. These wind farms are as a result, the Panel finds, likely to proceed at later dates than the others in the cumulative assessment [HE39] which are fully consented. As more of the consented wind farms are built out, the less available capacity (in terms of transmission[85] and environmental capacity) will be available for wind farms that are not yet fully assessed through EIA. Furthermore, in addition to issues of diminishing capacity as more wind farms are constructed, any further project level EIAs that take place will necessarily take account of any consented impacts on GBBG at Triton Knoll and if necessary apply mitigation and/or further constraints on build out in accordance with the Birds and Habitats Directives.

5.3.24 Implementation of later wind farm development would therefore tend to become somewhat less likely as more fully consented wind farms are constructed elsewhere in the North Sea including in the waters of other EU member states. Therefore the more of the available margin for GBBG mortality that is taken up by fully consented wind farms, the less likely it is that further GBBG capacity will be taken up by the build out of a full 2.5Gigawatt in the German EEZ. The Panel finds that this point outweighs the risk that the worst case GBBG collision risk scenario would occur, since limitations on the capacity for more

[85] The limitations on UK transmission capacity are acknowledged in NPS EN-1 paragraph 3.7.7

wind farm installations are likely to arise as renewable energy development progresses throughout the North Sea.

5.3.25 The SNCBs also believed [HE39] that the proportion of GBBG mortality attributable to the Triton Knoll, once scaled up as described above, would represent 8.9% of the total potential biological removal of the species that was expected by all constructed and consented wind farms. The SNCBs [HE39] also suggested that because this represented less than one percent of the total number of wind farms, to take up 8.9% of total potential biological removal would be disproportionate. The Panel finds that this approach, however takes no account of the fact that Triton Knoll would be, in comparison with the vast majority of other constructed and consented wind farms, very much larger than the average, if built out to the design parameters under consideration. This approach also suggests that biological removal of a species should be in proportion to the number of wind farms rather than to their size or generating capacity. This approach also applies no factor to account for any consented wind farms that may not be built out, nor of those that may be decommissioned, or built out to less than their consented maximum. On this basis the Panel finds that the assumption that Triton Knoll would absorb up to 8.9% of the available margin for mortality would be quite reasonable.

5.3.26 The Panel concludes therefore that, for the reasons given above, the proposal would not pose any material harm to GBBG biodiversity interests as a species not covered by protections of European Sites. The Panel also concludes for the above reasons that in making the Order as recommended the SoS would be fulfilling his duties under the NERC Act and taking appropriate steps under Regulation 6 of the Offshore Habitats Regulations.

5.3.27 In considering the degree of precaution that is appropriate in reaching this conclusion the Panel has had regard to the Waddenzee ruling[86]. Whilst this ruling related to a European Site GBBG are not a European Site species. Notwithstanding this fact the Panel finds that its conclusions as reached above apply an acceptable level of precaution in the face of uncertain outcomes in relation to impacts on GBBG.

Silver Pit

5.3.28 In December 2012 the Department for Environment, Food and Rural Affairs (DEFRA) issued "Marine Conservation Zones: consultation on proposals for designation in 2013". The proposal has the potential to affect the Silver Pit recommended MCZ. However it is clear from the consultation document that DEFRA

[86] European Court of Justice (Case C-127/02) set out in the Applicant's Habitats Regulation Assessment Report [APP19]

is not proposing to recommend designation of this site in the current designation round.

5.3.29 The SNCBs do not have particular concerns in relation to the impact of the proposal on Silver Pit. The Panel is satisfied that the proposal as provided for in the DCO will not have any significant adverse affect on this site.

5.4 FISH AND FISHING IMPACTS

5.4.1 Two main issues emerged in the consideration of fish and fishing in the examination of this application. One concern was with the displacement of commercial fishing activity from the proposed development site both during construction and operation, as considered below. The other, a particular concern of the MMO [REP9, HE47, HE49, REP24 & REP28] advised by the Centre for Environment Fisheries and Aquaculture Science (Cefas), was the potential effect on fish spawning, specifically herring, as a result of construction activity.

5.4.2 Relevant policy in relation to fish is set out in EN-1 section 5.3 in terms of biodiversity impact. Para 5.3.7 clarifies that as a general principle development should aim to avoid significant harm to biodiversity including through mitigation and consideration of reasonable alternatives. EN-3 paragraphs 2.6.58 to 2.6.71 elaborate this policy specifically in relation to offshore wind while paragraphs 2.6.121 to 2.6.136 set out policy on commercial fisheries and fishing.

5.4.3 Paragraph 2.6.132 states that the decision-maker *"should be satisfied that the site selection process has been undertaken in a way that reasonably minimises adverse effects on fish stocks, including during peak spawning periods...."*

5.4.4 Paragraph 2.6.133 goes on to say that the decision-maker *"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."*

5.4.5 In relation to mitigation paragraph 2.6.134 advises that *"any proposals should result from the applicant having detailed consultation with relevant representatives of the fishing industry."* Para 2.6.135 goes on to suggest that *"mitigation should be designed to enhance where reasonably possible any potential medium and long-term positive benefits to the fishing industry and commercial fish stocks,"* while paragraph 2.6.136 goes on to advise that the decision-maker will need to consider *"the extent to which disruption to the fishing industry, whether short term due to construction or long term over the operational period, including that caused by the future implementation of*

any safety zones, has been mitigated where reasonably possible."

5.4.6 The Panel examined both the issues of displacement of commercial fishing and impacts on fish species, particularly Herring, in the light of these NPS policies through the ISHs and written questions.

General Commercial Fishing

5.4.7 The concerns of fishermen were expressed by a number of interested parties and also articulated jointly by the Wells and District Inshore Fisherman's Association and the North Norfolk Fisherman's Society [REP21]. These were focused on issues arising from the safety zones proposed to be established during construction and commissioning of the wind farm. They also included noise and disturbance of the sea bed during construction and the placement of scour protection around foundations, the impact of the inter-array cables and the export cable in their construction, operation and decommissioning, the potential impact of electro-magnetic fields around the cables and the impact on shell-fish, disruption to the normal operation of traditional fishing activities, socio-economic impacts on fishing communities, and the cumulative impact of numerous wind farm proposals on the fishing industry in this part of the North Sea.

5.4.8 The concerns of fishermen have been settled through private arrangements between the applicant and individual fishing businesses and by arriving at SoCGs. The SoCG with the National Federation of Fisherman's Organisations [SOCG16] sets out agreement of a fisheries liaison plan and the appointment of a fisheries liaison officer to ensure appropriate liaison with the fishing industry and a co-existence plan. A further SoCG with the Wells and District Inshore Fisherman's Association and North Norfolk Fisherman's Society [SOCG22] sets out a series of agreements which indicate that the fishing interest is satisfied by the environmental assessment of the current proposal, together with the requirements and conditions included in the recommended Order attached, and by the commitment to future assessments for the cable connection as well as ongoing liaison through the fisheries liaison officer.

5.4.9 The DCO as now recommended includes wording proposed by the applicant which makes reference to these measures in condition 9(4)(d) of the DML securing the appointment of an approved fisheries liaison officer and the preparation of a fisheries liaison plan. The Panel concludes that these measures sufficiently mitigate the impacts on fishing as required by the NPS. The safety interests of the fishing industry are considered in section 5.8 below.

Banks Herring Spawning

5.4.10 The MMO raised a number of issues but the most pertinent to this section of the Report was their request [REP28], sustained throughout the examination, for a condition to be added stating that piling for construction purposes should not commence during the peak spawning period for banks herring (referred to below as herring) between 1 September and 16 October in any year.

5.4.11 Detailed evidence was presented at the ISH on the DCO [HE21] and in the MMO response to the Hearing Action List of 16 November 2012 [HE34]. In it the MMO argues that the North Sea spawning grounds of herring are now confined to small areas of the English east coast. Herring are ecologically valuable as prey species for seabirds, other fish and marine mammals. Historically they have been a valuable commercial fish but were subject to a catastrophic collapse of stock. Now a slow recovery has been observed although success fluctuates.

5.4.12 The sea floor around the development site provides suitable conditions for herring spawning but the fish is very sensitive to sound. Noise attenuation models predict that piling at between 75-90dBht [87]will disrupt spawning adult fish. The impact of noise on the eggs and larvae is unknown. Other developments in the east North Sea may add to the area of impact but a consistent approach to mitigation will reduce adverse effects. It was agreed by Interested Parties at the ISH on the DCO [HE21] that evidence from surveys of spawning over the past 10 years or so shows a highly variable picture. However it was also demonstrated that the area to the north of the Triton Knoll site was part of the spawning area.

5.4.13 Consequently the MMO advised [REP9] that restrictions should be placed in the DML to prevent piling in the spawning period. Something which they have advised in similar circumstances elsewhere including Race Bank Offshore Wind Farm.

5.4.14 The applicant countered [REP29 & HE28] that it had carried out additional research over and above that usually prepared for such developments. It believed this research demonstrated that very little spawning took place in the vicinity of the proposed Order Limits. It also believed that the piling restriction would place an unacceptable burden on the construction of the wind farm. In the MMO's view however, as expressed at the ISH on the DCO, this research had not included the most recent year's figures which demonstrated high density stations of herring larvae of up to 10mm within 11.2km (6nm) of the proposed Order Limits [HE49 & HE34].

[87] Decibels proportionate to hearing thresholds

5.4.15 The MMO and the applicant agreed a SoCG [SOCG11]. However there was not any agreement between the parties over an acceptable compromise arrangement despite the efforts of the Panel to encourage the parties to come to such an arrangement throughout the course of the examination.

5.4.16 The concerns over herring spawning expressed by the MMO were not resolved to its satisfaction by the applicant during the examination, despite some mitigation being proposed by the applicant through amendment to the draft DML. The DML wording proposed by the applicant following the ISH [HE28] proposed a restriction to piling in the northern part of the site only, for the relevant period. However it is clear from the MMO's response on the basis of advice received from Cefas [HE30], that in their view this was insufficiently precautionary to protect spawning herring from the adverse impact of noise from piling in the spawning period as monitored at Flamborough Head. This was because Cefas' evidence demonstrated that herring spawning was prevalent in a much wider area than considered in the ES. Consequently the Order, as now recommended to be made, includes the wording for DML Condition 16 provided by the MMO. The Panel has consulted all Interested Parties on this wording and takes all responses from them into account in concluding that it should be within the Order [PD18].

5.4.17 The Panel concludes therefore, that despite the applicant's objections and because of the prevalence of spawning demonstrated by the MMO, restrictions to piling in the peak spawning period should be applied across the site. In reaching this conclusion the Panel is operating the precautionary principle as outlined above. The piling restriction therefore, as recommended by the MMO on the advice of the Government's independent scientific advisor Cefas, now forms part of the Order as recommended to be made.

5.4.18 Even after the making of the Order, however, it would be open to the applicant and MMO to agree further future monitoring of the spawning of Herring. This could enable the MMO to agree to vary its piling restrictions should evidence become available that it and Cefas feel is reliable. Such measures might allow for piling in a specified part or all of the site during the peak spawning period. The condition as now recommended to be made as part of the DML within the Order would allow piling, during the proposed exclusion period, on the agreement of the MMO. The wording now recommended was supported by the MMO [REP38].

Shellfish

5.4.19 A number of representations referred to impacts on shellfish [RR25] and in particular on cockles [RR22 RR23 RR24]. As recorded in the ES whilst there were concerns about shellfish

habitats well to the north of the site there were no potential effects from the proposed development when considered either in isolation or cumulatively with other wind farms that would be of greater than minor significance [APP34]. The MMO did not raise these issues as being of concern and the Panel received no substantive evidence from other Interested Parties other than the applicant. The Panel therefore concludes that as stated in the ES, impacts of the proposed development on these species would be acceptable.

5.5 LANDSCAPE, SEASCAPE AND VISUAL IMPACTS

5.5.1 A number of relevant representations raised concerns about the landscape, seascape and visual impacts of the application. On this basis the Panel identified landscape, seascape and visual impact considerations as part of its initial assessment of principal issues.

5.5.2 Issues raised in representations included the effect of the construction of wind turbines at sea on existing seascapes and landscapes, and the more localised potential effects upon landscapes arising from the construction of a connection between the application proposal and the National Grid.

Connection Corridor Effects

5.5.3 Chapter 4 of this Report above has already considered the EIA implications of the separation of the grid connection from the application before the Secretary of State. Chapter 5.1 considered the practical implications and impacts arising from this issue.

Effects of the Proposed Works

5.5.4 Reference was made in individual representations to application effects on views to the sea from land [RR14], including from locations that make a significant contribution to the tourism offer of Lincolnshire. These included the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) [RR33 RR55 RR56], town centre or resort beaches such as at Mablethorpe [RR40] and individual visitor attractions such as the Gunby Hall Estate owned by the National Trust, though the Trust stated that it believed it was unlikely that the impacts would be unduly adverse [RR33]. Whilst the relevant representation from ELDC [RR54] raised concerns over visual impact from their area it should be noted that the LIR [LIR1] from the authority determined no such impacts worthy of comment.

5.5.5 Reference was also made by East Lindsey District Council amongst others to the potentially industrialising effect of wind turbines at sea upon seascapes [LIR1].

5.5.6 The Panel's experience of the effect of night-time illumination of offshore wind farms led it to examine the effect of this as an issue too.

5.5.7 The effect of the project on heritage assets and their settings is considered separately in section 5.6 of this Report. This includes the regard that has been had to issues in respect of historic seascapes and work conducted by English Heritage to characterise these.

5.5.8 NPS EN-1 sets out policy relevant to nationally significant energy infrastructure projects in general. Paragraphs 5.9.5 – 7 of EN-1 make clear that an applicant should include a landscape, seascape and visual impact assessment to be included in its ES. This should include consideration of *"the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character".* It should include an examination of the visibility and conspicuousness of the project during construction and operation, considering potential impacts on views and visual amenity during the day and, in respect of 'light pollution effects', at night.

5.5.9 Paragraphs 5.9.12 – 14 of EN-1 make clear that the Secretary of State must have regard to the purposes of nationally designated areas such as the Lincolnshire Wolds Area of Outstanding Natural Beauty when considering applications for projects outside their boundaries but which might affect them. However, the NPS continues to make clear that *"[t]he fact that a proposed project will be visible from within a designated area should not in itself be a reason for refusing consent."* Whilst careful regard must be had to local landscape designations and significance, the NPS is clear that these will not normally provide a reason for refusal.

5.5.10 Paragraph 5.9.18 of EN-1 suggests that the Secretary of State should consider whether visual effects on receptors such as local residents or visitors to the local area outweigh the benefits of the project. It suggests that *"[c]oastal areas are particularly vulnerable to visual intrusion because of the potential high visibility of development on the foreshore, on the skyline."* Where relevant, the Secretary of State should also consider the degree to which the siting and design of the proposal has taken sufficient account of the need to minimise its landscape, seascape and visual effects.

5.5.11 NPS EN-3 sets out policy more directly relevant to renewables. Paragraph 2.4.2 of EN-3 requires that proposals for renewable energy infrastructure should *"demonstrate good design in respect of landscape and visual amenity",* which the Panel takes as applying equally to seascape in order to comply with paragraph 2.6.199 of EN-3, which highlights the importance of

seascape as *"a discrete area within which there is shared inter-visibility between land and sea"* which can often be an important visual and economic resource, particular in areas which derive income from coastal tourism. Paragraph 2.602 of EN-3 identifies that *"[w]here a proposed offshore wind farm will be visible from the shore, an SVIA [seascape visual impact assessment] should be undertaken which is proportionate to the scale of the potential impacts"*. Amongst other considerations, this should consider:

- the 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.

5.5.12 The Panel has considered whether other sources of policy (including the onshore development plans prepared by local planning authorities under the town and country planning legislation) contain any additional policy that needs to be considered. However, given the approach to local landscape designations taken in NPS EN-1, there would have to be very clear instances of harm to locally significant landscape or seascape to warrant refusal of or significant mitigating changes to an application such as this.

5.5.13 In undertaking its investigation, the Panel was conscious that it had before it an ES which contained extensive landscape, seascape and visual impact analysis. However, it was also conscious that it had a number of representations from Interested Parties (referred to above) who were concerned about these types of impacts and whose concerns had apparently not been mollified by material which they may have seen during the pre-application process, or by the ES itself. In addition the ExA concluded that aspects of visual impact analysis had not initially been fully assessed in the ES as submitted, which for example included no night time visualisations of the existing or proposed wind farms.

5.5.14 Given that relevant representations expressed concerns about potential landscape and visual impacts that did not appear to reflect the impact descriptions included in the ES, the Panel tested the applicant's landscape, seascape and visual impact assessments using the following processes.

- identifying concerns about specific landscape, seascape and visual impact receptor types and locations from relevant representations;
- constructing an indicative three dimensional model of the offshore wind farm [PD9] and using this as a guide from which to identify visual receptor types and locations for audit, as a consequence of which a number of written questions were put to the applicant, and

- conducting a rigorous landscape, seascape and visual impact audit process during the site inspection programme, in the light of site inspections and answers to questions.

5.5.15 This last process has enabled the Panel to test the impacts of the application in landscape, seascape and visual impact terms, within the framework provided by relevant policy.

5.5.16 The Panel has published notes of its site inspections [HE4 – HE9], on the basis of which only a limited summary of them is included here.

5.5.17 An unaccompanied inspection was conducted off the coast of Cumbria, where the Panel visited constructed offshore wind farms of similar appearance to the application proposal [HE6] that it considered relevant, and also undertook a review of views to the constructed offshore wind farms from known locations onshore [HE7], at staged distances ranging from 10 to 35 km distant from the turbines. This process was used to support the Panel's understanding of landscape and seascape proposals and impact assessments included in the Environmental Statement [APP39 APP58 APP68] with reference to views to seascape and landscape objects including constructed turbines at known distances from the viewer.

5.5.18 Two unaccompanied onshore inspections were conducted in Lincolnshire. The first of these [HE5] enabled the Panel to view coastal locations from Grimsby to Boston from which the application proposal would be theoretically visible. The Panel consciously decided to view coastal locations within highly accessible urban areas (such as Cleethorpes, Mablethorpe and Skegness town centres), areas utilised for tourism (such as Ingoldmells or Chapel St Leonards and areas valued for their remoteness or for nature conservation (such as Donna Nook National Nature Reserve) to ensure that it had a clear understanding of the issues raised in representations in their broader landscape and seascape context.

5.5.19 The Panel also visited inland locations in respect of which concerns had been raised in representations, visiting a number of locations in the Lincolnshire Wolds Area of Outstanding Natural Beauty and the National Trust property Gunby Hall Estate.

5.5.20 An unaccompanied inspection was undertaken at night, to enable the Panel to appreciate the distance from which aviation lighting installed on the operational Lynn and Inner Dowsing offshore wind farms can be seen. This process was used to calibrate landscape and seascape impact assessments at night [HE9].

5.5.21 An accompanied onshore inspection was also conducted in Lincolnshire [HE4] to view the town centres and beaches of Skegness and Mablethorpe and potential locations at which a cable connection might be brought onshore.

5.5.22 On the basis that there were locations from which the application proposals would be theoretically visible, an unaccompanied onshore inspection was also undertaken along the North Norfolk coast, from Cromer to Boston [HE8]. This also enabled a member of the Panel to view newly constructed offshore wind farm service facilities at Wells-next-the-Sea harbour.

5.5.23 It was this question of the extent to which the proposal would be visible which also underlay the Panel's decision to issue written questions which sought the production of additional landscape, seascape and visual impact assessment material, submitted as Annex 12 to the applicant's response to the first deadline written questions [REP19]. The Panel found this material to be of great assistance, providing a clear set of assessments for each of the main towns and tourism locations in the zone of theoretical visibility, together with night-time impact assessments for the closest onshore locations.

5.5.24 Annex 12 of TKOWL's submission of 14 September 2012 [REP19] was used as the main reference material at the Panel's accompanied site inspections. It appears to have assisted Interested Parties and the applicant to reach a shared understanding of landscape, seascape and visual impact considerations than was the case in the early stages of the examination, to the extent that these issues did not feature strongly in the examination open floor hearing.

5.5.25 Turning to the issues which it considered to emerge from the outcome of these investigations, the Panel has considered:

- seascape impacts;
- landscape impacts, and
- the visual impact of night-time illumination.

The Panel has also considered the cumulative effect of the application proposal alongside other offshore wind farm proposals.

5.5.26 Considering seascape impacts, the Panel has been bound by NPS EN-3 in limiting its consideration of seascape to that area of sea within which there is shared inter-visibility between land and sea. Whilst effects on seascapes in the open sea and views from the open sea to the proposal from the north, east and south are potentially relevant, they are accorded little weight in policy and were not raised in representations.

5.5.27 The Panel accepts that the proposal is located a long way out to sea, in an area that rests on the visual boundaries of the open sea, where concepts of seascape as discussed in NPS EN-3 begin to have relatively limited application, and demonstrably adverse affects on landscape are quite unlikely.

5.5.28 The Panel has focussed its attention on effects on landscapes and seascapes embracing the coast and effects on sensitive visual receptors including designated land (the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB)), coastal and rural landscapes, people on land and people at the coast.

5.5.29 The closest approach of the proposed Order Limits to land is some 33 km, near Mablethorpe, with most other coastal locations in both Lincolnshire and north Norfolk being considerably further away. Skegness for example is over 44 km distant from the closest of the proposed Order Limits, and the closest location on the north Norfolk coast (between Holkham and Wells-next-the-Sea) is over 48 km distant.

5.5.30 The ES, answers to examination questions posed by the Panel and the Panel's own indicative modelling all suggest that turbines up to 220m in height above LAT (the maximum provided for in the Rochdale envelope) are theoretically visible from a wide range of onshore locations, including town centres, beaches relevant to tourism and remote coastal areas with nature conservation value. However, at 33 km or greater distance from the shore, the Panel concludes that a number of intervening factors will significantly limit the extent to which the proposal impacts on landscapes and seascapes and is even capable of being seen by many observers.

5.5.31 The long distance from prospectively impacted receptors will significantly diminish the visibility and hence the impact of the proposal from land and coastal viewpoints. The curvature of the earth will have the effect of placing foundation and platform features below the marine horizon from the great majority of locations relevant to impact assessment. Matters such as the time of day, the location of the sun (if visible) in respect to the viewer, reflection of sunlight on the sea, meteorological factors such as the changing extent and patterns of cloud, changing humidity levels, wind direction and wave and spray conditions could also significantly affect and reduce visibility.

5.5.32 Observations made during the Panel's visit to Cumbrian offshore wind farms [HE7] indicated that offshore turbines ceased to be visible to the naked eye from onshore locations at approximately 25 km distance between turbines and the observer. Of course, those were a single set of observations, made over two days in very particular weather conditions. The Panel therefore places only limited weight on their applicability in these circumstances. However, they do corroborate the

evidence provided by the applicant [APP39 and APP58] that there would only be very limited and occasional inter-visibility between the proposal and the shoreline and that locations further inland and in the designated Lincolnshire Wolds AONB would experience views to the proposal more rarely, if at all.

5.5.33 It is important that local communities and Interested Parties appreciate that the Panel has not found that the proposal will never be visible. It remains possible it will be visible from some locations on land, where light and weather conditions support this. However, NPS policy is very clear that the fact that a proposed project will be visible should not in itself be a reason for refusing consent. Further, its visibility in these limited circumstances would not appear to constitute a weighty consideration.

5.5.34 It follows that the Panel is satisfied that there would only be very limited visibility between the proposal and relevant onshore and coastal locations, including locations within the Lincolnshire Wolds AONB. There will be many days during which it will not be visible at all from most relevant locations. The landscape, seascape and visual impacts of the proposal will be low and acceptable and that no particular measures in terms of turbine siting or layout are required in mitigation.

5.5.35 As a consequence of NPS policy and its experience during various site inspections, the Panel considers that regard must also be had to the effects of the project at night. In its visit to Cumbria, the Panel observed quite significant visual effects from offshore wind farms viewed at night, due to white lighting at the foundation platform level and red aviation lighting at the nacelle level interacting with moving turbine blades. The effect was to make the night sky at sea into a visually active and in some respects quite 'busy' prospect. Similar observations were also made of the constructed Lynn and Inner Dowsing wind farms near Skegness at night as set out in the record of site inspections above.

5.5.36 It was for these reasons that the Panel requested night-time visualisations from the applicant, which were also provided in the applicant's deadline I submission, Annex 12 [REP19].

5.5.37 This material suggested that lighting at foundation platform level emitted from the proposal was unlikely to be visible, as it would be below the horizon from relevant onshore locations. Nacelle level red lighting of 2000 Candela (the maximum to be consented by the Order as now recommended) would dissipate at distances over 25 km such that it would not be readily visible from the shoreline.

5.5.38 The Panel tested this evidence through its own night-time inspection [HE9] of the Lynn and Inner Dowsing wind farm from

Mablethorpe[88], following which the Panel has accepted two key propositions regarding the proposed works arising from it:

- that lights located on the foundation and platform structures would not be seen from locations on land at night, because they would be beneath the horizon, and
- that the visual effect of nacelle mounted aviation hazard lighting effects of up to 2000 Candela lights at 33km range or greater would dissipate to the extent that it would not be significantly visible from any location on land at night.

5.5.39 It follows that the Panel concludes that the visual impact of the proposal at night is not a weighty consideration, subject to the proposal being constructed to limit night-time illumination to 2000 Candela, the maximum assessed for the purposes of the landscape, seascape and visual impact assessment. Requirement 18 of the Order as now recommended includes wording as proposed by the applicant and secures this limitation.

5.5.40 The Panel has given careful consideration to the cumulative effects of the proposal, with existing constructed and proposed offshore wind farms in the Wash and southern North Sea area, bounded by Cromer in north Norfolk and the mouth of the River Humber. This work has again been greatly assisted by the applicant's responses to its questions provided in deadline I Annex 12 [REP19]. This work demonstrates that, compared to a number of projects already constructed, consented or proposed closer to the shoreline, the impact of Triton Knoll is of a very limited nature, due to its distance from shore. Whilst it will add to an observer's sense that there are structures at sea, its cumulative impact is not significantly additive to the effects of other wind farms and is entirely acceptable in policy terms.

5.5.41 The Panel's findings and conclusions in respect of landscape, seascape and visual impacts are summarised as follows:

- due to the location of the proposal site a significant distance out to sea, landscape impacts are very limited and acceptable in policy terms;
- specifically, there is no measurably adverse impact of the proposal on designated land (the nationally designated Lincolnshire Wolds AONB) or any other locally significant landscapes;
- seascape impacts are limited and acceptable;
- the impacts of illumination at night are very limited and acceptable, subject to construction as proposed in the DCO, and

[88] Mablethorpe is located north of these constructed facilities. Views towards them across open sea at night suggest that nacelle lighting closer than 25km can remain visible to the naked eye, whereas lighting that is more distant may not remain visible.

- the cumulative effects of the Triton Knoll proposal with other constructed, consented and proposed offshore wind farms are so little additive to overall impacts as to be entirely acceptable.

5.5.42 The Panel has also considered the potential cumulative effects of the proposal with its grid connection alignment as described in the indicative material submitted by the applicant. To the extent that judgement can be made, the limited onshore effects of construction in the DCO area due to its distance from the shoreline will significantly limit cumulative effects as observed from the same coastal locations. However, this finding cannot predetermine or bind the judgement of a decision-maker on such subsequent approval process(es) as may be required for a grid connection.

5.5.43 It appears unlikely that there will be any significant cumulative impact of the proposal taken with its grid connection, but any such connection and cumulative impacts with it, will require an application and full assessment in relation to it, in due course.

5.6 HISTORIC ENVIRONMENT IMPACTS

Terrestrial Heritage

5.6.1 The Panel identified the historic environment as part of its initial assessment of principal issues. There are number of designated and undesignated heritage assets along the coast of Lincolnshire within the 35km study area radius from the site, identified by the applicant. The plan provided by the applicant under Regulation 5(2)(m) of the APFP Regulations for this purpose initially failed to identify any of these assets by name.

5.6.2 Following requests for additional information from the applicant, and through examination of the application, a number of assets were clearly identified. All the Listed Buildings identified along the coastline were Listed Grade II with exception of St Helen's Church at Theddlethrope which had been designated the higher level of protection through a Grade II* Listing. The Grade I Listed Gunby Hall has associations, according to the Listing, with Cecil Sharp and the Tennyson family. The Tennysons' seaside family residence was not far away and features among the Grade II Listed Buildings referred to above. The Gunby estate comprises not only the Hall but also some 560Ha of land most of which is held inalienably under the National Trust Acts of 1907 and 1939 [RR33]. The Hall itself however lies a considerable distance inland such that the site is approximately 45-50km away from it.

5.6.3 In addition to buildings there were a number of identified scheduled monuments, sites of archaeological finds and the coastal sea bank also had some historical significance. It was

stated in one Relevant Representation [RR33] that a number of onshore heritage assets were missing from the applicant's assessment and Regulation 5(2)(m) plan, such as Registered Historic Parks and Gardens, however this point was made in relation to the cable connection area of search, which is not within the proposed Order Limits for this application.

5.6.4 Any known indirect, secondary and cumulative impacts outside the proposed Order Limits are referred to, as required, in the ES and these include references to onshore heritage assets. However in terms of the future connection element that would arise from the development, it would only be possible for the appropriate authority to consider these intelligibly when it is known what connection infrastructure is proposed and where it will be located. Decision-makers in such cases will then be in a position to put in place any necessary mitigation.

5.6.5 Representations were received in relation to these assets in particular from the National Trust [RR33, REP13] and from English Heritage [RR37, REP4]. The National Trust supported renewable energy in principle and concluded that any impact on views from Gunby would be negligible. However it set out key concerns relating to impact on agriculture and on tourism proceeding from connection infrastructure and these are considered at the beginning of this Chapter.

5.6.6 Representations from English Heritage focussed almost entirely on marine heritage and particularly on the need for an adequate Written Scheme of Investigation to be provided as a condition of the proposed Order. This in turn should provide, according to English Heritage, that geophysical assessment of seabed anomalies would be carried out appropriately and before development commences.

5.6.7 For onshore heritage the principal issue was initially whether there were any impacts on significant features of designated or non designated heritage assets resulting from the proposed development.

5.6.8 NPS EN-1 requires that applicants should describe the heritage significance of the heritage assets affected by the development. With regard to onshore heritage assets these are considered briefly in Chapter 9 of the ES [APP39]. It became clear through the Panel's examination of the application that since visual impacts onshore of the proposed works would be very limited, resulting impacts on any onshore heritage assets would be similarly very limited.

5.6.9 The NPS also requires the Panel to identify and assess the particular significance of any heritage asset that may be affected. In terms of the examination approach adopted, the Panel, unaccompanied by any parties inspected the area of

coastline within the 35km radius study area and visited Gunby Hall estate, making a note of the inspection publicly available during the examination [HE5, HE8, HE9].

5.6.10 The authorised works would be carried out entirely at sea and the Panel concludes in section 5.4 above that there would be very limited visual impacts onshore arising from them. The proposal would not therefore be normally visible from the coast, or further inland, from the Gunby estate for example, except in particular weather and lighting conditions. Where it was visible it would occupy an extremely small proportion of the view of the horizon, such that it would be unlikely to be noticed by most observers unless pointed out. Given these circumstances and given that only significant visual impacts are likely to give rise to material impacts on heritage assets, such as on the setting of Listed Buildings, the possibility of significant onshore heritage impacts arising from the offshore development, the Panel concludes, is negligible.

5.6.11 The Panel reaches the same conclusion in relation to cumulative terrestrial heritage impacts with those of other wind farm developments. Because the proposal would be difficult to see on the horizon from any coastal locations any additional impact it would make in cumulative terms with other wind would be so difficult to discern that the Panel consider that it would be negligible.

5.6.12 The Panel considered the policy in NPS EN-1 that the heritage significance of assets that may be affected should be assessed. However since the Panel concludes that no onshore heritage assets would be materially affected, an assessment in this Report of their heritage significance would serve no purpose and is not therefore included.

5.6.13 For all of the above reasons therefore the Panel concludes that no significant features of any terrestrial heritage assets would be materially affected by the proposed development.

Marine Heritage

5.6.14 A fuller assessment of the marine heritage is provided by Chapter 11 of the ES [APP41]. The Marine Policy Statement (MPS) requires relevant regulators to take account of the desirability of sustaining and enhancing the significance of marine heritage assets whether designated or not. Substantial loss or harm should be exceptional.

5.6.15 Marine geophysical assessments were carried out as reported in the ES and establish the existence of sub-bottom archaeological deposits in the study area [APP62]. With the exception of any impacts on seabed valleys at the edge of the Silver Pit, (outside the proposed Order Limits but within the study area), impacts

causing damage to archaeological deposits of this kind would be negligible.

5.6.16 Representations from English Heritage [RR37] made reference to its programme of work on Historic Seascape Characterisation. However there was no evidence placed before the Panel to suggest there were significant historic features of the seascape in relation to the site which merited sustaining or enhancing.

5.6.17 There are 24 United Kingdom Hydrographic Office (UKHO) recorded wrecks within the proposed Order limits. The ES [APP62] also notes that eight recorded Royal Air Force losses were sustained in the vicinity of the site. The ES stated that there are currently no sites within the study area subject to statutory protection under the relevant Acts, however the ES also stresses the potential for previously undiscovered, shipwrecks, aircraft crash sites and submerged prehistoric material. The relevant annex to the ES [APP62] goes further in pointing out that recently numerous aircraft wrecks have been discovered including during survey work related to wind farm developments. Any discovered aircraft wrecks automatically benefit from protection under the Protection of Military Remains Act 1986. Because of this and because of their number within the proposed Order Limits, firstly these wrecks, and secondly the seabed valleys around the Silver Pit (because of their archaeological value) are found to be the significant heritage features in the marine environment of the site.

5.6.18 Other wind farms are some distance from the site (the nearest being 26km away), this being the case the ES did not identify any potential inter-related impacts (including cumulative and incombination impacts) on archaeological features except from, for example jack-up vessels on the sea bed over the temporal phases of the project [APP45]. These impacts the ES concluded would be mitigated by standard archaeological requirement/conditions. These potential impacts are considered further below. The Panel finds no evidence of any other cumulative or incombination marine heritage impacts arising from the development.

5.6.19 The ES stated that any direct impacts resulting from installation of turbine foundations and similar works should be considered moderate to major adverse impacts and recommended that buffers should be established around such sites.

5.6.20 An aspect of this issue that required examination was how harm to these assets would be prevented. The application draft of the DCO provided for a written scheme of offshore archaeological investigation, however it was not clear that any necessary archaeological buffer or exclusion areas identified by the scheme would be secured by the application draft DCO [APP13].

5.6.21 The Panel adopted the following approaches to examining this issue, to identify the significant heritage features of the marine environment and to test the appropriateness of measures to avoid harm to them. Written questions on this topic were posed, including the above request for a revised Regulation 5 (APFP) plan to show features of the historic environment, as referred to above, and a request for a schedule naming the principal assets amongst them, including the statutory Listing for one such asset. Following consideration of responses to these and related Panel questions, including further representations and proposed modifications to the application draft DCO from English Heritage, these issues were also aired at the ISH on the specific issue of the DCO.

5.6.22 Following this examination approach the applicant submitted modifications to the DCO that addressed concerns in relation to the quality of the written scheme of archaeological investigation (WSI) which provides for the implementation of any archaeological exclusion areas that may be required. A draft of the WSI was submitted on 12 October 2012 [REP25]. These modifications to the draft DCO provided for standards which the WSI would be required to meet and were agreed between the applicant and English Heritage [SOCG5]. Following the incorporation of these modifications from the applicant, now incorporated into the draft Order attached and recommended to be made, the Panel concludes that the measures to avoid harm to the significance of heritage assets in the marine environment are appropriate and would be secured.

5.6.23 The ES concluded that amongst other matters there would be negligible impact on the significant heritage features of the Silver Pit. This was due to the fact that impacts on this area were limited to minor physical processes which were in themselves negligible given the Pit's distance from the proposed Order Limits.

5.6.24 The Panel also finds that provision for archaeological records to be deposited in a publicly available archive (which would be secured by DML Condition 9(8)(f)) would represent a generally positive impact on the heritage significance of any features at the site. Given the amendments to the Design Plan (to show exclusion zones) considered in section 5.10 below, proper avoidance of harm to wrecks and other sensitive archaeological and heritage features would also be secured by the recommended Order. This is because the Design plan would set out the location of the development of all wind farm structures alongside exclusions zones and would be approved by the MMO. The Panel concludes therefore that for all these reasons the development would sustain and enhance the significance of heritage features within and in the environment of the site.

5.7 IMPACTS ON THE MARINE AGGREGATES INDUSTRY

5.7.1 Objection to the proposed wind farm was raised by Westminster Gravels Ltd [RR9] in that the site lies immediately adjacent to its licensed gravel extraction area (area 440). Concerns were raised that vessels engaged in mineral extraction might be endangered by the close proximity of turbines and restricted in their ability to work, suggesting that a buffer separation zone would need to be established in line with best practice.

5.7.2 There is no specific policy in relation to marine aggregates contained in the National Policy Statements on Energy. Policy in relation to navigation and shipping is set out in EN-3 paragraph 2.6.149 and clarifies that applicants may seek to declare safety zones around wind farms which would exclude or restrict other activities. However the UK Marine Policy Statement does refer to marine aggregates and makes it clear (in paragraph 3.5.6) that marine decision-makers should base their decisions on sustainability criteria and take into account the existing seabed and the importance of meeting regional and national needs for aggregates and the need to safeguard reserves for future extraction.

5.7.3 During the course of the examination negotiations proceeded and an amicable outcome was achieved through a private agreement between the two parties, but one which was not publicly available. However the Panel concludes that aspects of the interaction between the proposed works and aggregates extraction are public interest concerns. This involves balancing the energy benefit of the proposal against the benefit of maximising access to a proven supply of marine aggregate, used amongst other purposes, for sea defences. Safety concerns in terms of the potential for ships drifting from the aggregates extraction area 440 into the offshore wind farm are also important and relevant, given the area's proximity to the site.

5.7.4 Discussions between the applicant and the relevant gravel extraction operator on the above agreement had not been concluded at the outset of the examination. Ongoing progress made to date was reported [REP19] in response to questions from the Panel. It was stated in the ES [APP40] that an exclusion zone of 500m during construction and decommissioning phases would be applied for through a Safety Zone application. A restricted zone (a further 500m) was also under consideration by the applicant. These two zones would together form a buffer between the wind farm and active gravel dredging areas. It was also noted that on other wind farms a separation distance of 2km had been agreed. At this stage there was not proposed by the applicant to be anything on the face of the Order to secure any of the separation distances that the above commercial agreement would cover. The Panel also

received representations from the gravel extraction operator, Westminster Gravels [REP22] stating that it did not support wind farm development in close proximity to its operations which would have a significant effect on its operations.

5.7.5 The Panel was mindful of the NPS policy on navigational safety but also of Government policy set out in its Marine Policy Statement on aggregates as set out above. It therefore sought answers to written questions and scheduled the matter for further questioning in the ISH on the draft DCO.

5.7.6 The applicant at the ISH [HE17] stated that Westminster Gravels' objection was a *"commercial impact"* objection and that it believed the company was content for its activities to be restricted by way of a buffer area. However Westminster Gravels responded that any such buffer area or exclusion zone should be wholly within the proposed Order Limits. It emphasised that the minerals it produced were needed in the public interest, amongst other reasons for coastal defences in Lincolnshire. The gravel was, said the company, a unique resource given its location, quality and proximity to Lincolnshire. ELDC added [HE17] that the extraction of this resource and its application locally was *"extremely important"* to the Council.

5.7.7 The applicant also stated at the ISH that the precise nature of restrictions that would be made in the proposed commercial agreement could be found in its response [REP19] to the ExA's questions. It stated that therefore there would be no need for any exclusion zone in addition to the provisions of such an agreement. However the Panel finds, as referred to above, that the applicant document referred to [REP19] only sets out matters under consideration, not agreed. It refers to various and different distances of possible buffer or exclusion zones and is not definitive.

5.7.8 The Panel proceeded by examining how any exclusion zone could be secured by a commercial agreement alone and how such agreement could be maintained if the wind farm undertaking was transferred to another company. It was unclear whether any transferee would be bound by such an agreement.

5.7.9 The Maritime and Coastguard Agency (MCA) addressed an ExA written question on the adequacy of the proposed Deemed Marine Licence and Conditions to deal with this subject in its SoCG with the applicant [SOCG13]. Therein it was agreed that a commercial agreement was *"a suitable"* way of ensuring the safety of these operations. However at the ISH on the draft DCO [HE17] the MCA said safety of navigation was the primary consideration including on ships manoeuvring in preparation to extract gravel. It added that there could be management

problems with setting down an exclusion zone in the Order without a scheme being agreed that would include the Crown Estate or some other public authority that could address matters beyond any transfer of the Order. The MCA stated that it could *"completely understand the Panel's concerns"* with future transfer of the Order and the need to provide for safety in such circumstances. It supported the idea of a scheme to deal with the ongoing safety issues. The MMO, also at the ISH [HE17], stated that it shared the concerns raised by the ExA's questions on this matter.

5.7.10 Following the examination of this issue, the applicant submitted revised wording in the consultation on the draft DCO [REP34]. This incorporated a Requirement that no works would be carried out within a given area adjoining the Order Limits, unless a scheme of mitigation of dredging activities (in part for safety reasons) was first agreed by the SoS. The Order as recommended to be made includes a Requirement in a wording finalised by the applicant (included in the recommended Order as requirement 22). Given this additional Requirement the Panel concludes that safety in relation to adjoining gravel extraction activity and the public interest of ensuring its continued availability, would both be satisfactorily addressed by the recommended Order as attached.

5.8 SHIPPING, OPERATIONAL & NAVIGATIONAL SAFETY IMPACTS

5.8.1 NPS EN3 requires that applications which interfere with essential international shipping lanes or which pose unacceptable risks to navigational safety should not be consented. It also requires the decision-maker to be satisfied that site selection has minimised economic loss and that scheme design minimises the effects on recreational craft. These requirements and in particular aspects relating to illumination, pipeline crossing safety and the extent of safety zones were the principal shipping, operational and navigational safety issues.

5.8.2 The scheme as proposed respects and avoids interference with shipping routes, as defined as the routes taken by 90% of ships concerned [APP40]. With the exception of representations from recreational boat owners (considered further below) there were no significant representations from shipping operators. Submissions made to the applicant during the pre-application stage did not raise significant concerns as was made clear in representations following the Panel's questioning on this point [REP19]. The Panel therefore had no concerns relating to shipping lanes or economic loss to shipping interests.

Lighting

5.8.3 An important safety related consideration is whether there would be sufficient illumination of the proposed wind farm structures to an extent that would not impact visually further than the extent assessed in the EIA. No maximum intensity of lighting was referred to in the ES. The original application DCO stated that the maximum intensity of such illumination would be 200 Candela whilst environmental assessments had been carried out on the basis that lighting would meet the standards and requirements of the Lighthouse Authority (Trinity House) and the Civil Aviation Authority. Lighting would include low intensity lighting of unique identification characters on all wind turbine generators such that they would be visible from ships and from aircraft from 150m in normal visibility conditions. In addition all offshore renewable energy installations would be fitted with hazard warning lights visible to aircraft within 500m [APP59][89].

5.8.4 The updated information on the visual impact assessment of the proposal requested by the ExA, had assumed installed lighting with a maximum luminous intensity of 2000 Candela [REP19 Appendix 12]. A 2000 Candela limit therefore defines the upper limit of the Rochdale envelope for this aspect of the proposed development.

5.8.5 The Panel identified that these requirements were unlikely to be able to be fulfilled with lighting of only 200 Candela as specified in the application DCO. Through invitations for written comments it invited the applicant to submit a revision to the DCO requirement in this respect. The Panel's recommended draft Order attached at Appendix E contains the applicant's revised proposals for lighting as a result of this examination process. The luminous intensity proposed is of not less than 200 Candela and not more than 2000 Candela and is subject to further restrictions as set out in Requirements referred to below.

5.8.6 Neither Trinity House [REP35] nor the MCA [REP29] in their responses to this final proposed draft DCO wording raised any concerns with the ExA's proposed wording in this area. To serve marine navigational safety purposes, therefore Requirement 9 of the recommended Order is that lighting shall be as directed by Trinity House, the Lighthouse authority.

5.8.7 In terms of lighting for aviation safety purposes the applicant provided advice [REP34] from the Defence Infrastructure Organisation confirming that 200 Candela red lighting was required by the Ministry of Defence. The applicant also

[89] See particularly paragraph 8.4.6

understood that the Civil Aviation Authority would require a luminous intensity of 2000 Candela. Requirement 17 of the recommended Order therefore is that for reasons of aviation safety, lighting should also meet the requirements of the CAA.

5.8.8 Taking these Requirements together, including that there should be compliance with both Trinity House and CAA standards, the Panel concludes that the recommended Order would secure the necessary lighting for safety purposes commensurate with those assessed in the EIA.

Cable burial and armouring

5.8.9 The depth of cable burial that might be necessary in order to address possible impacts arising from the use of anchors by drifting ships was a matter assessed in the Marine Navigational Safety Risk Assessment [APP59]. The risk to the cables was assessed in the ES as tolerable given the depth to which they would be buried [APP40]. The relevant provision of the Order now recommended to be made is draft DML Condition 9(5) of Part 2 of Schedule 2. This requires a cable armouring plan to be submitted to and approved in writing by the MMO prior to any construction taking place.

Pipeline Crossing

5.8.10 A matter of concern to the Panel was the presence of a high pressure gas main across the site and the provisions made for its crossing by high voltage cables. Such matters, it was originally considered, would be covered by a commercial agreement unseen by the Panel and the Secretary of State. The Panel was mindful that paragraph 2.6.168 of NPS EN-3 requires the decision-maker, in determining what requirements to include in a consent, to have regard to any potential danger to navigation.

5.8.11 Following questioning by the Panel and the airing of the issue at the ISH, the applicant assisted the Panel and decided ultimately to propose a new Requirement 23 for inclusion in the DCO [HE28]. Following questioning by the Panel this now requires that proposed pipeline and/or cable crossings should meet relevant safety standards. Under this requirement the MMO would be responsible for requesting relevant documentation to demonstrate compliance. This refined requirement text is included within the recommended Order attached.

Gas Pipeline Exclusion Zone

5.8.12 At the final deadline in the published examination timetable the applicant submitted [REP34] changes to the location of the exclusion zone proposed to extend either side of the high pressure gas pipeline. This and a further change to the application submitted at this stage (related to foundation types

and covered in Chapter 4 above) necessitated extending the timetable for the examination and consulting Interested Parties who had not previously had an opportunity to comment on these aspects of the scheme. It was clear however given that the environmental assessment [APP42] assumed an exclusion zone of 500m, that the relocation was not significant enough to take it beyond the scope of the assessment as recorded in the ES. This interpretation was shared by Natural England and English Heritage. The Panel therefore includes the applicant's updated and amended locational details relating to the pipeline exclusion zone within the recommended Order attached.

Safety Zones, Yachting and Small Craft

5.8.13 A number of concerns were raised by the RYA [RR3] concerning the extent of any safety zones that would be imposed under the Energy Act 2004. A safety zone of 500m was proposed in the ES [APP40 paragraph 10.147] around any active construction area, or site of significant maintenance operations. During operation a 50m safety zone, it was stated, may be necessary [REP19].

5.8.14 The RYA was of the view that skippers of yachts were both used to and capable of safely manoeuvring around structures at far closer quarters and of far more complex nature particularly at harbour entrances and in the mouths of rivers for example. An ongoing operational exclusion zone around each wind turbine generator, the RYA believed, would be both unnecessary and contrary to good practice.

5.8.15 The Order as applied for however and the Order as now recommended, specifically secures no such safety zones as these are matters which fall to be determined under separate application(s) to be made to the SoS under the Energy Act. Through questions at the ISH on the DCO however the Panel was able to establish that whilst there was no requirement within The Electricity (Offshore Generating Stations) (Safety Zones) (Application Procedures and Control of Access) Regulations 2007 that notice of such an application would be served on the RYA, Guidance on applying for safety zones, submitted to the examination, would require the RYA to be consulted [HE28].

5.8.16 The Panel concludes therefore that the issue of safety zones impacts on small craft would be adequately dealt with because the RYA would be consulted on pursuant to any applications for safety zones.

Radar

5.8.17 It was set out in the ES [RR29] that a regional redesign of Helicopter Main Routes is being undertaken by National Air Traffic Services En Route Limited. This redesign would form

the principal mitigation of any interference by the proposed development with civil aviation radar. In addition Requirement 16 of the recommended Order is that construction of wind turbine generators shall not commence until the SoS, having consulted with the Operator, is satisfied that appropriate mitigation will be implemented and maintained for the life of the authorised development. It is explained in the ES [APP43] that this mitigation would include the purchasing of a new Radar system for the Ministry of Defence. Representations made by a Royal Air Force Squadron Leader in the relevant representation from the Civil Aviation Authority, raised no concerns relating to the development with relation to radar issues [RR29]. The Ministry of Defence also provided a relevant representation [RR39]; it similarly raised no concerns in relation to radar issues. The Panel concludes therefore that given the mitigation outlined by the ES and secured in the recommended Order, there would be no evident conflicts between the proposed development and the safe operation of defence assets or civilian aircraft.

Active Safety Management

5.8.18 With regard to the safety of vessels in the vicinity of the proposed wind farm, Requirement 8 of the recommended Order provides for the preparation and execution of an Active Safety Management System as agreed with the MCA [SOCG13] which provide systems to secure navigational safety. A number of specific measures were set out in detail in the ES [APP40] and it was clearly assumed in the Statements of Common Ground that these would be taken. These included radio communication equipment, vessel marking and other procedures. Whilst the proposed Active Safety Management System was capable of including all such measures, none were specifically secured by the draft of the DCO included in the application.

5.8.19 The MCA responded to this concern at the ISH into the DCO [HE19]. It stated that the particular measures listed in the ES were needed but were likely to be included within the Active Safety Management System and Emergency Co-operation Plans, provision of which would be secured by the Order. This was providing they were carried out according to the relevant Marine Guidance Notes. However it expressed lingering concerns about aspects of monitoring. The MCA did not believe the Active Safety Management System should require approval. Following questioning by the Panel and consideration of the matter at the ISH the applicant proposed a revised version of the Order [REP34] as now recommended by the Panel, securing that the Active Safety Management System would take account of the safety and mitigation measures set out in the ES. The Order as

now recommended includes a Requirement 8 which secures this, to be discharged by the SoS.

5.8.20 Given the incorporation of wording in Requirement 8 by the applicant the Panel concludes that the necessary safety and mitigation measures promised in the ES will be secured by the recommended Order. The Panel has no further concerns relating to these.

5.8.21 The safety concerns raised in relation to gravel extraction are covered in the previous section.

5.9 SOCIO-ECONOMIC AND TRANSPORTATION EFFECTS

5.9.1 The construction and long term maintenance of a large offshore wind farm requires the establishment of a site for the construction and assembly of the turbine and substation equipment and port activity for the use of construction and maintenance vessels. As part of the Environmental Assessment the applicant undertook a socio-economic analysis of North Lincolnshire given that this was considered to be the most likely area in which the construction and maintenance activities would impact. However no commitment was made to a specific site for construction activity, or to any port for maintenance purposes and this did not form part of the application.

5.9.2 The Panel considered the limitation of the socio-economic analysis to one part of Lincolnshire as less than ideal, given that other areas in the reported area of search for such facilities could involve socio-economic impacts beyond North Lincolnshire. However it was accepted that the information produced was acceptable for the purposes of determining the application given that legally such information only has to be provided in relation to likely significant effects based on an assessment carried out within the bounds of current knowledge.

5.9.3 It was also recognised that a wind farm development of such size would be likely to have significant impacts on those areas ultimately selected for construction and maintenance purposes and that there needed to be provision for planning obligations commensurate with the development as a whole, not just the landside element, as and when the details of the scheme are finally determined. This matter is explained further in section 5.1 relating to onshore connection elements. In essence making the recommended Order should not prejudice the ability of decisions on the other elements of the wider project to mitigate impacts of the wind farm which become known by that stage.

5.9.4 Policy in relation to related activities is included in EN-1 section 5.12 Socio-economic impacts and section 5.13 Traffic and Transport. The decision-maker should consider what weight to give to assertions of socio-economic impact based on the

evidence provided and consider any positive provisions the developer has made to mitigate impacts, for example through planning obligations, and any legacy benefits that may arise as well as any options for phasing development in relation to socio-economic impacts (paragraphs 5.12.7 and 5.12.8)

5.9.5 Similarly, in relation to traffic and transport impacts the decision-maker should ensure that the applicant has sought to mitigate impacts on surrounding transport infrastructure and consider the requirements to mitigate such impacts (paragraph 5.13.6). Applicants may be willing to enter into planning obligations for funding infrastructure and otherwise mitigating adverse impacts. Detailed suggestions into appropriate types of mitigation are given in paragraphs 5.13.8 to 5.13.12.

5.9.6 In this case, as a result of the uncertainty as to the location of the land based construction site(s), the port(s) for exporting construction materials and for servicing or even the location of or route to the grid connection it was not possible to gather evidence relating to the need or otherwise for such obligations.

5.9.7 As a consequence the applicant has included in the recommended Order Requirement 20. This requirement would provide for a traffic management plan to be approved by the relevant planning authority. The plan would be required to deal with the impact of traffic generated by the development sites providing for the construction and servicing of the wind farm as and when such locations are confirmed.

5.10 DESIGN & PHASING

5.10.1 Section 4.5 of NPS EN-1 is clear that design is not simply a matter of visual appearance. Equally important, in the terms of the NPS, is the functionality, fitness for purpose and sustainability of an object. It adds that good design can meet a number of other policy objectives including the mitigation of potentially adverse impacts. NPS EN-3 adds 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.

5.10.2 The scale of the proposed wind farm structures is very large. These include up to 288 wind turbine generators of up to 220m in height and platforms of up to 45m by 45m in area. In addition the site area is 135 square km and for all these reasons the development is therefore of significant scale. The applicant also envisaged that the wind farm would be built in stages, for example *"in 400MW chunks"* [HE19] to use its words at the ISH on the DCO. Given the significant size of the development, the Panel finds, the programming of its construction over time would make a considerable difference to impacts, the

functionality of the wind farm and to navigational and other potential safety impacts. The programming of the development and the extent to which this is secured in a future layout or design plan was therefore considered by the Panel to be an aspect of design that also required examination.

5.10.3 The main issues relating to good design therefore were whether the proposed works would be sustainable and (having regard to regulatory and other constraints) whether they would be attractive, and durable, adaptable and functional in terms of both structures and the programme by which they would be built. Decision-makers are also advised by NPS EN-1 to consider taking independent professional advice on design.

5.10.4 The application however included only illustrative drawings [APP68] and the draft application version of the DCO made no provision for the production of any design drawings to be certified under Article 11 of the Order. Nor did the submitted plans include any indication of the layout of the proposed wind farm, although a layout or design plan was the one drawing that was to be submitted in the future under draft DML Condition 9 of the application version of the DCO [APP13].

5.10.5 This was partly explained by the constraints within which the applicant prepared the application and its proposed approach that the Rochdale envelope should form the only or main parameters of the development in the Order. This would be followed by more detailed matters being resolved through the discharge of Requirements and Conditions of the Deemed Marine Licence contained within the Order.

5.10.6 The applicant explained its approach to design in the ES [APP27] and again in its representations [REP19] but with no further elaboration. The representations comprised the fact that the wind turbines would be of a modern, quiet design and that the final selection of wind turbines would be made on the basis of size, efficiency, reliability, track record and available technology. Other than the illustrative drawings no further design details were provided.

5.10.7 A number of detailed matters would, in the application draft DCO, be the responsibility of the MMO to determine, through its discharge of DML conditions. However on examining the application version of the DCO [APP13] the Panel found that there were no draft Requirements or draft DML Conditions that would require, at any time, either any design drawings to be prepared or any programme showing the layout and development of the wind farm. Provision did exist in draft DML Condition 9(2) [APP13] for a written construction programme, however as a written document this would not be capable of showing in plan or map form where development in each stage would take place. Such details if they existed in the future,

would not under the proposed Order [APP13] be required to be put before any public authority or agency at any time. The parameters of the proposed works in Requirement 3, would therefore serve as the only secured limitations in terms of design of the project.

5.10.8 Unsurprisingly NPS EN-1 lists attractiveness as an aspect of good design. However as also envisaged by the NPS, there were a number of other complex constraints on the development. In particular the Panel explored, through questioning at the ISH on the DCO, whether there was a need for design drawings of elevations or sections of the wind farm structures for example, to be secured for review by the MMO, MCA or other authority at a future stage, through the operation of an additional Requirement or DML Condition. The Panel has however found that the visual impacts of the proposed works likely to be experienced on land were unlikely to be clearly visible and therefore would be very limited. Whilst those viewing the wind farm from locations at sea, or photographic and other representations of it, may consider attractiveness important, no representations were received to say so. Because of the relative isolation of the structures at sea, their visibility in practical terms would be only from passing vessels and because photographic images would be viewed only by those who chose to do so, the Panel concludes that attractiveness is not an aspect of good design that is important to this application or to the SoS's decision upon it. As a consequence the Order as now recommended does not include the requirement to produce sections, elevations or similar design drawings.

5.10.9 Whilst a layout plan was proposed under DML Condition 9 in the application version of the DCO [APP13], there were some important aspects that would not have been secured by this plan. It provided that exclusion areas around the gas pipeline and for archaeological reasons would be secured elsewhere in the Order but would not be shown on the plan. Neither would this plan indicate which parts of the wind farm would be constructed in what order. Finally this would not be required to be at any particular scale.

5.10.10 The Panel was mindful of the important role, as set out in NPS EN-1, that good design plays in mitigating other potential impacts. For example good design of the construction programme (in terms of the order of construction of different elements or phases of the wind farm), could mitigate a wide range of impacts that might arise from a poorly programmed project. Such impacts included navigational and safety interests, a point made by the MCA in the course of questioning about this issue at the ISH on the DCO. The MCA stated at the ISH [HE19] that if one part of the wind farm was to be developed in one part of the site and another part of the wind farm constructed elsewhere this could present serious problems

and challenges in safeguarding shipping and relevant areas, unless appropriate planning and design of the programme had taken place. By implication therefore the Panel found that, for safety reasons, as well as reasons of functional design and orderly construction, there needed to be some commonly understood programme according to which development would proceed.

5.10.11 Following thorough examination of this issue and consideration of a number of approaches to the drafting of the DCO on this matter, the applicant proposed wording to the Panel [HE28] as a post-hearing document which would secure that an indicative programme would be represented on what became, rather than the layout plan, the Design Plan. The applicant's changes would also secure the representation of the pipeline exclusion zone on the plan and the drawing of the plan to a specified scale of 1:50,000. There was further questioning from the Panel regarding why the layout of turbines should be "indicative". However given the applicant's representations, the lack of any proposed Limits of Deviation, the lack of any clear representations from the MMO on this point and the NPS policy that requires that micro-siting should be possible[90], the Panel concludes that an indicative layout, as proposed by the applicant and now included in the recommended Order, is acceptable.

5.10.12 The additional sub-paragraph to DML Condition 9 proposed by the applicant, to secure the above to an extent duplicated the provisions in 9(1)(a) and (j). This proposed text is therefore shown in the deleted box adjacent to Condition 9(1)(m), with the relevant phrases reinserted. The Panel therefore now recommends these minor modifications to simplify the approach as shown in the recommended Order as attached.

5.10.13 This approach recommended in the attached Order therefore adds the word "indicative" (in place of "proposed") before "layout" in recommended Condition 9(1)(a). It also inserts a much shorter additional sub-paragraph to secure programming of the development over time (using the applicant's wording). However the modifications now recommended add that this programme should be shown in "plan form", this would secure that more than simply a written commentary appears on this drawing. The applicant objected to the descriptor "graphically" here (a word that could mean drawn or written) and the Panel therefore concludes that "plan form" more clearly expresses the requirement.

5.10.14 The Panel also recommends modifying the proposed scale of the plan such that it may be drawn to any scale between 1:25,000

[90] Paragraph 2.6.44 of NPS EN-3 requires that any consent for a wind farm should be flexible to allow for micro-siting of elements of the development during construction.

and 1:50,000 in view of the fact that the revised works plan is conveniently drawn to 1:25,000 and can be accommodated on a standard AO sized sheet of paper.

5.10.15 The Panel also includes in the Order as now recommended, a modification to this condition to ensure that the archaeological, the gas pipeline and the marine aggregate dredging exclusion zones would all be shown on the Design Plan.

5.10.16 The Panel concludes, given the evidence regarding design provided by the applicant and for the reasons above, that the modifications included within the recommended Order, would improve the functionality, durability and adaptability of the proposal to a degree sufficient to meet the good design requirements of NPS EN-1. It further concludes that the Order as recommended with modifications would ensure that the good design of the scheme would satisfactorily address safety mitigation and mitigation of gravel extraction impacts.

5.10.17 The Panel considered, through written questions, the question of whether professional design review should be carried out given the size and complexity of the proposed development. The Design Council CABE was invited to attend the Preliminary Meeting in order to hear their views on how this issue should be examined, but did not attend. Given the conclusions reached by the Panel regarding attractiveness as an aspect of design, and given that the Panel was itself active in professionally reviewing and examining other aspects of good design, it was not considered necessary to require an additional professional design review.

5.11 OTHER IMPORTANT AND RELEVANT IMPACTS

Drill Arisings

5.11.1 The Order as recommended provides for the disposal of drill arisings of up to 1,058,968m^3 of inert material on site as licensed marine activity 2(1)(d) and DML condition 7(10) would further specify the nature of materials that may be disposed of through this DML activity. Although this figure was added to the proposed Order by the applicant during the examination and was not in the application draft [APP13], responses from the applicant to the ExA's questions clarified [REP19] that this quantity of drill arising material had been assessed in the ES [APP27][91]. This volume of arisings is the volume that would arise from the use of concrete monopile foundations with 5MW turbines and as such is the maximum quantity of spoil that would arise under the Rochdale envelope approach.

[91] See in particular Table 6.12

5.11.2 The applicant also proposed [REP34] that the Order should state that the on site disposal of arisings should be provided for at an undefined "site reference HU204". The applicant also referred [REP34] to an email it had received from the MMO that suggested that the extents of this "site HU204" were coterminous with the proposed Order Limits. For whatever reason it did not occur to any party to communicate to the Panel the definition or evidence for the creation of "site HU204". The MMO confirmed that "site HU204" had been adequately assessed, in its view, as recorded in the ES for the deposit of this material [REP28] but did not explain what "HU204" was. Since the ES assessed disposal on the site this also suggests that "HU204" is in fact identical to the site, but it should be emphasised that no Interested Party stated this and the Panel has no evidence on this point. With relation to the site, the Panel finds, that the assessment meets the relevant NPS and MPS requirements. Whilst the Panel understood that "site HU204" was likely to be identical to the Order Limits since it did not see any evidence designating the new disposal area and since the terminology used in the assessment refers to the proposed Order Limits, the Panel concludes that the Order as recommended should refer to the Order Limits, rather to the undefined "HU204". A modification is therefore recommended within the attached Order on this basis.

5.11.3 Since, as the applicant put forward, the Order Limits and site HU204 are the same thing, then the wording as now recommended would serve to restrict disposal to site HU204 in effect in any case.

5.11.4 The Panel were also concerned at the manner of this potential disposal and whether arisings would be amassed in one part of this site or another. For these reasons the Panel recommends the modification of inserting the words "to the extent assessed and recorded in the environmental statement" to qualify this Licensed Marine Activity 2(1)(d).

Cable Armouring & Protection

5.11.5 At the ISH [HE19] the MMO asked for limitations in terms of the quantity of cable protection hard substrate (in cubic metres) and of pipeline mattresses to be deposited on hard substrate (in area). Subsequent to the ISH an agreement was reached between the MMO and the applicant [HE28] on limits to the amount of cable protection material to be stated on the face of the Order. As agreed between these two Interested Parties therefore rock armour to be used on cabling would be limited to 4,750m in length and 10,000m^3 in volume. Revised wording that would secure this is now incorporated into the recommended Order, at DML Condition 4(2). In addition the recommended Order includes a requirement that the Scour Protection and Cable Armouring Plan (DML Condition 9(5))

should ensure that the volume and area of scour protection and cable armouring material are limited to material of natural origin and to the amounts assessed as recorded in the ES.

5.11.6 Given these additional limitations agreed by the applicant and the MMO the Panel concludes that the Order as recommended includes sufficient limitations on the impacts of rock armouring and other cable protection measures.

Human Health and Welfare

5.11.7 The application provided for residential accommodation for personnel to be located on the proposed platforms. The platforms would be of significant size up to: 45m x 45m (Requirement 5(2)); 77m x 65m (Requirement 5(3)) or 100m x 75m (Requirement 5(4)[92]). Given the scope they therefore provide for extensive living areas, the Panel was concerned to ensure that sufficient safeguards existed for the health, safety and welfare of staff. In response to the Panel's written questions on this matter the applicant was able to confirm [REP19] that the Offshore Installations and Wells (Design and Construction etc.) Regulations 1996 require, in Schedule 1, acceptable standards of health, safety and welfare. Given this evidence and the fact that no representations were made to the Panel on human health, safety and welfare, no modifications to the Order are recommended to the SoS on this matter.

5.11.8 The Panel also received representations from the Health Protection Agency [RR42] that insufficient information existed to assess the health impacts of the development. However the Panel finds that any onshore health impacts arising from the other elements of the development (the elements considered in Chapter 5.1) would be properly dealt with through any applications for those elements. Given this and the Panel's consideration of health impacts on site as above and given that NSIPs are not permitted to include dwellings under s115(2)(b) of the PA2008, the Panel concludes that human health impacts would not be adversely affected by the development.

Electro-Magnetic Fields

5.11.9 Provision was made in the application version of the DCO for converting the electricity generated to Direct Current (DC) prior to its transmission to shore. However it was noted in the applicant's responses to Panel's questions [REP19] that the use of Alternating Current (AC) for the connection of the wind farm to the shore was being considered by the applicant. This would give rise, the applicant stated, to more substantive EMF impacts. It was concluded by the applicant [REP19], that

[92] Requirement 5(5) also provides parameters for combined substations which interlink these limitations.

despite any use of AC the significance of EMF impacts as assessed would remain the same, indeed it is clear from the ES that AC was assumed in the assessment of EMF impacts in any case [APP34]. There were no representations received to counter this assessment. Given the low significance of this region of the sea for elasmobranch (they were found only in small numbers in the study area[93]) and given that the species found had no protection status, the Panel concludes that EMF impacts arising from the development are unlikely to present a barrier to fish species.

5.11.10 The SNCBs [HE19] raised concerns surrounding the lack of knowledge of impacts from EMFs on various species and deemed it necessary to have some form of study, in addition to the desk based study required by DML condition 9(7)(a). After considering the matter the Panel finds that the MMO would be approving all monitoring and surveys under DML Conditions 13, 14 and 15 and would be able to specify its requirements at that stage.

5.11.11 Noise and vibration impacts upon humans would be covered by the above regulations. Noise and vibration effects on protected species as arising from piling, are considered earlier in this Chapter.

Physical Processes

5.11.12 The assessment set out in the ES [APP32] concludes that it is unlikely that the already dynamic Lincolnshire coastline and beaches will experience any significant change in littoral transport as a result of the small changes in wave height resulting from the presence of the Project, even when considering the worst case scenario. The Panel concludes, as a result, that any impacts on designated sites would be negligible.

Monitoring During Construction and Pre and Post-construction

5.11.13 The MMO raised concerns about draft DML conditions 13, 14 and 15 and requested further specification of the surveys that may be required under these conditions. It particularly wished to see benthic monitoring specified amongst the surveys that might be carried out pre and post construction, referred to in DML conditions 13 and 15 respectively [SOCG11 & HE34]. The applicant provided a revised wording to these conditions as now included in the recommended Order [REP34]. The new wording specifies benthic monitoring and was supported by the MMO in general terms in its response to the DCO consultation [REP28].

[93] APP34 ES Volume 2, Chapter 4, Table 4.5, Page 4.16.

5.11.14 The Panel also examined the wording of conditions 13, 14 and 15 since they included a number of items that may or may not be provided, giving rise to concerns that they may not be precise or enforceable. The applicant responded by clarifying the wording to an extent. The Panel found in addition that the Circular 11/95 tests for planning conditions, applied to requirements by virtue of NPS EN-1[94], but did not appear to apply to DML conditions. Given that the applicant and the MMO had agreed these conditions, the MMO generally wished the conditions to be as drafted, the lack of any other representations on them and the lack of any express policy requiring such conditions to be precise or enforceable, the Panel finds that it has no basis to further question the wording of conditions 13, 14 and 15 on such grounds.

Extent of the Power to Maintain

5.11.15 An important issue in the examination was that powers of maintenance in the DCO should not enable or provide for works that exceeded those assessed in the EIA and recorded in the ES. The definition in Article 2 of the word "maintain" was a matter of significant dispute and was examined carefully by the Panel. The SNCBs [HE33] were concerned that the original interpretation of the word would have allowed replacement, for example, of entire wind farm structures. The Panel considered significantly constraining the meaning of the word. Following the Panel's questions the applicant submitted alternative wording as now appears in the Order as recommended to be made. This would restrict replacement works to replacing an element of a wind farm structure, rather than allowing replacement of a structure in its entirety and would prevent the reconstruction of foundations as a form of maintenance.

5.11.16 The SNCBs however maintained an objection through to the end of the examination, to inclusion of the words "and replacement of defective subsea cabling" appearing within the definition of "maintain" in Article 2. It should be noted that the cabling included within the application is interconnection cabling between turbines and sub-stations, no export cable to the shore is included within the application to be consented. It is clear that the ES records assessment of the laying and decommissioning of cabling and this matter was not at issue. The Panel believes the ability to replace a defective cable in any practical interpretation of the word would fall within the meaning of "maintain". However to ensure that cable replacement would not exceed that which had been assessed

[94] Paragraph 4.1.7 of NPS EN-1 states that requirements should be "necessary, relevant to planning, relevant to the development to be consented, enforceable, precise and reasonable in all other respects. The [decision maker[should take into account he guidance in Circular 11/95." These tests are set out more fully in Circular 11/95. It should be noted that the NPS refers only to requirements in this context.

the Panel recommends a further modification to the words put forward by the applicant. It recommends the above words be suffixed with "to the extent assessed in the Environmental Statement". This revised wording is shown as a modification in the recommended Order as attached.

Time Limits for Commencement

5.11.17 A further important and relevant issue was the duration of any consent prior to its commencement. The Order as recommended under Requirement 2 would be valid for seven years, as proposed by the applicant, as opposed to the usual five years. In considering this the Panel were mindful of the urgent need for new renewable energy infrastructure as set out in NPS EN-1 and recognised that commencement within five years would normally be appropriate in consenting NSIPs. However the Panel also noted that the application was for a project that was particularly large and at a particularly early stage in its development. The applicant pointed out [APP14] that the various further consents required meant that it could not be certain construction would be able to start before 2018. Importantly the application being made is for a wind farm with no connection infrastructure consents yet in place. NPS EN-1 also accepts that different stages of projects may have different lead in times and accepts that such projects should be considered for consenting.[95] In order to deal with the interrelationship of the different elements of the project Interested Parties, and finally the applicant, submitted a Grampian style requirement (Requirement 21) that all the elements necessary for connection to the national grid must be in place prior to any development commencing (as considered in Chapter 5).

5.11.18 Given the scale of the proposal (up to 288 turbines over 135 square km) and the number of future consents required for its connection, the Panel concludes that a seven year time limit for commencement of works under this Order would be appropriate.

Arbitration

5.11.19 The Panel examined the question of whether some entity other than the SoS should appoint the arbitrator where the parties to a dispute are unable to agree between themselves who the arbitrator should be under Article 12, however it concludes that the SoS would take on this role.

5.11.20 The SNCBs however believed [HE33] that the correct route by which to challenge its decisions would be by Judicial Review and that it should not be bound by Article 12. The MMO pointed out

[95] See in particular NPS EN-1 paragraph 4.9.2

that in relation to the DML separate provisions under the Marine and Coastal Access Act applied. Since no Orders had yet been made for renewable energy NSIPs under the PA2008 at the time of the examination the ExA had no precedents on this matter by which to be guided. The applicant stated at the ISH on the DCO [HE21] that it had no objection to removing NE and the JNCC from the provisions for arbitration in Article 12. The ExA consulted therefore, through the DCO consultation [PD18], on the removal of these bodies from the provisions of Article 12 as agreed between the SNCBs and the applicant. No Interested Parties objected to this and no representations were received from any quarter on this matter. The Order as recommended therefore removes these bodies from the provisions for arbitration, however the SoS will wish to consider this matter now that other Orders have been made.

Transference of the Order

5.11.21 The Panel considered throughout the examination the possibility of transfer of the Order to another undertaker. Under the Order as recommended no notice is required to be given to the SoS regarding transfer of the benefit of the recommended Order (under Article 6) as is sometimes the case with such Orders. This is because under the Order as promoted by the applicant, and as now recommended, transfer may only be with the consent of the SoS. It should be noted however that Article 6(5) also provides that under circumstances where the proposed transferee holds a licence under s6 of the Energy Act 1989 the SoS's consent would not be required. The SoS may wish to consider further whether in such circumstances he wishes to be notified of a transfer. The panel, as on other matters was unable to take into account provisions in Orders recently made.

5.11.22 In relation to transfer of the Order to a different undertaker Article 6(6) makes reference to ss71 and 72 of the Marine and Coastal Access Act 2009 to make it express that whilst the Order may be transferred in part, there is no provision in law for transfer of the DML in parts. Without this being made express in the Order the Panel concludes, it might be considered that the Order would override the legislation in this respect.

Navigational Rights

5.11.23 The recommended Order does not provide for the removal of navigation rights in relation to the location of each wind turbine generator, as is consistent with the Order as promoted by the applicant. This, the Panel finds, is in part because there are no given locations for the wind turbine generators. The development would also be entirely outside UK territorial waters. The Panel concludes therefore on this issue that navigational rights would remain albeit that they would be

subject to exclusion zones determined via applications for Safety Zones as considered above.

Property Values

5.11.24 A limited number of representations [RR6] raised issues relating to impacts of the development on property values. The Panel has considered but received no substantive evidence on the matter and it does not find the possibility sufficiently important or relevant to justify a different recommendation to the one reached in this Report.

Line of Sight Communications

5.11.25 Concerns were originally raised by Perenco [RR18] that the development would interfere with line of sight communications. In a SoCG agreed between this party and the applicant [SOCG18] however, several acceptable feasible technical solutions were agreed upon. The Panel concludes therefore that the evidence of [SOCG18] is that the potential line of sight impacts of the development can be acceptably mitigated. In reaching this conclusion the Panel recognises that these matters related to commercial interests rather than matters of public interest or safety and as a result concludes that mitigation of such impacts is not a matter that is required to be determined in the recommended Order as necessary to the consent.

Clarity of the Order as a Legal Instrument

5.11.26 A modification is recommended to the Order deleting the word "whereas" from several places at the beginning of the Order, because it is understood this approach is preferred by the Government in the interests of clarity.

5.11.27 A modification is recommended to the Order specifying the need for further consents for decommissioning in order to clarify that decommissioning would be subject to the need for further consents.

5.11.28 All issues raised by the MMO in relation to the DML were addressed by the applicant. The question of the piling exclusion period was proposed by the MMO as a requirement of the Order. The MMO's preferred wording forms one of a small number of modifications the Panel recommends in the attached Order. All matters raised by the MMO on the DML would therefore be resolved by the recommended Order.

5.11.29 The Panel identified at an early stage some drafting changes to ensure clarity of the Order. Amongst these it secured the agreement of the applicant to the deletion of the words "and any other development authorised by this Order" in the definition of "authorised development" in article 2(1) of the draft Order on the basis that the Order should be specific rather

than general in its authorisation of the project. The Panel also now recommends a modification to delete the repetition of the words "authorised project" in parenthesis within the definition of "authorised development" in order to clarify this part of Article 2 for the similar reasons.

5.11.30 The Panel also recommends modifying Article 7 such that decay to the ancillary works (in addition to decay to other works) may also be required to be abated.

5.11.31 The Panel recommends modifying Article 2 to include a definition of "Renewable Energy Zone" for reasons of clarity.

5.11.32 The Panel recommends modifying the description of associated works in Part 1 of Schedule 1 to make clear that these are located within the Order Limits, for reasons of clarity.

5.11.33 The Panel recommends modifying requirement 21 such that the defined term is "Connection and Transmission Works" in view of what they comprise and in the interests of clarity.

5.11.34 In the DML the interpretation of the authorised scheme does not include DML associated works, with the intention no doubt that such works could be carried out without the necessity to first comply with all the conditions of the authorised scheme.

5.11.35 However the Panel finds that, with the exception of minor associated works (i.e. licensed activities 2(2)(d) and 2(2)(e) set out after Work Number 2 in the DML) other associated works in general terms, should be part of the authorised scheme. This is in part because they are not specified in any detail and thus the SoS cannot be sure as to what they entail or whether there would be any case for them to be carried out unconditionally. The Panel therefore recommends a modification accordingly which would ensure that the unspecified associated works would be subject to the conditions of the DML.

5.11.36 The words "in this Schedule" are recommended by the Panel to be modified by their replacement with "in this Licence" where occurring within the DML, in the interests of clarity.

5.11.37 The Panel recommends adding the words "as set out in the Environmental Statement" after the words "Fisheries Liaison Plan" in Condition 9(4)(d) so that this term is clearly interpreted.

5.12 OTHER CONSENTS

5.12.1 The application form [APP2] lists three further consents required under other legislation for this development. The SoS will need to be satisfied that there is a reasonable prospect that these consents will be obtained and that the development therefore is capable of becoming operational. The consents required are a

Protected Species Licence (under the Conservation of Habitats and Species Regulations 2010), Marine Licences for spoil disposal and for moorings (under Marine and Coastal Access Act 2009) and the approval of Safety Zones (under the Energy Act 2004). The Panel examined the prospects of such consents being obtained through written questions and at the ISH on the draft DCO. The appropriate authority for Protected Species and Marine Licences with relation to this development would be the MMO. For the majority of safety zones in relation to offshore renewable energy installations the SoS will be the relevant authority. These necessary consents are considered in turn below.

Protected Species Licence

5.12.2 In relation to the Protected Species Licence (PSL) the applicant, in its response to Panel's questions [REP19], made clear that until specific details (such as foundation types) had been established at a later stage of the project it would not be possible to apply for any necessary PSL. It believed that a PSL was likely to be necessary in relation to disturbance that would be caused to cetaceans (whale, dolphin and porpoise) arising from piling activity. The applicant stated, it was unlikely however, that the activity would have any impact on the population at species level. The MMO's SoCG with the applicant [SOCG11] states, without prejudice to its future decision, that on the basis of the information supplied with the application, there appears to be no reason why a PSL would not be granted.

Marine Licence: Spoil

5.12.3 Disposal of drill arisings on site are provided for in the Draft Marine Licence within the recommended Order. In relation to a Marine Licence for spoil disposal off site, the SoCG with the MMO [SOCG11] states that there are currently disposal sites capable of receiving the maximum indicative volumes of spoil set out in Chapter 6 of the ES [APP27] and that there is no in-principle reason why a licence would not be granted for such disposal.

Marine Licence: Moorings

5.12.4 Regarding the requirement for a Marine Licence for moorings, these would be needed to provide safe places to moor ships and boats during the construction period, except where these would be ancillary works provided for by the recommended Order[96]. They would be removed in their entirety afterwards. These impacts had not been fully assessed in the ES since they are not

[96] The recommended Order would consent temporary landing places in the construction and/or maintenance of the authorised development, buoys, beacons, fenders, warning and protection equipment, as set out in Part 2 of Schedule 1: Ancillary Works.

part of the application for which consent is sought. Further assessment may be required on this matter however the SOCG with the MMO [SOCG11] agreed that it was unlikely that such applications would be refused.

Safety Zones

5.12.5 Matters of safety relating to Safety Zones that will be required under the Energy Act 2004 are covered in the relevant section of the Panel's Findings and Conclusions above. The need for such Zones is explained more fully in the applicant's Safety Zone Statement [APP70]. The MCA agreed with the applicant's assessment of the need for safety zones in the relevant SoCG [SOCG13] requested by the Panel. The proposed Order Limits were altered in the pre-application phase to minimise the impacts on shipping. In addition the only representation received by the Panel in relation to this matter was from the RYA. This is considered in Chapter 5. The proposed extent of safety zones considered in the Safety Zone Statement is in line with the guidance on safety zones provided to the examination [HE45].

5.12.6 Given these points, in particular the degree of assurance provided by the relevant authorities and consultees, the Panel concludes that there is no reason why these necessary consents for the proposed Triton Knoll wind farm to become operational would not be granted. Consents for the other connection elements necessary for the wind farm to become operational are considered earlier in this Report.

6 RECOMMENDATION

6.0.1 The Panel concludes that making the attached Order would be in accordance with National Policy Statements EN-1 and EN-3 and would also be in accordance with the Marine Policy Statement, relevant emerging Marine Plans, the development plan and other relevant policy, all of which have been taken into account by the Panel in this Report.

6.0.2 The Panel concludes that making the attached Order, with requirements for onshore consents and a traffic management plan, would fully take into account the Local Impact Report from East Lindsey District Council [LIR1].

6.0.3 The Panel finds that all potential transboundary impacts have been assessed, have been made known to the relevant EEA states and would be appropriately mitigated were the recommended Order to be made.

6.0.4 The Panel concludes that in making the attached Order, the SoS would be fulfilling his duties under the relevant EU Directives as transposed into UK law by regulation, as well as the biodiversity duty under the NERC Act, subject to Habitat Regulation Assessment.

6.0.5 Whilst the SoS is the competent authority under the Offshore Habitat Regulations, the Panel finds that in its view the proposal would not adversely affect European Sites, species or habitats and the Panel has taken this finding into account in reaching its recommendation.

6.0.6 Some matters within representations related to the merits of policy set out in a national policy statement. In accordance with s87(3) of the PA2008 these matters have been disregarded. In regard to all other representations however, the Panel found no relevant matters of such importance that they would individually or collectively lead to a different recommendation to that below.

6.0.7 The Panel concludes that making the attached Order would not lead the United Kingdom to be in breach of any of its international obligations, nor lead the SoS to be in breach of any duty imposed on him under any enactment, and would not be unlawful by virtue of any enactment. It also finds that the adverse impact of the proposal would not outweigh its benefits, nor does it find there is any condition prescribed for deciding the application other than in accordance with the relevant National Policy Statements.

6.0.8 For all the above reasons and in the light of the Panel's findings and conclusions on important and relevant matters set out in this Report, **the Panel recommends the Secretary of State for Energy and Climate Change to make the Triton Knoll Offshore Wind Farm Order in the form set out at Appendix E.**

Gideon Amos

Gideon Amos OBE RIBA MRTPI

Rynd Smith

Rynd Smith LLB MA MRTPI

Jim Claydon

Jim Claydon MRTPI

APPENDIX A – EVENTS IN THE EXAMINATION

The table below lists the main events occurring during the examination and the main procedural decisions taken by the ExA.

Date	Examination Event
23 July 2012	Preliminary Meeting and start of the examination
23 July 2012 (afternoon) 24 July 2012 (morning)	Unaccompanied inspection of sites carried out by the Examining Authority (ExA) - Lincolnshire Coast and Wolds
30 July 2012	Issue of: • Rule 8 Procedural timetable • ExA Questions • Requests for Statements of Common Ground (SoCG)
6 August 2012	STATUTORY PARTIES' DEADLINE for receipt of: • Written confirmation that they wish to be considered as an Interested Party (IP) Publication of: • Note of Preliminary Meeting held on 23 July 2012
9 August 2012	Issue of Rule 8 Errata letter
5 September 2012 (morning)	Unaccompanied inspection of sites carried out by the ExA - Offshore / Barrow-in-Furness
5 September 2012 (afternoon) 6 September 2012 (morning)	Unaccompanied inspection of sites carried out by the ExA - Onshore / Barrow-in-Furness and Cumbrian coast
14 September 2012	IP DEADLINE I for receipt of: • Written representations (WR) by all IP's • Responses to ExA's written questions • Statements of Common Ground (SoCG) • Any summaries of Relevant

	Representations (RR) exceeding 1500 words • Any summaries of WRs exceeding 1500 words • Notification of wish to be heard at an open-floor hearing (OFH) by IPs • Notification of wish to make oral representations at the hearing on the specific issue of the Development Consent Order (DCO) and related matters including the principle of the development • Notification of wish to attend the ExA's inspection of a site to which the application/specific matters relate in the company of IPs • Matrices prepared by the applicant to inform the Report on the Implications for European Sites (RIES)
25 September 2012	Unaccompanied inspection of sites carried out by the ExA - North Norfolk Coast
1 October 2012	Issue of: • Details of date time and place of ExA's inspection of a site to which the application/specific matters relate in the company of IPs • Final notification by ExA of date, time and place for open-floor and issue specific hearings • Notification of a variation of the timetable, that the time period reserved in the Rule 8 timetable for an open-floor hearing in North Norfolk on 10 October 2012 will not be used. Also that the time period reserved in the Rule 8 timetable for a site inspection in the company of IPs

	proposed for 10 October 2012 will not be used.
9 October 2012	ExA's inspection in the company of IPs of onshore site(s) along the Lincolnshire coast, to which the application/specific matters relate
12 October 2012	IP DEADLINE II for the receipt of: • Local Impact Reports (LIR) • Comments on RR's • Comments on WR's • Comments on responses to ExA's Questions • Comments on SoCGs • Comments on applicant's matrices to inform the RIES • Applicant's deadline for posting, maintaining and publishing notices of hearings
6 November 2012 7 November 2012 8 November 2012	Issue specific hearings on the DCO and Related Matters (including the principle of the development), held at the Storehouse Conference Centre, Skegness
12 November 2012	Issue of request under Rule 17 for hearing documents arising from the 6-8 November 2012 to be submitted by IP deadline III.
13 November 2012	Open-floor hearing held at the Embassy Theatre, Skegness
15 November 2012	Issue of request under Rule 17 for hearing documents arising from the 13 November 2012 to be submitted by IP deadline III.
16 November 2012	IP DEADLINE III for receipt of: • Comments upon any LIRs • Post-hearing documents including any written summary of an oral case put at any hearing and any documents/suggested amendments to the draft DCO

	requested by the ExA
29 November 2012	Issue of: • ExA's draft DCO, for consultation • Matrices prepared by the ExA to inform RIES, for consultation
21 December 2012	IP DEADLINE IV for receipt of: • Any written comments on the ExA's draft DCO • Any written comments on the matrices to inform RIES
4 January 2013	Issue of: • Request under Rule 17 for comments on DCO matters set out in the applicant's response of 19 December.
18 January 2013	RULE 17 DEADLINE, set on 4 January
21 January 2013	Close of examination and issue of s99 letter

APPENDIX B – LIST OF THOSE WHO PARTICIPATED AT THE PRELIMINARY MEETING, ACCOMPANIED SITE INSPECTION AND HEARINGS

Preliminary Meeting

23 July 2012

NAME	ORGANISATION
[redacted]	Examining Authority
	Examining Authority
	Examining Authority
	The Planning Inspectorate
	The Planning Inspectorate
	The Planning Inspectorate
	Triton Knoll Offshore Wind Farm Ltd
	Bond Pearce LLP for Triton Knoll Offshore Wind Farm Ltd
	Lincolnshire Wildlife Trust
	Lincolnshire County Council
	Marine Management Organisation
	Counsel for Natural England
	East Lindsey District Council
	Interested Party

Accompanied Onshore Site Inspection

9 October 2012

NAME	ORGANISATION
[redacted]	Examining Authority
	Examining Authority

[redacted]	Examining Authority
	The Planning Inspectorate
	The Planning Inspectorate
	Triton Knoll Offshore Wind Farm Ltd
	LDA Design for Triton Knoll Offshore Wind Farm Ltd
	East Lindsey District Council
	Interested Party
	Interested Party

Issue Specific Hearing regarding the DCO and Related Matters

Day 1 - 6 November 2012

NAME	**ORGANISATION**
[redacted]	Examining Authority
	Examining Authority
	Examining Authority
	The Planning Inspectorate
	The Planning Inspectorate
	The Planning Inspectorate
	Triton Knoll Offshore Wind Farm Ltd
	Bond Pearce LLP for Triton Knoll Offshore Wind Farm Ltd
	Counsel for Triton Knoll Offshore Wind Farm Ltd
	NIRAS Consulting for Triton Knoll Offshore Wind Farm Ltd
	Royal Haskoning for Triton Knoll Offshore Wind Farm Ltd
	GoBe for Triton Knoll Offshore Wind Farm Ltd

[redacted]	The Marine Management Organisation
	Cefas for The Marine Management Organisation
	East Lindsey District Council
	East Lindsey District Council
	Counsel for Natural England
	Natural England
	Natural England
	Interested Party
	Interested Party

Issue Specific Hearing regarding the DCO and Related Matters

Day 2 - 7 November 2012

NAME	ORGANISATION
[redacted]	Examining Authority
	Examining Authority
	Examining Authority
	The Planning Inspectorate
	The Planning Inspectorate
	The Planning Inspectorate
	Triton Knoll Offshore Wind Farm Ltd
	Bond Pearce LLP for Triton Knoll Offshore Wind Farm Ltd
	Counsel for Triton Knoll Offshore Wind Farm Ltd
	NIRAS Consulting for Triton Knoll Offshore Wind Farm Ltd
	GoBe for Triton Knoll Offshore Wind Farm Ltd
	Triton Knoll Offshore Wind Farm Ltd

[redacted]	SMSL for Triton Knoll Offshore Wind Farm Ltd
	RPS for Triton Knoll Offshore Wind Farm Ltd
	The Marine Management Organisation
	Cefas for The Marine Management Organisation
	Cefas for The Marine Management Organisation
	The Maritime and Coastguard Agency
	Westminster Gravels Ltd
	Westminster Gravels Ltd
	East Lindsey District Council
	East Lindsey District Council
	Counsel for Natural England
	Natural England
	Natural England
	English Heritage
	Interested Party
	Interested Party

Issue Specific Hearing regarding the DCO and Related Matters

Day 3 - 8 November 2012

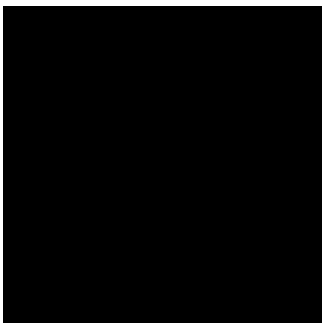
NAME	ORGANISATION
[redacted]	Examining Authority
	Examining Authority
	Examining Authority
	The Planning Inspectorate
	The Planning Inspectorate
	The Planning Inspectorate

[redacted]	Triton Knoll Offshore Wind Farm Ltd
	Bond Pearce LLP for Triton Knoll Offshore Wind Farm Ltd
	GoBe for Triton Knoll Offshore Wind Farm Ltd
	The Marine Management Organisation
	Cefas for The Marine Management Organisation
	East Lindsey District Council
	East Lindsey District Council
	Counsel for Natural England
	Natural England

Open-floor Hearing

13 November 2012

NAME	ORGANISATION
[redacted]	Examining Authority
	Examining Authority
	Examining Authority
	Bond Pearce LLP for Triton Knoll Offshore Wind Farm Ltd
	Triton Knoll Offshore Wind Farm Ltd
	Triton Knoll Offshore Wind Farm Ltd
	Lincolnshire County Council
	North East Lincolnshire Council
	East Lindsey District Council
	National Farmers Union
	Interested Party
	Interested Party



Member of the public

Member of the public

Member of the public

Member of the public

APPENDIX C - ABBREVIATIONS

AA	Appropriate Assessment
AC	Alternating Current
AONB	Area of Outstanding Natural Beauty
APFP	Applications: Prescribed Forms and Procedures
AP	Affected Person
CA	Compulsory Acquisition
CA	Cruising Association
CAA	Civil Aviation Authority
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CRM	Collision Risk Model
cSAC	candidate Special Area of Conservation
dB	Decibels
dBht	Metric based on the audiogram of a species
DC	Direct Current
DCLG	Department for Communities and Local Government
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment Food and Rural Affairs
DML	Deemed Marine License
EA	Environment Agency
EC	European Commission
EEA	European Economic Area
EEC	European Economic Community
EERS	East of England Regional Strategy
EIA	Environmental Impact Assessment
EEA	European Economic Area
EEZ	Exclusive Economic Zone
ELDC	East Lindsey District Council
EMF	Electromagnetic Field
EPR	Examination Procedure Rules
ES	Environmental Statement
EU	European Union
ExA	Examining Authority
Framework	National Planning Policy Framework
GBBG	Great Black-Backed Gull
HR	Habitats Regulations
HRA	Habitats Regulations Assessment
HVDC	High Voltage Direct Current
IPC	Infrastructure Planning Commission
IROPI	Imperative Reasons of Overriding Public Interest

ISH	Issue Specific Hearing
JNCC	Joint Nature Conservation Committee
kV	Kilovolt
LAT	Lowest Astronomical Tide
LBBG	Lesser black-backed gull
LIR	Local Impact Report
MCA	Marine and Coastguard Agency
MCZ	Marine Conservation Zones
MMO	Marine Management Organisation
MPS	Marine Policy Statement
MSFD	Marine Strategy Framework Directive
MW	Megawatt
NE	Natural England
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OFH	Open Floor Hearing
OWF	Offshore Wind Farm
NERC	The Natural Environment and Rural Communities Act
NFU	National Farmers Union
PA2008	Planning Act 2008
PBR	Potential Biological Removal
PEI	Preliminary Environmental Information
PINS	Planning Inspectorate
Ramsar	The Ramsar Convention on Wetlands
RCC	Reactive Compensation Compound
REZ	Renewable Energy Zone
RIES	Report on the Implications for European Sites
RR	Relevant Representation
RSPB	The Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SNCB	Statutory Nature Conservation Body (needs to be defined)
SOCG	Statement of Common Ground
SoS	Secretary of State
SPA	Special Protection Area
SVIA	Seascape and Visual Impact Assessment
TB	Transboundary
TK	Triton Knoll
TKOWL	Triton Knoll Offshore Wind Limited

TKOWF	Triton Knoll Offshore Wind Farm
UKHO	UK Hydrographic Office
WCA	Wildlife and Countryside Act
WSI	Written Scheme of Investigation

APPENDIX D – EXAMINATION DOCUMENTS

1. Application Documents

Forms and Notices

APP1	01/01 Covering letter for Triton Knoll Offshore Wind Farm application
APP2	01/02 Application form for Triton Knoll Offshore Wind Farm
APP3	01/03 Newspaper notices

Plans

APP4	02/01 Location plan
APP5	02/02 Land plan
APP6	02/03 Works plan
APP7	02/04a Marine archaeology plan
APP8	02/04b Onshore archaeology plan
APP9	02/05a Marine conservation plan
APP10	02/05b Norfolk conservation plan
APP11	02/05c Lincs conservation plan
APP12	02/06 Crown land plan

Draft DCO and Explanatory Memorandum

APP13	03/01 Draft Development Consent Order
APP14	03/02 Explanatory memorandum

Consultation Report

APP15	04/01 Consultation Report
APP16	04/01a Consultation Report Annex Part A
APP17	04/01b Consultation Report Annex Part B
APP18	04/01c Consultation Report annex part C

HRA Report and Statement of Engagement

APP19	04/02 Habitats Regulations Assessment report
APP20	04/03 Statement of Engagement

Environmental Statement

APP21	05/01 ES V1 C0 Cover and contents
APP22	05/01 ES V1 C1 Introduction
APP23	05/01 ES V1 C2 Need for offshore wind
APP24	05/01 ES V1 C3 Site selection
APP25	05/01 ES V1 C4 Consenting process
APP26	05/01 ES V1 C5 Approach to EIA
APP27	05/01 ES V1 C6 Project description
APP28	05/01 ES V1 C7 Rochdale envelope
APP29	05/01 ES V1 C8 EIA consultation
APP30	05/01 ES V2 C0 Cover and contents
APP31	05/01 ES V2 C1 Introduction
APP32	05/01 ES V2 C2 Physical processes
APP33	05/01 ES V2 C3 Benthic ecology
APP34	05/01 ES V2 C4 Fish and shellfish ecology
APP35	05/01 ES V2 C5 Marine mammals
APP36	05/01 ES V2 C6 Bird ecology
APP37	05/01 ES V2 C7 Conservation
APP38	05/01 ES V2 C8 Fisheries
APP39	05/01 ES V2 C9 Seascape and visual impact
APP40	05/01 ES V2 C10 Shipping
APP41	05/01 ES V2 C11 Marine Archaeology
APP42	05/01 ES V2 C12 Other marine users
APP43	05/01 ES V2 C13 Aviation

APP44	05/01 ES V2 C14 Socioeconomics
APP45	05/01 ES V2 C15 Inter related impacts
APP46	05/01 ES V2 C16 Transboundary
APP47	05/01 ES V2 C17 Summary
APP48	05/01 ES V3 Annex 0 Cover and contents
APP49	05/01 ES V3 Annex A Scoping Report
APP50	05/01 ES V3 Annex B Triton Knoll Scoping Opinion
APP51	05/01 ES V3 Annex D Physical Processes
APP52	05/01 ES V3 Annex E Benthic surveys
APP53	05/01 ES V3 Annex F1/F2 Herring and shellfish surveys
APP54	05/01 ES V3 Annex F3 Trawl surveys
APP55	05/01 ES V3 Annex G Marine mammals
APP56	05/01 ES V3 Annex H Bird ecology
APP57	05/01 ES V3 Annex I Commercial fisheries
APP58	05/01 ES V3 Annex J Seascape
APP59	05/01 ES V3 Annex K Navigation risk assessment
APP60	05/01 ES V3 Annex K Navigation risk assessment appendices 1-9
APP61	05/01 ES V3 Annex K Navigation risk assessment appendices 10-14
APP62	05/01 ES V3 Annex L Marine Archaeology
APP63	05/01 ES V3 Annex M Microwave links
APP64	05/01 ES V3 Annex N Helicopter access
APP65	05/01 ES V3 Annex O Socioeconomic baseline
APP66	05/01 ES V3 Annex P Noise modelling
APP67	05/02 ES Non-Technical Summary
Statements and illustrative Drawings	
APP68	06/01 Illustrative layouts and drawings
APP69	07/01 Cable Statement
APP70	07/02 Safety zone statement

2. Relevant Representations

RR1	Mablethorpe and Sutton Town Council
RR2	M Thomas
RR3	Royal Yachting Association
RR4	Mr Derek Clark MEP
RR5	Associated British Ports
RR6	Russell Warne
RR7	Mr James Pocklington
RR8	Witham Fourth District Internal Drainage Board
RR9	Westminster Gravels Limited
RR10	Ian Grant
RR11	Leicestershire County Council
RR12	Dr John Yeadon
RR13	Mrs Kylie Yeadon
RR14	East Riding of Yorkshire Council
RR15	National Farmers' Union
RR16	Boston Borough Council
RR17	Environment Agency
RR18	Perenco UK
RR19	North Lincolnshire Council
RR20	Trustees of the Harley Foundation
RR21	Belgian Federal Directorate-General Environment, Marine Environment Unit
RR22	Trevor Beaumont

RR23	Kathryn Beaumont
RR24	John Bowers
RR25	Gary Redshaw
RR26	Norfolk County Council
RR27	Magdalen College, Oxford
RR28	North East Lincolnshire Council
RR29	Directorate of Airspace Policy, Civil Aviation Authority
RR30	Mark Damms
RR31	Matthew Overton
RR32	Maritime & Coastguard Agency
RR33	National Trust
RR34	Mr Ken Bagley, Chairman, Boston and District Fishermen
RR35	Lincolnshire Wildlife Trust
RR36	Wells and District Fishermens Association; and North Norfolk Fishermans Society
RR37	English Heritage
RR38	Trinity House
RR39	Ministry of Defence
RR40	Willoughby and District Parish Council
RR41	North Somercotes Parish Council
RR42	Health Protection Agency
RR43	National Federation of Fishermen's Organisations
RR44	Bicker Parish Council
RR45	The Royal Society for the Protection of Birds
RR46	Marine Management Organisation
RR47	Natural England
RR48	Joint Nature Conservation Commitee
RR49	City of Lincoln Council
RR50	The Coal Authority
RR51	M Spence
RR52	National Grid
RR53	John Bowler
RR54	East Lindsey District Council
RR55	Ashby By Partney Parish Meeting
RR56	Candlesby Parish Meeting
RR57	Lindsey Marsh Drainage Board

3. Procedural Decisions and Letters Issued by the Examining Authority

PD1	s55 Acceptance Checklist
PD2	Acceptance Decision Letter
PD3	s58 Certificate of Compliance
PD4	Rule 4 letter
PD5	Rule 6 letter
PD6	Rule 6 Cover letter Interested party
PD7	Rule 6 Cover letter Other person
PD8	Rule 6 Cover letter Statutory party
PD9	Draft Outline Digital Model
PD10	Rule 8 Letter
PD11	Rule 8 Letter ERRATA
PD12	Rule 8 Cover Letter Design Council Cabe
PD13	Rule 8 Cover Letter Interested Parties

PD14	Rule 8 Cover Letter Lincolnshire County Council
PD15	Rule 8 Cover Letter RNLI
PD16	Rule 8 Cover Letter Statutory Parties
PD17	Further Examination Documents List
PD18	DCO and RIES consultation letter
PD19	Rule 17 request - 4 January 2013
PD20	Rule 17 request - ISH Action List
PD21	Rule 17 request - OFH Action List
PD22	s99 close of examination letter

4. Representations and Project Documents

IP Deadline I (14 September 2012)

REP1	Mr D J Bowler
REP2	East Lindsey District Council (written representations)
REP3	East Lindsey District Council (Responses to ExA's written questions)
REP4	English Heritage
REP5	John A Rogers, Leigh A Rogers and Harry J Rogers
REP6	Dr John Yeadon
REP7	KJ Yeadon
REP8	Lincolnshire County Council
REP9	Marine Management Organisation
REP10	Maritime & Coastguard Agency
REP11	National Air Traffic Services
REP12	National Farmer's Union
REP13	National Trust
REP14	Natural England and the Joint Nature Conservation Committee
REP15	Norfolk County Council
REP16	North East Lincolnshire Council
REP17	Royal Society for the Protection of Birds
REP18	Royal Yachting Association
REP19	TKOWL
REP20	Trinity House
REP21	Wells and District Inshore Fishermen's Association and North Norfolk Fishermen's Society (Ivan Large)
REP22	Westminster Gravels Limited
REP23	Late - Bicker Parish Council

IP deadline II (12 October 2012)

REP24	Marine Management Organisation Response to 2nd Interested Party Deadline
REP25	TKOWL Response to 2nd Interested Party Deadline

IP deadline III (See Hearing Documents section)

IP deadline IV - Responses to DCO and RIES consultation (21 December 2012)

REP26	East Lindsey District Council response to DCO and RIES matrices consultation
REP27	Lindsey Marsh Drainage Board response to DCO and RIES matrices consultation
REP28	Marine Management Organisation response to DCO and RIES matrices consultation
REP29	Maritime and Coastguard Agency response to DCO and RIES matrices consultation

REP30 Ministry of Defence response to DCO and RIES matrices consultation
REP31 National Air Traffic Services response to DCO and RIES matrices consultation
REP32 Natural England response to DCO and RIES matrices consultation
REP33 Royal Yachting Association response to DCO and RIES matrices
REP34 TKOWL response to DCO and RIES matrices consultation
REP35 Trinity House response to DCO and RIES matrices consultation

Rule 17 deadline (18 January 2013)

REP36 East Lindsey District Council response to Rule 17 request
REP37 English Heritage response to Rule 17 request
REP38 Late - Marine Management Organisation response to Rule 17 request
REP39 National Farmers Union response to Rule 17 request
REP40 Natural England response to Rule 17 request
REP41 Royal Yachting Association response to Rule 17 request
REP42 TKOWL response to Rule 17 request

Revised Plans

REP43 Revised Works Plan (ref 0203v2)
REP44 Revised Works Plan (ref 0203v3)(Submitted on 21 December 2012)
REP45 Revised Land Plan (ref 0202v2)

DCO

DCO1 draft DCO Revision B 03/01/v2
DCO2 draft DCO Revision C 03/01/v3
DCO3 draft DCO Revision D 03/01/v4
DCO4 ExA's Consultation DCO
DCO5 draft DCO Revision E 03/01/v5

DCO (associated documents)

DCO6 draft DCO (track changes between revision A and B)
DCO7 draft DCO (track changes between revision A and C)
DCO8 draft DCO (track changes between revision A and D)
DCO9 draft DCO (track changes between ExA version and Revision E)

Local Impact Report

LIR1 East Lindsey District Council - Local Impact Report

Statement of Common Ground

SOCG1 ABP Humber Ports Ltd and TKOWL
SOCG2 Boston and District Fishermens Association - letter
SOCG3 East Lindsey District Council and Lincolnshire County Council
SOCG4 East Lindsey District Council (issue specific hearing matters)
SOCG5 English Heritage and TKOWL
SOCG6 Joint Nature Conservation Committee and Natural England and TKOWL (Other interests)
SOCG7 Joint Nature Conservation Committee and Natural England and TKOWL (appendix 1)
SOCG8 Joint Nature Conservation Committee and Natural England and TKOWL (marine mammals) (revised)
SOCG9 Joint Nature Conservation Committee and Natural England and TKOWL (birds)
SOCG10 Lincolnshire Wildlife Trust and TKOWL
SOCG11 Marine Management Organisation and TKOWL
SOCG12 Marine Management Organisation and TKOWL (issue specific hearing

	matters)
SOCG13	Maritime and Coastguard Agency and TKOWL
SOCG14	Maritime and Coastguard Agency and TKOWL (issue specific hearing matters)
SOCG15	Natural England and TKOWL (issue specific hearing matters)
SOCG16	National Federation of Fishermen's Organisations and TKOWL
SOCG17	National Trust and TKOWL
SOCG18	Perenco UK Ltd with TKOWL
SOCG19	Royal Yachting Association and TKOWL
SOCG20	Trinity House Lighthouse Service and TKOWL
SOCG21	Trinity House Lighthouse Service and TKOWL (issue specific hearing matters)
SOCG22	Wells and District Inshore Fishermen's Association, North Norfolk Fishermen's Society and TKOWL

5. Hearing Documents

Preliminary Meeting

HE1	Preliminary Meeting note
HE2	Audio Recording of Preliminary Meeting - Part 1
HE3	Audio Recording of Preliminary Meeting - Part 2

Site Inspections

HE4	Record of Accompanied Site Inspection Lincs
HE5	Record of Unaccompanied Site Inspection 1 Lincs
HE6	Record of Unaccompanied Site Inspection 2 Offshore
HE7	Record of Unaccompanied Site Inspection 3 Barrow
HE8	Record of Unaccompanied Site Inspection 4 Norfolk
HE9	Record of Unaccompanied Site Inspection 5 Skegness at Night

Audio for ISH of 6-8 November

HE10	6 November 2012 - Part 1
HE11	6 November 2012 - Part 2
HE12	6 November 2012 - Part 3
HE13	6 November 2012 - Part 4
HE14	6 November 2012 - Part 5
HE15	6 November 2012 - Part 6
HE16	7 November 2012 - Part 1
HE17	7 November 2012 - Part 2
HE18	7 November 2012 - Part 3
HE19	7 November 2012 - Part 4
HE20	8 November 2012 - Part 1
HE21	8 November 2012 - Part 2

Audio for OFH of 13 November

HE22	13 November 2012 - Part 1
HE23	13 November 2012 - Part 2

Notification of Hearings and documents list

HE24	Hearing notice
HE25	Notification letter for Hearings and Site Visit
HE26	Hearing agendas
HE27	Hearing Documents List

IP deadline III - Submitted following Issue Specific Hearing 6-8 November 2012

HE28	TKOWL 3rd Response
HE29	TKOWL letter regarding ornithology and marine mammals
HE30	Marine Management Organisation response to action number ISH 8
HE31	Westminster Gravels Limited letter
HE32	Dr. John Yeadon Statement to Issue Specific Hearing
HE33	Natural England Written Hearing Summary
HE34	Marine Management Organisation response to action list
HE35	TKOWL - submissions on cumulative impact (Hearing Document 1)
HE36	East Lindsey District Council speaking notes and supporting documents (Hearing Document 2)
HE37	Maritime and Coastguard Agency letter regarding agenda item 4.10 - Offshore Safety Management (Hearing Document 3)
HE38	TKOWL - appropriate assessment for Greater Wash Wind Farms (Hearing Document 4)
HE39	TKOWL - Update Paper on Great Black Backed Gull (Hearing Document 5)
HE40	TKOWL - Position Paper on Precautionary Principle (Hearing Document 6)
HE41	Natural England and Joint Nature Conservation Committee letter regarding agenda items 3.2-3.7 (Hearing Document 7)
HE42	Marine Management Organisation letter regarding the draft DCO (Hearing Document 8)
HE43	Westminster Gravels Ltd regarding attendance at Issue Specific Hearing (Hearing Document 9)
HE44	TKOWL - Note on Ornithology (November 2012) (Hearing Document 10)
HE45	TKOWL - DECC Guidance on Safety Zones (Hearing Document 11)
HE46	TKOWL - Note on Traffic Impacts (Hearing Document 12)
HE47	Marine Management Organisation - ICES guidance on Herring Spawning (Hearing Document 13)
HE48	TKOWL - Draft Conditions (Hearing Document 14)
HE49	Marine Management Organisation - ICES Herring Advisory Working Group report 2012 (Hearing Document 15)
HE50	TKOWL - Note on Sandwich Tern (Hearing Document 16)

IP deadline III - Submitted following Open Floor Hearing 13 November 2012

HE51	TKOWL document comprising diagrams of typical cable construction cross sections (Hearing Document 17)
HE52	TKOWL - cable cross section
HE53	TKOWL - cable cross section 2
HE54	Dr John Yeadon and Mrs Kylie Yeadon - Written speaking note (Hearing Document 18)
HE55	Mr Gerald Moreton - Written speaking note (Hearing Document 19)
HE56	Mrs Angie Smith - Written speaking note (Hearing Document 20)
HE57	Lincolnshire County Council - Written speaking note (Hearing Document 21)
HE58	National Farmers' Union - Written speaking note (Hearing Document 22)
HE59	Mrs M Spence - Written speaking note (Hearing Document 23)
HE60	East Lindsey District Council written speaking note (Hearing Document 24)
HE61	Mrs M Smithson letter following Open Floor Hearing

6. Transboundary Documents and Report on the Implications for European Sites

Transboundary

TB1	Transboundary Screening Matrix
TB2	Reg 24 London Gazette Notice
TB3	Reg 24 Belgian response

TB4	Reg 24 Dutch response

Report on the Implications for European Sites

RIES1	Report on the Implications for European Sites
RIES2	RIES appendix 1 - European Sites Integrity matrix
RIES3	RIES appendix 2 - European Sites Screening matrix
RIES4	HRA integrity matrices - Submitted by Applicant on 14 September 2012
RIES5	HRA screening matrices - Submitted by Applicant on 14 September 2012

Appendix E

The recommended Order, with modifications by the Panel, is set out below. With the exception of the limited number of highlighted modifications, all the wording below is as proposed in the examination by the applicant.

SECTION 15, PLANNING ACT 2008

INFRASTRUCTURE PLANNING

Triton Knoll Offshore Wind Farm Order 201X

Made	****201●*
Coming into force	****201●*

CONTENTS

An application has been made to the Secretary of State in accordance with the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 made under sections 37, 42, 48, 51, 56, 58, 59, and 232 of the Planning Act 2008 ("the 2008 Act"), ([1]) for an Order under sections 37, 55, 115, 120, 121, 140 and 149A of the 2008 Act;

Deleted: WHEREAS a

AND the application was examined by an examining authority appointed by the Secretary of State pursuant to Chapter 4 of the 2008 Act;

Deleted: whereas

AND the examining authority having considered the national planning statements relevant to the application has concluded that the application accords with these statements as set out in section 104(3) of the 2008 Act;

Deleted: whereas

AND the examining authority having considered the objections made and not withdrawn and the application with the documents that accompanied the application has recommended to the decision-maker to make an Order giving effect to the proposals comprised in the application with modifications which in its opinion do not make any substantial change to the proposals;

Deleted: whereas

AND notice of the decision-maker's determination was published [●];

Deleted: whereas

NOW THEREFORE, as the decision-maker in exercise of the powers conferred by sections 114, 115, 120, 121, 122 and 149A of the 2008 Act the Secretary of State makes the following Order:

Citation and commencement

1. This Order may be cited as the Triton Knoll Offshore Wind Farm Order and shall come into force on [●] 201[●].

Interpretation

2.—(1) In this Order—

"the 1990 Act" means the Town and Country Planning Act 1990([2])

"the 2004 Act" means the Energy Act 2004([3])

"the 2008 Act" means the Planning Act 2008([4]);

"the 2009 Act" means the Marine and Coastal Access Act 2009([5]);

"ancillary works" means the ancillary works described in Part 2 of Schedule 1 (authorised project) and which are not development within the meaning of section 32 of the 2008 Act;

"authorised development" means the development and associated development described in Part 1 of Schedule 1, which is development within the meaning of section 32 of the 2008 Act;

Deleted: (authorised project)

"authorised project" means the authorised development and the ancillary works authorised by this Order;

"collector substation" means a platform (either singly or as part of a combined substation) with one or more decks or housing or incorporating high voltage alternating current electrical switchgear and/or electrical transformers and other equipment to enable power from multiple WTGs to be collected and electrically converted for transmission including permanent accommodation for operations and maintenance staff, helicopter landing facilities, craneage, access equipment, J-tubes, marking and lighting, and other associated equipment and facilities;

"combined substation" means a single platform comprising a collector substation combined with either an HVDC substation or with a large HVDC substation;

"commence**"** means beginning to carry out any material operation (as defined in Section 56(4) of the 1990 Act) forming part of the authorised project other than operations consisting of site clearance, archaeological investigations, environmental surveys, investigations for the purpose of

([1]) 2008 c.29

([2]) 1990 c.8 1990 c.8. Section 206(1) was amended by section 192(8) of, and paragraphs 7 and 11 of Schedule 8 to, the Planning Act 2008 (c29) (date in force to be appointed see section 241(3), (4)(a), (c) of the 2008 Act). There are other amendments to the 1990 Act which are not relevant to this Order.

([3]) 2004 c.20

([4]) 2008 c.29

([5]) 2009 c.23

assessing ground conditions, remedial work in respect of any contamination or other adverse ground conditions and "commencement" shall be construed accordingly;

"concrete monopile foundation" means a concrete or steel reinforced concrete pile, typically cylindrical, drilled into the seabed, and associated equipment including scour protection, J-tube, corrosion protection systems and access platform(s) and equipment;

"the decision-maker" has the same meaning as in section 103 of the 2008 Act;

"environmental statement" means the document certified as the environmental statement by the decision-maker for the purposes of this Order and submitted with the application on 31 January 2012;

"gravity base foundation" means a structure principally of steel, concrete or steel and concrete which rests on the seabed either due to its own weight with or without added ballast or additional steel skirts and associated equipment including scour protection, J-tube, corrosion protection systems and access platform(s) and equipment;

"HVDC substation" means a platform (either singly or as part of a combined substation or linked by bridge to a collector substation) with one or more decks housing or incorporating high voltage direct current electrical switchgear and/or electrical transformers and other equipment to enable HVDC transmission to be used to convey the power output of the multiple WTGs to shore including permanent accommodation for operations and maintenance staff, helicopter landing facilities, craneage, access equipment, J-tubes, marking and lighting and other associated equipment and facilities;

"jacket foundation" means a metal jacket/lattice type structure constructed of steel or reinforced concrete which is fixed to the seabed at two or more points with driven or pre-installed piles or with suction cans and associated equipment including scour protection, J-tube, corrosion protection systems with access platform(s) and equipment;

"JNCC" means the Joint Nature Conservation Committee;

"large HVDC substation" means an HVDC substation (either singly or as part of a combined substation) whose maximum dimensions exceed those of an HVDC substation;

"Land plan" means the plan certified as the Land plan by the decision-maker for the purposes of the Order;

"maintain" includes inspect, repair, adjust and alter, and further includes remove, reconstruct and replace any of the ancillary works in Part 2 of Schedule 1 and any component part of any wind turbine generator, collector substation, meteorological station or HVDC substation described in Part 1 of Schedule 1 (including replacement of defective subsea cables to the extent assessed in the Environmental Statement but not including the alteration removal or replacement of foundations) **;** and "maintenance" shall be construed accordingly;

Deleted: maintain,

"MCA" means the Maritime and Coastguard Agency;

"meteorological station" means a lattice tower housing or incorporating equipment to measure wind speed and other wind characteristics, including a service platform housing electrical switchgear and communication equipment and associated equipment, oceanographic equipment and connecting cable to be sited within 300 metres of the mast, and marking and lighting;

"MMO" means the Marine Management Organisation;

"monopile foundation" means a concrete monopile foundation or a steel monopile foundation;

"the Order limits" means the limits shown on the Works plan within which the authorised project may be carried out, whose grid coordinates are set out in paragraph 1 of Part 1 of Schedule 1 (authorised development) of this Order;

"offshore substation" means either a collector substation or HVDC substation;

"requirements" means the requirements in Part 3 of Schedule 1 to this Order;

"renewable energy zone" means the area designated by The Renewable Energy Zone (Designation of Area) Order 2004 beyond the United Kingdom's territorial waters which may be exploited for energy production.

"scheduled works" means the numbered works specified in Part 1 of Schedule 1 to this Order, or any part of them;

"scour protection" means measures to prevent loss of seabed sediment around foundation bases by use of protective aprons, mattresses, flow energy dissipation (frond) devices or rock and gravel dumping;

"steel monopile foundation" means a steel pile, typically cylindrical, driven and/or drilled into the seabed and associated equipment including scour protection, bracing J-tube, corrosion protection systems and access platform(s) and equipment;

"suction bucket monopod foundation" means a tubular metal structure which partially penetrates the seabed and remains in place using its own weight and a hydrostatic pressure differential and associated equipment, including scour protection, bracing, J-tube, corrosion protection systems and access platform(s) and equipment;

"suction can" means a large diameter steel cylinder which is fixed to the base of the foundation and partially penetrates the seabed and remains in place using its own weight and hydrostatic pressure differential;

"Trinity House" means The Corporation of Trinity House of Deptford Strond~~.~~**;**

"tripod foundation" means a metal jacket/lattice type structure consisting of three main legs linked by cross-braces supporting a single central support for the transition piece and turbine, constructed of steel or reinforced concrete which is fixed to the seabed with driven or pre-installed piles or suction cans, and associated equipment including scour protection, J-tube, corrosion protection systems and access platform(s) and equipment;

"undertaker" means Triton Knoll Offshore Wind Farm Limited which is the named undertaker, or any other person who has the benefit of any or all of this Order in accordance with section 156 of the 2008 Act for such time as that section applies to that person;

"vessel" means every description of vessel, however propelled or moved, and includes a non-displacement craft, a personal watercraft, a seaplane on the surface of the water, a hydrofoil vessel, a hovercraft or any other amphibious vehicle and any other thing constructed or adapted for movement through, in, on or over water and which is at the time in, on or over water;

"wind turbine generator" or **"**WTG" means a structure comprising a tower, rotor with three blades connected at the hub, nacelle and ancillary electrical and other equipment which may include J-tube(s), transition piece, access and rest platforms, access ladders, boat access systems, corrosion protection systems, fenders and maintenance equipment, helicopter landing facilities and other associated equipment, fixed to a foundation;

"Works plan" means the plan certified as the Works plan by the decision-maker for the purposes of the Order;

(2) All distances, directions and lengths referred to in this Order are approximate.

(3) Any reference in this Order to a work identified by the number of the work is to be construed as a reference to the work of that number authorised by this Order.

(4) The expression "includes" shall be construed without limitation.

Development consent etc. granted by the Order

3.—Subject to the provisions of this Order and to the requirements the undertaker is granted

(a) development consent for the authorised development; and

(b) consent for the ancillary works,

to be carried out within the Order limits.

Construction and maintenance of authorised project

4. The undertaker may at any time maintain, and maintain from time to time, the authorised project, except to the extent that this Order and an agreement made under this Order provides otherwise.

Operation of electricity generating station

5.—(1) The undertaker is hereby authorised to operate the generating station comprised in the authorised development.

(2) This article does not relieve the undertaker of any requirement to obtain any permit or licence under any other legislation that may be required from time to time to authorise the operation of an electricity generating station.

Benefit of the Order

6.—(1) Subject to paragraph (2), this Order shall have effect solely for the benefit of Triton Knoll Offshore Wind Limited.

(2) Subject to paragraph (6) the undertaker may with the consent of the Secretary of State who would be responsible for determining an application for development consent within the subject matter of this Order—

(a) transfer to another person ("the transferee") any or all of the benefit of the provisions of this Order and such related statutory rights as may be agreed between the undertaker and the transferee; or

(b) grant to another person ("the lessee") for a period agreed between the undertaker and the lessee any or all of the benefit of the provisions of this Order and such related statutory rights as may be so agreed,

except where paragraph (5) applies in which case no such consent shall be required.

(3) Where an agreement has been made in accordance with paragraph (2) references in this Order to the undertaker, except in paragraph (4), shall include references to the transferee or lessee.

(4) The exercise by a person of any benefits or rights conferred in accordance with any transfer or grant under paragraph (2) shall be subject to the same restrictions, liabilities and obligations as would apply under this Order if those benefits or rights were exercised by the undertaker.

(5) This paragraph applies where the transferee or lessee under paragraph (2) is the holder of a licence under section 6 of the Electricity Act 1989[6].

(6) Any transfer or grant of the benefit of the deemed Marine Licence in Schedule 2 referred to in paragraph (2) shall be subject to the provisions of sections 71 and 72 of the 2009 Act.

Abatement of works abandoned or decayed

7. Where Work Nos.1 and 2 or any part of it or any part of the ancillary works is abandoned or allowed to fall into decay the Secretary of State may, following consultation with the undertaker, issue a written notice requiring the undertaker at its own expense to repair and restore or remove Work Nos.1 and 2 or any relevant part of it, without prejudice to any notice served under section 105(2) of the 2004 Act. The notice may also require the restoration of the site of the relevant part(s) of Work Nos.1 and 2 to a safe and proper condition within an area and to such an extent as may be specified in the notice.

Deemed licence under the Marine and Coastal Access Act 2009

8. The undertaker is granted a deemed licence under Part 4 Chapter 1 of the 2009 Act to carry out the works and make the deposits specified in Part 1 of Schedule 2, subject to the conditions set out in Part 2 of that Schedule.

Saving for Trinity House

9. Nothing in this Order prejudices or derogates from any of the rights, duties or privileges of Trinity House.

Crown Rights

10.—(1) Nothing in this Order shall:

(a) prejudicially affect any estate, right, power, privilege, authority or exemption of the Crown; or

(b) authorise the undertaker to take, use, enter upon or in any manner interfere with any land, hereditaments or rights of whatever description (including any part of the shore or bed of the sea or any river, channel, creek, bay or estuary) belonging to—

(i) Her Majesty in right of the Crown and under the management of the Crown Estate Commissioners without the consent in writing of those Commissioners; or

(ii) a government department or held in trust for Her Majesty for the purposes of a government department without the consent in writing of that government department.

(2) A consent under paragraph (1)(b) may be given unconditionally or may be subject to such conditions or upon such terms as may be considered necessary or appropriate.

Certification of plans etc

11.—(1) The undertaker shall, as soon as practicable after the making of this Order, submit to the decision-maker copies of—

(a) the Works plan (document reference 02/03/v3 dated 11 December 2012);

(b) the Land plan (document reference 02/02/v2 dated 6 September 2012); and

(c) the environmental statement (document reference 05/01),

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[6] 1989 c29

for certification that they are true copies of the documents referred to in this Order.

(2) A plan or document so certified shall be admissible in any proceedings as evidence of the contents of the document of which it is a copy.

Arbitration

12. Any difference under any provision of this Order, unless otherwise provided for, shall**,** save in the case of any difference with Natural England or JNCC, be referred to and settled by a single arbitrator to be agreed between the parties, or failing agreement, to be appointed on the application of either party (after giving notice in writing to the other) by the decision-maker**.**

Signed by authority of the Secretary of State for Energy and Climate Change

[Address] [Name]
[Date] 201[X] Head of [Unit]
Department for Energy and Climate Change

SCHEDULES

SCHEDULE 1

Authorised Project

Part 1

Authorised Development

1. A nationally significant infrastructure project as defined in sections 14 and 15 of the 2008 Act on the bed of the North Sea approximately 33km off the coast of Lincolnshire and 46km off the coast of North Norfolk within the Renewable Energy Zone, comprising:

Work No. 1— An offshore wind turbine generating station with a gross electrical output capacity of up to 1200MW comprising up to 288 wind turbine generators each fixed to the seabed by one of five foundation types (namely, monopile, jacket, tripod, suction bucket monopod or gravity base foundation), fitted with rotating blades and situated within the coordinates for the Order limits shown on the Works plan and specified below~~,~~ and further comprising (a) to (c**)** below;

Coordinates for the Order limits (Datum: WGS 84)

Point	*Latitude (DMS)*	*Longitude (DMS)*	*Point*	*Latitude (DMS)*	*Longitude (DMS)*
1	53° 29' 12.732" N	0° 41' 28.839" E	4	53° 24' 31.248" N	0° 59' 39.385" E
2	53° 31' 42.626" N	0° 42' 58.367" E	5	53° 24' 31.234" N	0° 56' 1.766" E
3	53° 32' 16.234" N	0° 51' 40.692" E			

(a) up to 4 collector substations fixed to the seabed by jacket or monopole foundations within the Order limits;

(b) up to 4 meteorological stations fixed to the seabed by monopile, jacket, tripod, suction bucket monopod or gravity based foundations within the Order limits;

(c) a network of cables laid underground within the Order limits between the wind turbine generators, the meteorological stations, any collector substation and Work No. 2, for the transmission of

electricity and electronic communications between these different structures, including one or more cable crossings;

and associated development within the meaning of section 115(2) of the 2008 Act comprising:

Work No. 2 – Up to 4 HVDC substations or up to 2 large HVDC substations fixed to the seabed by gravity, jacket or monopole foundations, within the Order limits;

and in connection with such Work Nos. 1 to 2 and to the extent that they do not otherwise form part of any such work, further associated development within the Order Limits comprising such other works as may be necessary or expedient for the purposes of or in connection with the relevant part of the authorised project and which fall within the scope of the work assessed by the environmental statement.

Part 2

Ancillary Works

Works within the Order limits which have been subject to an environmental impact assessment recorded in the environmental statement comprising:

(a) temporary landing places, or other means of accommodating vessels in the construction and/or maintenance of the authorised development; and

(b) buoys, beacons, fenders and other navigational warning or ship impact protection works.

Part 3

Requirements

Interpretation

1. In this Part of this Schedule—

"the CAA" means the Civil Aviation Authority constituted by the Civil Aviation Act 1982;

"HAT" means highest astronomical tide;

"LAT" means lowest astronomical tide;

"mean high water springs level" or "MHWS" means the highest level which spring tides reach on average over a period of time;

"notice to mariners" includes any notice to mariners which may be issued by the Admiralty, Trinity House, Queen's harbourmasters, government departments and harbour and pilotage authorities;

"UK Hydrographic Office" means the UK Hydrographic Office of Admiralty Way, Taunton, Somerset, TA1 2DN.

Time limits

2. The authorised development shall commence no later than the expiration of seven years beginning with the date this Order comes into force or such longer period as the Secretary of State may hereafter direct in writing.

Detailed design parameters

3.—(1) Subject to paragraph (2), no wind turbine generator forming part of the authorised development shall:

(a) exceed a height of 220 metres when measured from LAT to the tip of the vertical blade;

(b) exceed a height of 140 metres when measured from LAT to the height of the centreline of the generator shaft forming part of the hub;

(c) exceed a rotor diameter of 180 metres;

(d) be less than a multiple of 4 times the rotor diameter from the nearest WTG in either direction perpendicular to the approximate prevailing wind direction (cross-wind) or be less than a multiple of 7 times the rotor diameter from the nearest WTG in either direction which is in line with the approximate prevailing wind direction (downwind);

(e) have a distance of less than 22 metres between the lowest point of the rotating blade of the wind turbine and MHWS or less than 27.4 metres between the lowest point of the rotating blade of the wind turbine and LAT**.**

(2) References to the location of a wind turbine generator are references to the centre point of that turbine.

4. No wind turbine generator, HVDC substation, large HVDC substation, collector substation, combined substation or meteorological station forming part of the authorised development shall be erected within the areas hatched black on the Works plan, whose coordinates are specified below:

Point	*Latitude (DMS)*	*Longitude (DMS)*	*Point*	*Latitude (DMS)*	*Longitude (DMS)*
A	53° 26’ 33.465” N	0° 49' 43.804" E	C	53° 29' 53.970" N	0° 54' 07.524" E
B	53° 26’ 50.747” N	0° 48' 50.232" E	D	53° 29' 24.316" N	0° 54' 38.088" E

5.—(1) The total number of offshore substations forming part of the authorised development shall not exceed eight, comprising either:

(a) up to four collector stations and up to four HVDC substations, or

(b) up to four collector stations and up to two large HVDC substations, or

(c) up to four combined substations.

(2) The dimensions of any collector substation forming part of the authorised development (excluding towers, helipads, masts and cranes) shall not exceed 60 metres in height when measured from LAT and shall not exceed 45 metres in length and 45 metres in width.

(3) The dimensions of any HVDC substation forming part of the authorised development (excluding towers, helipads, masts and cranes) shall not exceed 60 metres in height when measured from LAT, and shall not exceed 77 metres in length and 65 metres in width.

(4) The dimensions of any large HVDC substation forming part of the authorised development (excluding towers, helipads masts and cranes) shall not exceed 60 metres in height when measured from LAT, and shall not exceed 100 metres in length and 75 metres in width.

(5) The dimensions of any combined substation forming part of the authorised development (excluding towers, helipads, masts and cranes) shall not exceed 60 metres in height when measured from LAT, and shall not exceed a footprint area which totals the combined maximum footprint area of the collector station (45 metres x 45 metres) and the HVDC substation (75 metres x 65 metres) or large HVDC substation (100 metres x 75 metres) which is comprised in the combined substation.

(6) Each offshore substation, combined substation or large HVDC substation shall have no more than one supporting foundation.

(7) No lattice tower forming part of a meteorological station shall exceed a height of 200 metres above LAT

(8) No meteorological station shall have more than one supporting foundation.

6. The total length of the cables comprising Work No. 1(c) shall not exceed 475 kilometres.

7.—(1) No monopile foundation forming part of the authorised development shall**:**

(a) in the case of a steel monopile foundation have a diameter of more than 7 metres for use with meteorological stations and for use in all other instances a diameter of more than 8.5 metres and

(b) in the case of a concrete monopile foundation have a diameter of more than 8.5 metres for use with meteorological stations and for use in all other instances of diameter of more than 10.5 metres.

(2) No gravity base foundation forming part of the authorised development shall have:

(a) for use with large HVDC substations or combined substations a length at the level of the seabed of more than 100 metres, a width of 15 metres or a height of more than 15 metres; or for use in all other instances, a diameter at the level of the seabed of more than 45 metres;

(b) a base height, where there is a flat base, of more than 7 metres above the level of the seabed;

(c) a cone/column intersect which is higher than 32 metres above the top of the base;

(d) a cone diameter of more than 45 metres at its base;

(e) a column diameter, where there is a flat or conical base, of more than 10 metres;

(3) No jacket foundation forming part of the authorised development shall have:

(a) for use with wind turbine generators a width spacing between each leg at the level of the seabed of more than 30 metres and more than 4 legs;

(b) a pile diameter of more than 3 metres;

(c) more than one pile per leg or more than one suction can per leg;

(d) for use with offshore substations, combined substations or large HVDC substations more than 8 legs; and for use with combined substations more than 16 legs;

(e) a suction can which is more than 14 metres in diameter

(4) No suction bucket monopod foundation forming part of the authorised development shall have:

(a) a diameter at the level of the seabed of more than 25 metres;

(b) a column diameter of more than 10.5 metres.

(5) No tripod foundation forming part of the authorised development shall have:

(a) more than three legs;

(b) a brace diameter of more than 5.5 metres;

(c) a pile diameter of more than 3 metres;

(d) more than one pile per leg;

(e) a column diameter of more than 8 metres;

(f) a suction can which is more than 14 metres in diameter.

Offshore safety management

8.—(1) No authorised development shall commence until the Secretary of State, in consultation with the MCA, has confirmed in writing that the undertaker has taken into account and adequately addressed all MCA recommendations contained within MGN371 "Offshore Renewable Energy Installations (OREIs) – Guidance on UK Navigational Practice, Safety and Emergency Response Issues" and its annexes including full details of the Emergency Co-operation Plans (ERCoP) for the construction, operation and decommissioning as appropriate to the authorised development.

(2) The undertaker will prepare and implement a project-specific Active Safety Management System, taking account of safety and mitigation measures as referred to in the navigation risk assessment in the environmental statement.

Aids to navigation

9. The undertaker shall at or near the authorised development during the whole period of the construction, operation, alteration, replacement or decommissioning of the authorised development exhibit such lights, marks, sounds, signals and other aids to navigation as Trinity House may from time to time direct.

10. The undertaker shall ensure that timely and efficient notices to mariners and other navigational warnings of the position and nature of the authorised development, are issued during and after the period of construction, alteration, replacement or decommissioning of the authorised development, such information to be promulgated to mariners in the shipping and fishing industry as well as to recreational mariners.

11. The undertaker shall notify Trinity House as soon as reasonably practicable of both the progress and completion of the authorised development and any aids for navigation established from time to time.

12. The undertaker shall provide reports on the availability of aids to navigation periodically as requested by Trinity House.

13. The undertaker shall notify the UK Hydrographic Office of the progress and completion of the authorised development.

14. —(1) The undertaker shall colour all structures yellow from at least highest astronomical tide to a height directed by Trinity House, or shall colour the structure as directed by Trinity House from time to time.

(2) Subject to paragraph (1) above, unless the Secretary of State otherwise directs, the undertaker shall ensure that the wind turbine generators shall be painted submarine grey (colour code RAL 7035).

Provision against danger to navigation

15. In case of injury to, or destruction or decay of, the authorised development or any part thereof the undertaker shall as soon as reasonably practicable notify Trinity House and shall lay down such buoys, exhibit such lights and take such other steps for preventing danger to navigation as Trinity House may from time to time direct.

Air traffic

16.—(1) No construction of any wind turbine generator forming part of the authorised development shall commence until the Secretary of State having consulted with the Operator is satisfied that appropriate mitigation will be implemented and maintained for the life of the authorised development and that arrangements have been put in place with the Operator to ensure that such appropriate mitigation is implemented before the authorised development gives rise to any adverse impact on air traffic services.

(2) In this requirement**:**

"appropriate mitigation" means measures to prevent or remove any adverse impacts which the operation of the authorised development will have on the Operator's ability to provide safe and efficient air traffic services during the lifetime of the authorised development in respect of which all necessary stakeholder consultation has been completed by the Operator and all necessary approvals and regulatory consents have been obtained;

"Operator" means NATS (En Route) plc incorporated under the Companies Act (4129273) whose registered office is 5th Floor, Brettenden House South, Lancaster Place, London, WC2E 7EN or such other organisation as is licenced from time to time under sections 5 and 6 of the Transport Act 2000 to provide air traffic services in an area which include the authorised development.

Lighting

17. The undertaker shall exhibit such lights, with such shape, colour and character as are required by Air Navigation Order 2005, or as directed by the CAA.

18.—(1) Each wind turbine generator forming part of the authorised development shall exhibit day and night a light with a luminous intensity of a maximum of 2000 candela and not less than 200 candela.

(2) Requirement (1) shall not apply to the illumination of any wind turbine generator in respect of which the Secretary of State following consultation with the Ministry of Defence shall have dispensed with such requirement or shall have specified alternative lighting requirements in writing.

Decommissioning

19. No authorised development shall commence until a written decommissioning programme in compliance with [any notice served upon the undertaker by the Secretary of State/the notice dated [•] pursuant to section 105(2) of the 2004 Act] has been submitted to the Secretary of State for approval.

Onshore traffic management

20. (1) No authorised development or part of the authorised development shall commence until a traffic management plan for the onshore port-related traffic to and from the selected port or ports for construction and/or operation of the authorised development, and relating to the authorised development, has been submitted to and approved in writing by the relevant planning authority in consultation with the relevant highway authority. The traffic management plan(s) shall be implemented as approved at all times specified within the traffic management plan(s) during the construction and/or operation of the authorised development unless otherwise agreed by the relevant planning authority.

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(2) For the purposes of this requirement, “relevant planning authority” and "relevant highway authority" mean the planning or highway authority or authorities in whose area the relevant port is located.

(3) For the purposes of this requirement “selected port” or “ports” means a port or ports situated in England and/or Wales.

Consents for connection and transmission works

21. (1) No works comprised in Work Nos. 1, 1(a), 1(c) and 2 shall commence until the Secretary of State has confirmed in writing that all the necessary consents for the connection and transmission works have been obtained.

(2) In this requirement –

“all the necessary consents” means such consent, order, permission or licence as is required for the connection works pursuant to either Section 31 of the 2008 Act or Part 3 of the 1990 Act and/or Part 4 Chapter 1 of the 2009 Act and/or section 37 of the Electricity Act 1989 or any amended or successor statutory provision(s) thereto.

“connection and transmission works” means all offshore cables (excluding Work No. 1(c)), onshore cables, onshore substations, converter stations, compounds or any other intermediate infrastructure and associated works which are required to transmit electricity and electronic communications from the authorised scheme between Work No. 2 and the point of connection with the onshore National Grid transmission system.

Aggregates dredging

22.--(1) No part of the authorised development shall commence south of a line shown on the works plan proceeding from point 1 to point 4 in sequence and lying 1,000m from the boundary of the active dredging area within the Humber Region Licensed Marine Aggregates Dredging Area 440 unless the Secretary of State has first approved a scheme of mitigation of impacts on aggregates dredging activity. Points 1 to 4 are specified below:

Point	Latitude (DMS)	Longitude (DMS)
1:	53°25’14.64”N	0°53’51.36”E
2	53°25’3.42”N	0°54’33.96”E
3	53°25’2.46”N	0°56’41.88”E
4	53°24’31.26”N	0°58’33.9”E

(2) The scheme of mitigation referred to in this requirement shall be implemented as approved.

(3) In this requirement:

"scheme of mitigation" means measures to maintain a construction restriction zone of 500m from the nearest wind farm structure where no aggregate dredging activity or aggregate dredging vessel manoeuvring will take place; and operational restriction zones extending 500m from the nearest wind farm structure where dredging vessel manoeuvring must not take place or extending 1,000m from the nearest wind farm structure where aggregate dredging activity may take place at some or all tidal states dependent on the aggregate dredging vessel hopper capacity.

"Wind farm structure" means any wind turbine generator, HVDC substation, collector substation, combined substation, meteorological station or cabling or other works comprised in the authorised development.

Pipeline or cable crossings

23.—(1) No part of the authorised development involving any pipeline and/or cable crossings shall commence unless and until the undertaker has ensured beforehand that the proposals and specifications for the pipeline and cable crossings meet the relevant statutory undertakers' safety standards in respect of that pipeline or cable crossing.

(2) On written request from the MMO the undertaker shall provide to the MMO copies of any documents and/or correspondence in relation to steps the undertaker has taken in compliance with sub-section (1) of this requirement, such requests not to be made more than four times per calendar year.

Offshore decommissioning

24. No authorised development shall commence until a written decommissioning programme in compliance with any notice served upon the undertaker by the Secretary of State pursuant to section 105(2) of the 2004 Act has been submitted to the Secretary of State for approval.

Schedule 2

DEEMED LICENCE UNDER MARINE AND COASTAL ACCESS ACT 2009

Part 1

Licensed Marine Activities

Interpretation

1.—(1) In this licence—

"the 1990 Act" means the Town and Country Planning Act 1990;

"the 2008 Act" means the Planning Act 2008;

"the 2009 Act" means the Marine and Coastal Access Act 2009;

"Annex 1 Habitat" means such habitat as defined under the EU Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora;

"authorised deposits" means the substances and articles specified in paragraph 2(3);

"authorised scheme" means Work Nos. 1 and 2 and any associated development described in paragraph 2 of this licence or any part of those works but does not include works c or d in sub-paragraph 2 of paragraph 2 of this licence;

"cable armouring" means measures to protect cables and prevent loss of seabed sediment by use of grout bags, protective aprons, mattresses, flow energy dissipation (frond) devices or rock and gravel dumping;

"Cefas" means the Centre of Environment, Fisheries and Aquaculture Science;

"collector substation" means a platform (either singly or as part of a combined substation) with one or more decks housing or incorporating high voltage alternating current electrical switchgear and/or electrical transformers and other equipment to enable power from multiple WTGs to be collected and electronically converted for transmission including permanent accommodation for operations and maintenance staff, helicopter landing facilities, craneage, access equipment, J-tubes, marking and lighting, and other associated equipment and facilities;

"combined substation" means a single platform comprising a collector substation combined with either an HVDC substation or with a large HVDC substation;

"commence**"** means beginning to carry out any material operation (as defined in Section 56(4) of the 1990 Act) forming part of the authorised project other than operations consisting of site clearance, archaeological investigations, environmental surveys, investigations for the purpose of assessing ground conditions, remedial work in respect of any contamination or other adverse ground conditions and "commencement" shall be construed accordingly;

"concrete monopile foundations" means a concrete or steel reinforced concrete pile, typically cylindrical, drilled into the seabed, and associated equipment including scour protection, J-tube, corrosion protection systems and access-related equipment;

"condition" means a condition in Part 2 of this licence;

"enforcement officer" means a person authorised to carry out enforcement duties under Chapter 3 of the Marine and Coastal Access Act 2009;

"the environmental statement" means the document certified as the environmental statement by the decision-maker for the purposes of this Order and submitted with the application on 31 January 2012**;**

"gravity base foundation" means a structure principally of steel, concrete or steel and concrete which rests on the seabed either due to its own weight with or without added ballast or additional

steel skirts and associated equipment including scour protection, J-tube, corrosion protection systems and access platform(s) and equipment;

"HVDC substation" means a platform (either singly or as part of a combined substation or linked by bridge to a collector substation) with one or more decks housing or incorporating high voltage direct current electrical switchgear and/or electrical transformers and other equipment to enable HVDC transmission to be used to convey the power output of the multiple WTGs to shore including permanent accommodation for operations and maintenance staff, helicopter landing facilities, craneage, access equipment, J-tubes, marking and lighting and other associated equipment and facilities;

"jacket foundation" means a metal jacket/lattice type structure constructed of steel or reinforced concrete which is fixed to the seabed at two or more points with driven or pre-installed piles or with suction cans and associated equipment including scour protection, J-tube, corrosion protection systems and access platform(s) and equipment;

"JNCC" means the Joint Nature Conservation Committee;

"the Kingfisher Fortnightly Bulletin" means the bulletin published by the Humber Seafood Institute or such other alternative publication approved in writing by the MMO;

"large HVDC substation" means an HVDC substation (either singly or as part of a combined substation) whose maximum dimensions exceed those of an HVDC substation;

"LAT" means lowest astronomical tide;

"licensed activities" means the activities specified in Part 1 of this licence;

"MCA" means the Maritime and Coastguard Agency;

"the Marine Management Organisation" or "MMO" means the body created under the Marine and Coastal Access Act 2009 which is responsible for the monitoring and enforcement of this licence;

"maintain" includes inspect, repair, adjust and alter, and further includes remove, reconstruct and replace any of the ancillary works in Part 2 of Schedule 1 and any component part of any wind turbine generator, collector substation, meteorological station or HVDC substation described in Part 1 of Schedule 1 (including replacement of defective subsea cables to the extent assessed in the Environmental Statement but not including the alteration removal or replacement of foundations) **;** and "maintenance" shall be construed accordingly;

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"major storm event" means a greater than 1 in 10 year wave event within the Order limits seaward of MHWS in terms of wave height;

"mean high water springs" or "MHWS" means the highest level which spring tides reach on average over a period of time;

"meteorological station" means a lattice tower housing or incorporating equipment to measure wind speed and other wind characteristics, including a service platform housing electrical switchgear and communication equipment and associated equipment, oceanographic equipment and connecting cable to be sited within 300 metres of the mast, and marking and lighting;

"monopile foundation" means a concrete monopile foundation or a steel monopile foundation;

"notice to mariners" includes any notice to mariners which may be issued by the Admiralty, Trinity House, Queen's harbourmasters, government departments and harbour and pilotage authorities;

"offshore substation" means either a collector substation or HVDC substation;

"the Order" means the Triton Knoll Offshore Wind Farm Order 201X;

"the Order limits" means the limits shown on the works plan within which the authorised project may be carried out, whose grid coordinates are set out in paragraph 2(3) of this Order;

"scour protection" means measures to prevent loss of seabed sediment around foundation bases by use of protective aprons, mattresses, flow energy dissipation (frond) devices or rock and gravel dumping;

"steel monopile foundation" means a steel pile, typically cylindrical, driven and/or drilled into the seabed and associated equipment including scour protection, J-tube, corrosion protection systems and access platform(s) and equipment;

"suction bucket monopod foundation" means a tubular metal structure which partially penetrates the seabed and remains in place using its own weight and a hydrostatic pressure differential and associated equipment, including scour protection, bracing, J-tube, corrosion protection systems and access platform(s) and equipment;

"suction can" means a large diameter steel cylinder which is fixed to the base of the foundation and partially penetrates the seabed and remains in place using its own weight and hydrostatic pressure differential;

"Trinity House" means The Corporation of Trinity House of Deptford Strond;

"tripod foundation" means a metal jacket/lattice type structure consisting of three main legs linked by cross-braces supporting a single central support for the transition piece and turbine, constructed of steel or reinforced concrete which is fixed to the seabed with driven or pre-installed piles or suction cans, and associated equipment including scour protection, J-tube, corrosion protection systems and access platform(s) and equipment;

"undertaker" means, subject to article 6(2) of the Order, Triton Knoll Offshore Wind Farm Limited;

"vessel" means every description of vessel, however propelled or moved, and includes a non-displacement craft, a personal watercraft, a seaplane on the surface of the water, a hydrofoil vessel, a hovercraft or any other amphibious vehicle and any other thing constructed or adapted for movement through, in, on or over water and which is at the time in, on or over water;

"wind turbine generator" or **"**WTG" means a structure comprising a tower, rotor with three blades connected at the hub, nacelle and ancillary electrical and other equipment which may include J-tube(s), transition piece, access and rest platforms, access ladders, boat access systems, corrosion protection systems, fenders and maintenance equipment, helicopter landing facilities and other associated equipment, fixed to a foundation;

"the works plan" means the plan certified as the works plan by the decision-maker for the purposes of the Order;

(2) A reference to any statute, order, regulation or similar instrument shall be construed as a reference to a statute, order, regulation or instrument as amended by any subsequent statute, order, regulation or instrument or as contained in any subsequent re-enactment.

(3) Unless otherwise indicated:

(a) all times shall be taken to be Greenwich Mean Time (GMT);

(b) all co-ordinates shall be taken to be latitude and longitude degrees and minutes to two decimal places.

(4) Except where otherwise notified in writing by the relevant organisation, the primary point of contact with the organisations listed below and the address for returns and correspondence shall be:

(a) Marine Management Organisation
Offshore Licensing Team
Lancaster House
Hampshire Court
Newcastle Business Park
Newcastle upon Tyne
NE4 7YH
Tel: 0300 123 1032;

(b) Trinity House
Tower Hill
London
EC3N 4DH
Tel: 020 7481 6900;

(c) The United Kingdom Hydrographic Office
Admiralty Way
Taunton
Somerset
TA1 2DN
Tel: 01823 337 900;

(d) Marine and Coastguard Agency
Navigation Safety Branch
Bay 2/04
Spring Place
105 Commercial Road
Southampton
SO15 1EG

Tel: 023 8032 9191;

(e) Centre of Environment, Fisheries and Aquaculture Science
Pakefield Road
Lowestoft
Suffolk
NR33 0HT
Tel: 01502 562 244

(f) Natural England
Foundry House
3 Millsands
Riverside Exchange
Sheffield
S3 8NH
Tel: 0300 060 4911;

(g) JNCC
Inverdee House
Baxter Street
Aberdeen
AB11 3EH
Tel 01224 266550

(h) English Heritage
Eastgate Court
195-205 High Street
Guildford
GU1 3EH
Tel: 01483 252 057.

(5) For information only, the details of the local MMO office to the authorised scheme are:
Marine Management Organisation – Lowestoft District Office
Pakefield Road
Lowestoft
Suffolk
NR33 0HT
Tel: 01502 573 149.

Details of licensed marine activities

2.—(1) This licence authorises the undertaker (and any agent or contractor acting on their behalf) to carry out the following licensable marine activities under section 66(1) of the 2009 Act, subject to the conditions:

(a) the deposit at sea of the substances and articles specified in paragraph (3) below;

(b) the construction of works set out in (2) below in or over the sea and/or on or under the sea bed;

(c) the removal of sediment samples for the purposes of informing environmental monitoring under this licence during pre-construction, construction and operation.; and

(d) the disposal of up to 1,058,968 m^3 of inert material of natural origin produced during the drilling installation of monopiles or jacket pin foundations within the Order Limits to the extent assessed in the environmental statement

(2) The works referred to in (1)(b) comprise:

Work No. 1 – An offshore wind turbine generating station with a gross electrical output capacity of up to 1200MW comprising up to 288 wind turbine generators each fixed to the seabed by one of five foundation types (namely, monopile, jacket, tripod, suction bucket monopod or gravity base foundation), fitted with rotating blades and situated within the coordinates for the Order limits shown on the Works plan and specified below, and further comprising (a) to (c) below;

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Coordinates for the Order limits (Datum: WGS 84)

Point	*Latitude (DMS)*	*Longitude (DMS)*	*Point*	*Latitude (DMS)*	*Longitude (DMS)*
1	53° 29' 12.732" N	0° 41' 28.839" E	4	53° 24' 31.248" N	0° 59' 39.385" E
2	53° 31' 42.626" N	0° 42' 58.367" E	5	53° 24' 31.234" N	0° 56' 1.766" E
3	53° 32' 16.234" N	0° 51' 40.692" E			

(a) up to 4 collector substations fixed to the seabed by jacket or monopole foundations within the Order limits;

(b) up to 4 meteorological stations fixed to the seabed by monopile, jacket, tripod, suction bucket monopod or gravity based foundations within the Order limits;

(c) a network of cables laid underground within the Order limits between the wind turbine generators, the meteorological stations, any collector substation and Work No. 2, for the transmission of electricity and electronic communications between these different structures, including one or more cable crossings;

and associated development within the meaning of section 115(2) of the 2008 Act comprising:

Work No. 2 – Up to 4 HVDC substations or up to 2 large HVDC substations fixed to the seabed by gravity, jacket or monopole foundations, within the Order limits;

and in connection with such Work Nos. 1 to 2 and to the extent that they do not otherwise form part of any such work, further associated development within the Order Limits comprising such other works as may be necessary or expedient for the purposes of or in connection with the relevant part of the authorised project and which fall within the scope of the work assessed by the environmental statement.

and in connection with such Work Nos. 1 to 2, works comprising:

(d) temporary landing places, or other means of accommodating vessels in the construction and/or maintenance of the authorised scheme; and

(e) buoys, beacons, fenders and other navigational warning or ship impact protection works;

(3) The substances or articles authorised for deposit at sea are:

(a) iron/steel;

(b) stone and rock;

(c) concrete;

(d) sand and gravel;

(e) plastic/synthetic;

(f) material extracted from within the offshore Order limits during construction drilling; and

(g) marine coatings, other chemicals and timber.

3. This licence shall remain in force until the authorised scheme has been decommissioned in accordance with a programme approved by the Secretary of State under section 106 of the 2004 Act, including any modification to the programme under section 108, and the completion of such programme has been confirmed by the Secretary of State in writing.

Part 2

Conditions

Design parameters

1.—(1) Subject to paragraph (2), no wind turbine generator forming part of the authorised development shall:

(a) exceed a height of 220 metres when measured from LAT to the tip of the vertical blade;

(b) exceed a height of 140 metres when measured from LAT to the height of the centreline of the generator shaft forming part of the hub;

(c) exceed a rotor diameter of 180 metres;

(d) be less than a multiple of 4 times the rotor diameter from the nearest WTG in either direction perpendicular to the approximate prevailing wind direction (cross-wind) or be less than a multiple of 7 times the rotor diameter from the nearest WTG in either direction which is in line with the approximate prevailing wind direction (downwind);

(e) have a distance of less than 22 metres between the lowest point of the rotating blade of the wind turbine and MHWS or less than 27.4 metres between the lowest point of the rotating blade of the wind turbine and LAT.

(2) References to the location of a wind turbine generator are references to the centre point of that turbine.

2. No wind turbine generator, HVDC substation, large HVDC substation, collector substation, combined substation or meteorological station forming part of the authorised development shall be erected within the areas hatched black on the Works plan, whose coordinates are specified below:

Point	*Latitude (DMS)*	*Longitude (DMS)*	*Point*	*Latitude (DMS)*	*Longitude (DMS)*
A	53° 26’ 33.465” N	0° 49' 43.804" E	C	53° 29' 53.970" N	0° 54' 07.534" E
B	53° 26’ 50.747” N	0° 48' 50.232" E	D	53° 29' 24.316" N	0° 54' 38.088" E

3.— (1) The total number of offshore substations forming part of the authorised development shall not exceed eight, comprising either:

(a) up to four collector stations and up to four HVDC substations, or

(b) up to four collector stations and up to two large HVDC substations, or

(c) up to four combined substations.

(2) The dimensions of any collector substation forming part of the authorised development (excluding towers, helipads, masts and cranes) shall not exceed 60 metres in height when measured from LAT and shall not exceed 45 metres in length and 45 metres in width.

(3) The dimensions of any HVDC substation forming part of the authorised development (excluding towers, helipads, masts and cranes) shall not exceed 60 metres in height when measured from LAT, and shall not exceed 77 metres in length and 65 metres in width.

(4) The dimensions of any large HVDC substation forming part of the authorised development (excluding towers, helipads masts and cranes) shall not exceed 60 metres in height when measured from LAT, and shall not exceed 100 metres in length and 75 metres in width.

(5) The dimensions of any combined substation forming part of the authorised development (excluding towers, helipads, masts and cranes) shall not exceed 60 metres in height when measured from LAT, and shall not exceed a footprint area which totals the combined maximum footprint area of the collector station (45 metres x 45 metres) and the HVDC substation (75 metres x 65 metres) or large HVDC substation (100 metres x 75 metres) which is comprised in the combined substation.

(6) Each offshore substation, combined substation or large HVDC substation shall have no more than one supporting foundation.

(7) No lattice tower forming part of a meteorological station shall exceed a height of 200 metres above LAT

(8) No meteorological station shall have more than one supporting foundation.

4.—(1) The total length of the cables comprising Work No. 1(c) shall not exceed 475 kilometres.

(2) The total length of cables comprising Work No. 1(c) which may be armoured with rock or stone shall not exceed 4750m and such armouring shall not exceed 10,000m^3.

5.—(1) No steel monopile foundation forming part of the authorised development shall**:**

(a) in the case of a steel monopile foundation have a diameter of more than 7 metres for use with meteorological stations and for use in all other instances a diameter of more than 8.5 metres and

(b) in the case of a concrete monopile foundation have a diameter of more than 8.5 metres for use with meteorological stations and for use in all other instances a diameter of more than 10.5 metres.

(2) No gravity base foundation forming part of the authorised development shall have:

(a) for use with large HVDC substations or combined substations a length at the level of the seabed of more than 100 metres, a width of 15 metres or a height of more than 15 metres; or for use in all other instances, a diameter at the level of the seabed of more than 45 metres;

(b) a base height, where there is a flat base, of more than 7 metres above the level of the seabed;

(c) a cone/column intersect which is higher than 32 metres above the top of the base;

(d) a cone diameter of more than 45 metres at its base;

(e) a column diameter, where there is a flat or conical base, of more than 10 metres;

(3) No jacket foundation forming part of the authorised development shall have:

(a) for use with wind turbine generators a width spacing between each leg at the level of the seabed of more than 30 metres and more than 4 legs;

(b) a pile diameter of more than 3 metres;

(c) more than one pile per leg or more than one suction can per leg;

(d) for use with offshore substations, combined substations or large HVDC substations more than 8 legs; and for use with combined substations more than 16 legs;

(e) a suction can which is more than 14 metres in diameter

(4) No suction bucket monopod foundation forming part of the authorised development shall have:

(a) a diameter at the level of the seabed of more than 25 metres;

(b) a column diameter of more than 10.5 metres.

(5) No tripod foundation forming part of the authorised development shall have:

(a) more than three legs;

(b) a brace diameter of more than 5.5 metres;

(c) a pile diameter of more than 3 metres;

(d) more than one pile per leg;

(e) a column diameter of more than 8 metres;

(f) a suction can which is more than 14 metres in diameter.

Notifications and inspections

6.—(1) The undertaker shall ensure that:

(a) a copy of this licence (issued as part of the grant of the Order) and any subsequent amendments or revisions to it is provided to:

(i) all agents and contractors notified to the MMO in accordance with condition 11; and

(ii) the masters and transport managers responsible for the vessels notified to the MMO in accordance with condition 11;

(b) Within 28 days of receipt of a copy of this licence those persons referred to in paragraph (a) above shall provide a completed confirmation form to the MMO confirming that they have read and will comply with the terms of the conditions of this licence.

(2) Only those persons and vessels notified to the MMO in accordance with condition 11 are permitted to carry out the licensed activities;

(3) Copies of this licence shall also be available for inspection at the following locations:

(a) the undertaker's registered address;

(b) any site office located at or adjacent to the construction site and used by the undertaker or its agents and contractors responsible for the loading, transportation or deposit for the authorised deposits; and

(c) on board each vessel or at the office of any transport manager with responsibility for vessels from which authorised deposits or removals are to be made.

(4) The documents referred to in paragraph (1)(a) shall be available for inspection by an authorised enforcement officer at the locations set out in paragraph 3(b) above.

(5) The undertaker must provide access, and if necessary appropriate transportation, to the offshore construction site or any other associated works or vessels to facilitate any inspection that the MMO considers necessary to inspect the works during construction and operation of the authorised scheme.

(6) The undertaker must inform the MMO in writing at least five working days prior to the commencement of the licensed activities or any part of them.

(7) Prior to the commencement of the licensed activities or any part of them the undertaker must publish in the Kingfisher Fortnightly Bulletin details of the vessel routes, timings and locations relating to the construction of the authorised scheme or relevant part.

(8) The undertaker shall ensure that a notice to mariners is issued at least 10 working days prior to the commencement of the licensed activities or any part of them advising of the start date of Work Nos. 1 and 2 (wind turbine generation station, offshore platforms or other offshore construction activities) and the expected vessel routes from the local construction ports to the relevant locations.

(9) The undertaker shall ensure that the notices to mariners are updated and reissued at weekly intervals during construction activities and within 5 days of any planned operations and maintenance works and supplemented with VHF radio broadcasts agreed with the MCA in accordance with the construction programme approved under condition 9(2). Copies of all notices shall be provided to the MMO.

(10) The undertaker must notify:

(a) the Hydrographic Office of both the progress and completion of the authorised scheme in order that all necessary amendments to nautical charts are made; and

(b) the MMO, MCA and Trinity House once the authorised scheme is completed and any required lighting or marking has been established.

Chemicals, drilling and debris

7.—(1) Unless otherwise agreed in writing by the MMO all chemicals used in the construction of the authorised scheme, including any chemical agents placed within any monopile void, shall be selected from the List of Notified Chemicals approved for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002 (as amended) unless otherwise agreed in writing by the MMO.

(2) Unless otherwise agreed in writing by the MMO the undertaker shall ensure that any coatings and any treatments are suitable for use in the marine environment and are used in accordance with guidelines approved either by the Health and Safety Executive or by the Environment Agency Pollution Prevention Control Guidelines.

(3) The storage, handling, transport and use of fuels, lubricants, chemicals and other substances shall be undertaken so as to prevent releases into the marine environment, including bunding of 110% of the total volume of all reservoirs and containers.

(4) Where foundation drilling works are proposed, in the event that any system other than water-based mud is proposed the MMO's written approval in relation to the proposed disposal of any arisings shall be obtained before the drilling commences, which may also require a marine licence.

(5) The undertaker shall ensure that any debris arising from the construction of the authorised scheme or temporary works placed below MHWS are removed on completion of the authorised scheme.

(6) At least two months prior to the commencement of the licensed activities the undertaker must submit to the MMO an audit sheet covering all aspects of the construction of the licensed activities or any part of them. The audit sheet shall include details of:

(a) loading facilities;

(b) vessels;

(c) equipment;

(d) shipment routes;

(e) working schedules; and

(f) all components and materials to be used in the construction of the authorised scheme.

(7) The audit sheet shall be maintained throughout the construction of the authorised scheme (or relevant part) and any changes notified immediately in writing to the MMO which must give written approval prior to any change being implemented.

(8) In the event that the MMO becomes aware that any of the materials on the audit sheet cannot be accounted for it shall require the undertaker to carry out a side scan sonar survey to plot all obstructions across the relevant area(s) within the offshore Order limits where the construction works and activities related to those materials have been carried out and, if the initial survey does not locate the missing materials, over such wider area as the MMO may reasonably request. Local fishermen shall be invited to send a representative to be present during the survey. Any obstructions that the MMO believes to be associated with the authorised scheme shall be removed at the undertaker's expense.

(9) The undertaker shall inform the MMO of the location and quantities of material disposed of each month under the Order, by submission of a disposal return by 31 January each year for the months August to January inclusive, and by 31 July each year for the months February to July inclusive.

(10) The undertaker shall ensure that only inert material of natural origin, produced during the drilling installation of monopiles or jacket pin foundations, and drilling mud shall be disposed of within the Order Limits. Any other materials shall be screened out before disposal at this site.

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Force majeure

8. If, due to stress of weather or any other cause the master of a vessel determines that it is necessary to deposit the authorised deposits outside of the Order limits because the safety of human life and/or of the vessel is threatened, within 48 hours full details of the circumstances of the deposit shall be notified to the MMO. The unauthorised deposits shall be removed at the expense of the undertaker unless written approval is obtained from the MMO.

Pre-construction plans and documentation

9. No part of the works at paragraph 2(2) of Part 1 Licensed Marine Activities of this Licence shall commence until the following (as relevant to that part) have been submitted to and approved in writing by the MMO;

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(1) A design plan at a scale of between 1:25,000 and 1:50,000, including detailed representation on the most suitably scaled admiralty chart, to be agreed in writing with the MMO in consultation with Trinity House and the MCA which shows:

(a) the indicative proposed layout and location of all wind turbine generators, offshore substations and meteorological stations;

(b) the choice of foundation of all wind turbine generators, offshore substations and meteorological stations;

Deleted: and

(c) the height to the tip of the vertical blade; height to the centreline of the generator shaft forming part of the hub; rotor diameter and spacing of all wind turbine generators;

(d) the height length and width of all offshore substations or combined substations;

(e) the height of all lattice towers forming part of meteorological stations;

(f) the length and arrangement of all cables comprising Work No 1(c);

(g) the dimensions of all steel monopile and concrete monopile foundations;

(h) the dimensions of all gravity base foundations;

(i) the dimensions of all jacket or tripod foundations;

(j) the dimensions of all suction bucket monopod foundations;

(k) all exclusion zones specified under sub-paragraph (8)(d) of this Condition of this Licence as are comprised in the works at paragraph 2(2) of Part 1 Licensed Marine Activities of this Licence;

Deleted: the proposed layout of all wind turbine generators, offshore substations and meteorological stations including

(l) the exclusion zone specified in Condition 2 of this Licence;

(m) in plan form, the indicative programming of particular works as set out in the indicative programme to be provided under condition 9(2)(d);

Deleted: plan showing layout of all wind turbine generators, offshore substations and meteorological stations including all exclusion zones comprised in the works at paragraph 2(2) of Part 1 Licensed Marine Activities of this Schedule (insofar as not shown in (x) above) showing graphically

to ensure conformity with the description of Works Nos 1 and 2 and compliance with conditions 1-5 above.

(2) A detailed construction and monitoring programme to include details of:

(a) the proposed construction start date;

(b) proposed timings for mobilisation of plant, delivery of materials and installation works;

(c) proposed pre-construction surveys, baseline report format and content, construction monitoring, post-construction monitoring and related reporting in accordance with conditions 9(8~~h~~), 13, 14 and 15. The pre-construction survey programme and all pre-construction survey methodologies shall be submitted to the MMO for written approval by the MMO in consultation with Natural England and JNCC at least four months prior to the commencement of any survey works detailed within~~.~~; and

(d) an indicative written construction programme for all wind turbine generators, offshore substations, meteorological substations and cables comprised in the works at paragraph 2(2) of Part 1 Licensed Marine Activities of this Licence (insofar as not shown in (b) above.

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(3) A construction method statement in accordance with the construction methods assessed in the environmental statement and including details of:

(a) drilling methods and disposal of drill arisings;

(b) turbine, meteorological mast and substation location and installation, including scour protection;

(c) cable installation;

(d) contractors;

(e) vessels; and

(f) associated works.

(4) A project environmental management and monitoring plan to include details of:

(a) a marine pollution contingency plan to address the risks, methods and procedures to deal with any spills and collision incidents during construction and operation of the authorised scheme in relation to all activities carried out;

(b) a chemical risk assessment to include information regarding how and when chemicals are to be used, stored and transported in accordance with recognised best practice guidance;

(c) waste management and disposal arrangements;

(d) the appointment and responsibilities of a fisheries liaison officer, to include preparation of a fisheries liaison plan as set out in the Environmental Statement a set out in the environmental statement, and an environmental liaison officer. The fisheries liaison officer shall be notified to and approved by the District Marine Officer for the MMO's Eastern District.

(5) A scour protection management and cable armouring plan providing details of the need, type, sources, quality area, volume and installation methods for scour protection and cable armouring and a statement of the total area and volume of scour protection and cable armouring material to be installed, to be within the scope of the environmental impact assessment recorded in the environmental statement;

(6) A marine mammal mitigation protocol to be agreed in writing with the MMO in consultation with Natural England and JNCC and following current best practice as advised by the statutory nature conservation agencies, to include:

(a) identification of a Marine Mammal Monitoring Zone (MMMZ);

(b) appointment of an appropriate number of suitably qualified marine mammal observer(s);

(c) methods for the detection of marine mammals within the MMMZ whether visually (by the marine mammal observer(s)) or acoustically using Passive Acoustic Monitoring equipment or other means of detection;

(d) a reporting methodology to enable efficient communication between the marine mammal observer(s) and the person responsible for approving commencement of piling;

(e) an appropriate soft start procedure whereby piling activities do not commence until an agreed time has elapsed and during which marine mammals have not been detected within the MMMZ;

(f) where appropriate methods for the application of acoustic deterrent devices**,** and

(g) where appropriate construction monitoring of marine mammals.

(7) A cable specification and installation plan, to include:

(a) technical specification of offshore cables, including a desk-based assessment of attenuation of electro-magnetic field strengths, shielding and cable burial depth in accordance with industry good practice; and

(b) a detailed cable laying plan for the Order limits, incorporating a burial risk assessment to ascertain suitable burial depths, pipeline and cable crossings and cable laying techniques.

(8) A written scheme of archaeological investigation (WSI) in relation to the Order limits in accordance with industry good practice and after discussions with English Heritage to include:

(a) details of responsibilities of the undertaker, archaeological consultant and contractor;

(b) a methodology for any further site investigation including any specifications for geophysical, geotechnical and diver or remotely operated vehicle investigations;

(c) analysis and reporting of survey data, and timetable, which is to be submitted to the MMO within three months of any survey being completed;

(d) delivery of any mitigation including, where necessary, archaeological exclusion zones;

(e) monitoring during and post construction, including a conservation programme for finds;

(f) archiving of archaeological material, inclusive of any completed and agreed archaeological reports produced through the WSI which are to be deposited by the undertaker within a public archive in accordance with the OASIS (Online AccesS to the Index of archaeological investigationS') system; and

(g) a reporting and recording protocol, including reporting of any wreck or wreck material during construction, operation and decommissioning of the authorised scheme.

10.—(1) Each programme, statement, plan, protocol or scheme required to be approved under condition 9 shall be submitted for approval at least four months prior to the intended start of construction, except where otherwise stated or unless otherwise agreed in writing by the MMO.

(2) The licensed activities shall be carried out in accordance with the approved plans, protocols, statements, schemes and details approved under condition 9, unless otherwise agreed in writing by the MMO.

(3) No part of this Licence authorises any part of the authorised development extending beyond the detailed design parameters at conditions 1-5.

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Reporting of engaged agents, contractors and vessels

11. —(1) The undertaker shall provide the following information to the MMO**:**

(a) the name and function of any agent or contractor appointed to engage in the licensed activities within seven days of appointment; and

(b) each week during the construction of the authorised scheme a completed Hydrographic Note H102 listing the vessels currently and to be used in relation to the licensed activities.

(2) Any changes to the supplied details must be notified to the MMO in writing prior to the agent, contractor or vessel engaging in the licensed activities.

Equipment and operation of vessels engaged in licensed activities

12.—(1) All vessels employed to perform the licensed activities shall be constructed and equipped to be capable of the proper performance of such activities in accordance with the conditions of this licence and (save in the case of remotely operated vehicles or vessels) shall comply with paragraphs (2) to (7) below.

(2) All motor powered vessels must be fitted with:

(a) electronic positioning aid to provide navigational data;

(b) radar;

(c) echo sounder; and

(d) multi-channel VHF.

(3) No radio beacon or radar beacon operating on the marine frequency bands shall be installed or used without the prior written approval of the Secretary of State.

(4) All vessels' names or identification shall be clearly marked on the hull or superstructure.

(5) All vessels shall exhibit signals in accordance with the requirements of the International Regulations for the Prevention of Collisions at Sea.

(6) All communication on VHF working frequencies shall be in English; and

(7) No vessel shall engage in the licensed activities until all the equipment specified in paragraph (2) is fully operational.

Pre-construction monitoring

13.—(1) The undertaker shall, in discharging condition 9(2) submit details for written approval by the MMO in consultation with Natural England and JNCC of proposed pre-construction surveys, including methodologies and timings, and a proposed format and content for a pre-construction baseline report. The survey proposals shall specify each survey's objectives and explain how it will assist in either informing a useful and valid comparison with the post-construction position and/or will enable the validation or otherwise of key predictions in the environmental statement. The baseline report proposals shall ensure that the outcome of the agreed surveys together with existing data and reports are drawn together to present a valid statement of the pre-construction position, with any limitations, and shall make clear what post-construction comparison is intended and the justification for this being required.

(2) The pre-construction surveys referred to in condition 13(1) shall unless otherwise agreed with the MMO have due regard to, but not be limited to, the need to undertake:

(a) a survey, in combination with data derived from condition 13(2)(c) to determine the location and extent of any benthic Annex 1 Habitat in whole or in part inside the area(s) within the Order limits in which it is proposed to carry out construction works;

(b) a survey to determine the location, extent and composition of any benthic habitats of conservation, ecological and or economic importance;

(c) a high resolution swath bathymetric survey and side- scan sonar survey of the area(s) within the Order limits in which it is proposed to carry out construction works, including a 500m buffer ~~area~~ around the site of each works and inclusive of seabed anomalies or sites of historical or archaeological interest that lie within that 500m buffer**;**

(d) a survey of existing ornithological activity inside the area(s) within the Order limits in which it is proposed to carry out construction works, and any wider area(s) where appropriate, which is required to test predictions in the environmental statement concerning key ornithological interests of relevance to the authorised scheme;

(e) a baseline survey of fish species of particular relevance to the authorised scheme within the Order limits in which it is proposed to carry out construction works, and any wider area(s) where appropriate.

(3) The undertaker shall carry out the surveys agreed under paragraph (1) and provide the baseline report to the MMO in the agreed format in accordance with the agreed timetable, unless otherwise agreed in writing by the MMO in consultation with Natural England and JNCC**.**

Construction monitoring

14.—(1) Unless otherwise agreed, the undertaker shall, in discharging condition 9(1), submit details for approval by the MMO in consultation with Natural England and JNCC of any proposed surveys or monitoring, including methodologies and timings, to be carried out during the construction of the authorised scheme. The details of the construction monitoring shall be submitted at least four months prior to the commencement of any survey works and provide the agreed reports in the agreed format in accordance with the agreed timetable, unless otherwise agreed in writing with the MMO in consultation with Natural England and JNCC. The survey proposals shall specify each survey's objectives. In any event, such monitoring shall, where driven or part-driven pile foundations are proposed to be used, include monitored background noise measurements (during periods when piling is not being undertaken) and measurements of noise generated by the installation of the first four monopile foundations. The results of the initial noise measurements shall be provided to the MMO within four weeks of the installation of the last of the four piles. The assessment of this report by the MMO shall determine whether any further noise monitoring is required.

(2) The construction surveys referred to in condition 14(1) shall also have due regard to but not be limited to the need to undertake monitoring of marine mammals as part of a marine mammal mitigation protocol under condition 9(6)(g) above.

Post construction surveys

15.—(1) The undertaker shall, in discharging condition 9(2) submit details for written approval by the MMO in consultation with Natural England and JNCC of proposed post-construction surveys, including methodologies and timings, and a proposed format, content and timings for providing reports on the results at least four months prior to the commencement of any survey works detailed within. The survey proposals shall specify each survey's objectives and explain how it will assist in either informing a useful and valid comparison with the pre-construction position and/or will enable the validation or otherwise of key predictions in the environmental statement.

(2) The post construction surveys referred to in condition 15(1) shall unless otherwise agreed with the MMO have due regard to but not be limited to the need to undertake:

(a) a survey of ornithological activity inside the area(s) within the Order limits in which construction works were carried out, and any wider area(s) where appropriate, which is required to test predictions in the environmental statement concerning key ornithological interests of relevance to the authorised scheme;

(b) one high resolution swath bathymetric survey and side scan sonar survey per annum around a sample of adjacent turbines to a distance of three turbine spacings to assess any changes in seabed topography. For this purpose the undertaker will prior to the first such survey submit a desk based assessment (which takes account of all factors which influence scour) to identify the sample of adjacent turbines with greatest potential for scour. The survey will be used to validate the desk

based assessment: further surveys beyond the maximum period of 3 years post-construction specified in 15(3) may be required if there are significant differences between the modelled scour and recorded scour**;**

(c) a survey to determine the location, extent and composition of any benthic habitats of conservation, ecological and or economic importance to validate predictions made in the environmental statement;

(d) a survey of fish species of particular relevance to the authorised scheme within the Order limits in which construction works were carried out, and any wider area(s) where appropriate, for comparison against the results of the baseline survey;

(e) dependent on the outcome of the survey undertaken in condition 13(2)(a) above, a survey to determine the effects of construction activity on any benthic Annex 1 Habitat in whole or in part inside the area(s) within the Order limits.

(3) The undertaker shall carry out the surveys agreed under paragraph (1) for a period of 3 years post-construction and provide the agreed reports in the agreed format in accordance with the agreed timetable, unless otherwise agreed in writing with the MMO in consultation with Natural England and JNCC.

Herring spawning

16. No pile driving works shall be carried out by or on behalf of the undertaker as part of or in relation to the authorised scheme between 1st September and 16th October each year unless the Marine Management Organisation provides written confirmation to the undertaker beforehand that such works can take place, in all or in a specified part of the site, during this period or a part of this period

Deleted: Installation of monopile foundations of greater than 7m diameter shall not be permitted during the herring spawning season (1st September to 16th October) in those parts of the Order limits lying to the north of the area hatched black on the works plan referred to in condition 2.¶
¶

EXPLANATORY NOTES

(This note is not part of the Order)

This Order grants development consent for, and authorises Triton Knoll Offshore Wind Farm Limited to construct, operate and maintain a generating station in the sea approximately 33km off the coast of Lincolnshire, 46km off the coast of Norfolk and 48km off the nearest point on the coast of the East Riding of Yorkshire, together with all necessary and associated development. The Order imposes requirements in connection with the development for which it grants development consent.

The Order also grants a deemed marine licence for the marine licensable activities, being the deposit of substances and articles and the carrying out of works, involved in the construction of the generating station and associated development. The deemed marine licence imposes conditions in connection with the deposits and works for which it grants consent.

A copy of the plans referred to in this Order and certified in accordance with article 12 (certification of plans, etc) of this Order may be inspected free of charge at the offices of [ ] Council at [●●].