

# Triton Knoll Offshore Wind Farm Limited Triton Knoll Electrical System

Planning Statement

April 2015

Application Document 8.4

Triton Knoll Offshore Wind Farm Limited

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Triton Knoll Offshore Wind Farm Limited have been awarded EU TEN-E funding to support the development of the Triton Knoll Offshore Wind Farm Electrical System located in both UK Territorial waters and the UK's Exclusive Economic Zone.

The funding which is to be matched will support a number of surveys, engineering reports, and environmental impact assessment studies for the Triton Knoll Electrical System. The studies will form part of the formal documentation that will accompany the Development Consent Order which will be submitted to the Planning Inspectorate. The sum of €1,159,559 has been granted and the process to reclaim this funding is ongoing.

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## 1 EXECUTIVE SUMMARY

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This Planning Statement sets out the case for the relevant Secretary of State granting Development Consent for the Triton Knoll Electrical System (TKES).

The need case for the TKES is identified and proven through reference to the Secretary of State's Direction under section 35 of the Planning Act which confirms the project's national importance as part of the consented Triton Knoll Offshore Wind Farm, and through further reference to international, European and national policy and legislation.

This Planning Statement focuses on relevant policy within the National Policy Statements EN-1, EN-3 and EN-5 which are the primary decision-making documents in respect of this proposal. Each relevant technical section is addressed in turn.

Through the Environmental Impact Assessment undertaken, Triton Knoll Offshore Wind Farm Limited has found that for a project of the national importance of the TKES, effects are very limited and almost universally not significant. Where effects are potentially significant, they are spatially and temporally constrained and apply to very limited technical areas within the National Policy Statements.

This Planning Statement shows that the primary reasons set out in the relevant National Policy Statements where the Secretary of State might consider against granting consent are not engaged, or close to being engaged. In particular TKOWFL's extensive alternatives process, comprising the Interface Selection Assessment and the Site Selection and Design processes have achieved fundamental minimisation of all potentially major impacts on international or national designations and habitats.

The granting of consent for the TKES will ensure the successful transmission of renewable energy from the consented Triton Knoll Offshore Wind Farm array, sufficient to meet the average electricity needs of up to 800,000 average UK households each year.

Triton Knoll Offshore Wind Farm Limited therefore finds that the planning balance falls clearly in favour of the benefits of the proposal outweighing its limited effects, and that the proposals are fully in accordance with the relevant National Policy Statements and other material considerations, and therefore respectfully requests that the Secretary of State grants consent in accordance with the criteria set out in section 104 of the Planning Act 2008.

## 1 INTRODUCTION

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1.1 This Planning Statement sets out the reasons why Triton Knoll Offshore Wind Farm Limited (TKOWFL) considers that the proposals for the Triton Knoll Electrical System (TKES) meet with the requirements of relevant legislation, energy policy and planning policy.

1.2 The Planning Statement is structured as follows:

- Section 3 provides an outline of the TKES and the consented Triton Knoll Offshore Wind Farm (TKOWF) array for which the proposals will facilitate the transmission of electricity for use in the national electricity network (the ‘national grid’);
- Section 4 identifies the legislative framework and planning policy context within which the proposals have been brought forward by TKOWFL over the last five years and within which the proposals will be considered by the relevant Secretary of State (SoS);
- Section 5 presents the need case for the TKES, as supported by international, European and UK legislation and policy; and
- Sections 6 and 7 confirm how the TKES conforms to the National Policy Statements and other potentially relevant material policy documents, within technical and planning considerations set out therein:
- Section 6 describes the Interface Selection Assessment and Site Selection and Design processes (collectively referred to as the ‘alternatives process’) that TKOWFL has undertaken to arrive at the final form of the consent application, and how this complies with applicable policy and legislation;
- Section 7 is set out against the relevant technical headings as they appear in EN-1<sup>1</sup>, EN-3<sup>2</sup> and EN-5<sup>3</sup>, with reference to other potentially relevant policy as appropriate; and
- Section 8 compares the need case and benefits delivered by the proposal with the potential adverse effects and demonstrates that the

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<sup>1</sup> Overarching National Policy Statement for Energy (EN-1), Department of Energy and Climate Change (2011)

<sup>2</sup> National Policy Statement for Renewable Energy Infrastructure (EN-3), Department of Energy and Climate Change (2011)

<sup>3</sup> National Policy Statement for Electricity Networks Infrastructure (EN-5), Department of Energy and Climate Change (2011)

planning balance falls strongly in favour of consent by the relevant Secretary of State.

- 1.3 Throughout this Planning Statement a short referencing system is used wherever possible where the context is clear, to assist with readability of the document. For example a reference to EN-1 (5.8.1) notes that the text is referring to paragraph 5.8.1 of the Overarching National Policy Statement for Energy (EN-1).

## 2 SCHEME DESCRIPTION

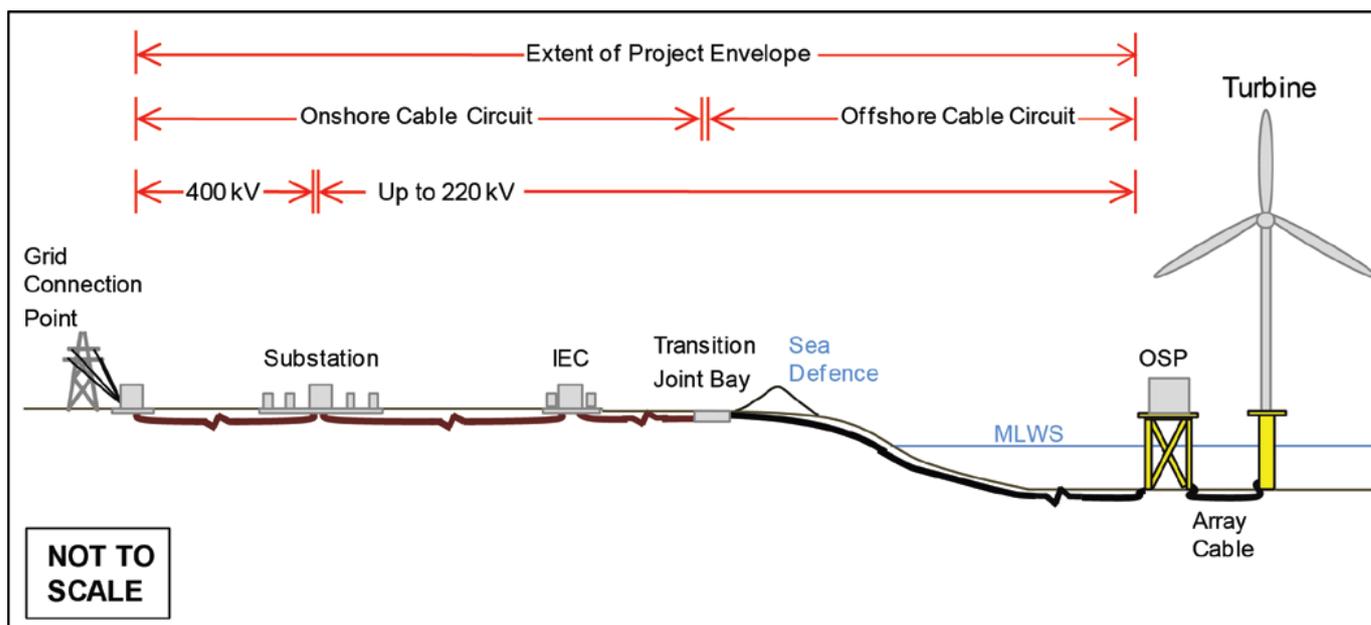
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### Introduction

- 2.1 A full description of the TKES is set out in Volume 2: Chapter 1: Offshore Project Description and Volume 3: Chapter 1: Onshore Project Description of the Environmental Statement (ES).
- 2.2 This section therefore provides a high-level summary of the key project components to aid the reader in subsequent sections of this Planning Statement.

### Triton Knoll Electrical System

- 2.3 The power generated by the wind turbines of the TKOWF array is collected by offshore substation platforms ('OSPs') and transformed to a suitable voltage before being exported by sub-sea (offshore) and underground (onshore) cabling. Offshore substations that collect the power from the TKOWF array were consented within the existing array Development Consent Order (DCO) and hence do not form part of the TKES application. However the TKES encompasses the majority of the offshore array boundary to facilitate the necessary cable connection to the final chosen location of each OSP.
- 2.4 The offshore cable route will typically be up to 1,100 m wide. Cables will be laid in pairs, with 50 m spacing within each pair and 250 m between each pair, except on the approach to the landfall where the spacing reduces to 5 m and 10 m respectively within and between each pair, and on the approach to offshore substations where the spacing will increase. Final offshore cable burial depths will be based on a cable burial risk assessment which will recommend target cable burial depths for a range of seabed compositions and required levels of protection e.g. from different sizes of shipping vessels, anchorage and a range of fishing and marine activities.
- 2.5 The following techniques, or a combination of them, may be used to install the offshore cables:
- Ploughing (both pre-cut and post-lay);
  - Jet-trenching; and
  - Mechanical trenching.



**Figure 3- 1: Triton Knoll Electrical System schematic**

- 2.6 The maximum number of circuits required to transmit the power from the TKOWF array to shore is six. To join the offshore cables to the onshore cables, up to six Transition Joint Bays (TJBs) are required onshore in the immediate proximity of the shoreline to the north of Anderby Creek. Each TJB comprises a largely buried installation with typically two covers visible at ground level to allow access for fault testing.
- 2.7 The offshore cables connect from their offshore trench to the TJBs through a duct system to be installed by one of three trenchless methods:
- horizontal directional drilling (HDD);
  - micro-boring; or
  - pipe-jacking.
- 2.8 These methods allow the incoming subsea cables to reach the onshore TJBs with minimal impact on the intertidal zone, shoreline defences and the Huttoft Bank Dunes Local Wildlife Site.
- 2.9 Onshore cables between the TJBs and the proposed new Triton Knoll Substation at Bicker Fen are installed in ducts. The onshore cable circuits will be installed in a single corridor which will be up to 60 m wide during the construction phase.

- 2.10 An onshore Intermediate Electrical Compound (IEC) is required between the offshore array and the Triton Knoll Substation at Bicker Fen to compensate for the reactive power that is inherent in long distance alternating current circuits. The IEC will be located onshore in East Lindsey District, east of the village of Orby.
- 2.11 The IEC above ground electrical infrastructure will occupy an area up to 1.7 ha with a maximum building height up to 13 m, although the majority of infrastructure in the IEC will be lower than this level. Critical equipment within the compound will be raised up to 2.1 m above existing ground level to ensure adequate flood protection. The assessed design of the IEC is based on the use of gas-insulated switchgear (GIS) which requires a building to house sensitive equipment, although electrical equipment will also be located outdoors. Up to 4 lightning protection rods with maximum heights of 18 m above the finished ground level will be required.
- 2.12 A new Triton Knoll Substation (the 'Substation') in the vicinity of the existing substation, operated by National Grid Electricity Transmission plc (NGET), at Bicker Fen will transform the export voltage upwards to match the operating voltage of the national electricity network at 400 kilovolts (kV). The power will be transferred at 400 kV between the new Substation and the existing NGET Bicker Fen substation, which is the contractual Onshore Interface Point with the existing national transmission network.
- 2.13 The Substation will comprise an above ground electrical infrastructure area of either up to 8.6 ha if AIS technology is selected or up to 6.9 ha if GIS technology is selected, although consent is sought for an area of 8.6ha to accommodate both options. A maximum equipment height of up to 12 m (AIS) or a maximum building height of up to 13 m (GIS) will be required. Critical equipment within the compound will be raised up to 1.51 m above existing ground level to ensure adequate flood protection. Up to 22 lightning protection rods with maximum heights of 18 m above the finished ground level will be required.
- 2.14 The 400 kV cable between the step-up Substation and the Onshore Interface Point will be laid in a similar manner to the rest of the onshore cable route. Up to four circuits will be required, each comprising three single-phase cables and up to three fibre optic cables per circuit. The overall cable corridor width during the construction phase will be up to 60 m and larger ducts may be required than the rest of the onshore circuits.
- 2.15 Enabling works will be required within the existing NGET Bicker Fen substation footprint, including possible installation of new switchgear and

busbars and associated earthworks. These works will be carried out by NGET under existing consents or will fall within permitted development rights.

- 2.16 Once the NGET Grid enabling works have been completed, TKOWFL will be able to populate the NGET Grid substation connection bays and connect the 400 kV cables, known as the 'Unlicensed Works'. The Unlicensed Works will take place entirely within the existing footprint of the substation and are electrical works needed to connect Triton Knoll to the NGET substation at Bicker Fen, but which NGET is not required pursuant to its transmission licence to carry out itself. These works can therefore be undertaken by TKOWFL or a future OFTO (Offshore Transmission Owner).

### **Triton Knoll Array**

- 2.17 Whilst not forming part of the TKES application, to provide context, a summary is provided below of the consented Triton Knoll array which is:
- Located approximately 33 km (20.5 miles) east of the Lincolnshire coast;
  - Up to 288 turbines with a maximum generating capacity of up to 1,200 megawatts (MW) (Note that TKOWFL has subsequently announced that the construction capacity will be a maximum of 900 MW); and
  - Up to four Offshore Substation Platforms (OSP);
- 2.18 The TKOWF array could provide enough renewable electricity to meet the average needs of up to 800,000 average UK households each year.<sup>4</sup>

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<sup>4</sup>Energy predicted to be generated by the proposal is derived using long term wind speeds calculated by meteorological models seeded with historical weather data obtained from satellite, surface-based and airborne measurement systems. This enables a calculation to be made to estimate the average annual energy production for the site based on 150 turbines each of rated capacity 6 MW. The energy capture predicted and hence derived homes equivalent or emissions savings figures may change as further data are gathered. Equivalent homes supplied is based on an annual electricity consumption per home of 4500 kWh. This figure is supported by recent domestic electricity consumption data available from The Digest of UK Energy Statistics and household estimates and projections from the UK Statistics Authority.

## 3 LEGISLATIVE FRAMEWORK AND PLANNING POLICY CONTEXT

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### Legal Framework

#### Planning Act

- 3.1 The Planning Act 2008 (as amended) ('the Act') requires 'development consent' to be obtained to the extent that a development is, or forms part of, a Nationally Significant Infrastructure Project (NSIP)<sup>5</sup>.
- 3.2 The Act sets out the categories that qualify as NSIP, including the construction or extension of a generating station, within which the consented Triton Knoll Offshore Wind Farm array was categorised (as an offshore generating station with a capacity of more than 100 megawatts). Furthermore the Act also allows for 'associated development' to be included with an NSIP, in relation to which the DCLG's *'Guidance on associated development applications for major infrastructure projects'*<sup>6</sup> identifies that substations, compounds, jointing pits and underground lines are examples of associated development specific to offshore generating stations.
- 3.3 On the basis of the above, from 2009, TKOWFL's intention was that the electrical connection from the TKOWF array to the existing 400 kV national electricity network (the 'national grid') at Bicker Fen would be brought forward as associated development to the offshore generating station NSIP.
- 3.4 However, in 2010, NGET advised TKOWFL that it intended to reconsider the strategic options for connecting the TKOWF array, and therefore to review the location of the Onshore Interface Point, being the point at which the connection to the existing onshore 275/400 kV transmission network is made. Subsequently TKOWFL decided that there would be insufficient time for proper consideration of connection options, to complete a comprehensive alternatives assessment and allow adequate stakeholder engagement, without removing the TKES from the main wind farm NSIP application. On this basis the TKES was ultimately not included in the development consent application submitted in 2012 for the offshore wind farm NSIP. Further background to this decision and the subsequent extensive work on

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<sup>5</sup> Section 31 Planning Act 2008

<sup>6</sup> Guidance on associated development applications for major infrastructure projects, Department for Communities and Local Government (2013)

alternatives is set out in TKOWFL's *'Interface Selection Assessment Report' (Application Document 8.18)* and *'Site Selection and Design Report' (Application Document 8.17)*.

- 3.5 However in addition to projects categorised as NSIPs, the Act also allows promoters to seek a direction from the relevant SoS that proposed development requires development consent, regardless of whether it falls within the Act's categorisation of a NSIP<sup>7</sup>. Having reviewed various options for achieving consent, TKOWFL ultimately applied to the relevant SoS for such a direction. On 14<sup>th</sup> November 2013 the SoS confirmed that the project is a development for which development consent is required and stated that:

*'Having considered the details of RWE Npower Renewables Limited grid connection proposals as set out in the letter and Supporting Statement, the Secretary of State is of the view that this development when considered with the proposed Triton Knoll Offshore Wind Farm is nationally significant, for the reasons set out in the Annex below.'*

- 3.6 In his reasons, the SoS set out that the grid connection is of national significance because:

*'It is needed to deliver the electricity generated by the consented Triton Knoll Offshore Wind Farm array (a project of national significance) into the national grid transmission system.'*

- 3.7 The response confirms that the TKES is an essential and integral component of achieving successful renewable energy generation from the consented TKOWF array. Therefore the need for the TKES remains wholly justified by the offshore generating station and the national and pressing need for such renewable energy development, including as set out in National Policy Statements EN-1 and EN-3.
- 3.8 Furthermore this Planning Statement reinforces in sections 5 and 6 how TKOWFL has identified an efficient and economic electrical connection which, in accordance with EN-1 (3.7.10), confirms that the need case has been proven.

### **Marine and Coastal Access Act**

- 3.9 Any consent granted under the Act can include provision deeming the grant of a marine licence (under the Marine and Coastal Access Act 2009) for

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<sup>7</sup> Section 35 Planning Act 2008

licensable works carried out wholly in England, waters adjacent to England up to the seaward limits of the territorial sea or the UK Renewable Energy Zone (REZ). TKOWFL has included a deemed marine licence in its application for development consent, to cover offshore cabling and related works between the TKOWF array and Mean High Water Springs (MHWS).

### **Electricity Act**

- 3.10 TKOWFL has sought and obtained a generation licence under the Electricity Act, which grants certain rights and also places certain obligations upon it, including the need to consider the preservation of amenity in any development it brings forward. Furthermore NGET has worked closely with TKOWFL to determine the preferred Onshore Interface Point, where the TKES should join the existing 400 kV national transmission network. NGET is bound, specifically as a transmission licence holder<sup>8</sup>, to ensure the development of an efficient, co-ordinated and economic network. This obligation will also apply to the future OFTO that adopts the TKES, who will also be the holder of a transmission licence. Whilst not explicitly required to do so by the Electricity Act, TKOWFL has approached the development of the TKES in the same manner as NGET or the future OFTO would be legally bound to do.

### **Environmental Impact Assessment (EIA) Regulations**

- 3.11 The relevant EIA Regulations for the TKES are The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and are the basis on which TKOWFL's Environmental Statement (Application Document 6.2) has been prepared.

### **Habitats Regulations**

- 3.12 The *Report to Inform an Appropriate Assessment (Application Document 5.3)* concludes that there will not be a likely significant effect arising from the works associated with the TKES during the construction, operation and maintenance, or decommissioning phases of the project. In light of the works associated with the operation and maintenance phases of the Lincs and Lynn and Inner Dowsing Offshore Wind Farm projects it is considered that whilst a likely significant effect cannot be ruled out, there will not be an adverse effect on the Inner Dowsing, Race Bank, and North Ridge Site of Community

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<sup>8</sup> Section 9(2)(a) Electricity Act 1989

Importance (SCI) features arising from the TKES either alone or in combination with other projects.

## Summary

- 3.13 Although the primary Act governing the consideration of a DCO is the Planning Act 2008, the Electricity Act obligations on TKOWFL, NGET and the future adopting OFTO have fundamentally shaped the development of the TKES. Various other Acts also apply and other relevant legislation has been set out and considered within each individual Environmental Statement (ES) Chapter.

## Planning Policy Context

### National Policy Statements

- 3.14 The Act<sup>9</sup> requires that 'The Secretary of State must decide the application in accordance with any relevant national policy statement, except to the extent that one or more of subsections (4) to (8) applies'. Hence the NPS are legally enshrined as the primary decision-making basis as long as other key criteria are satisfied, such as lawfulness and that the scheme benefits outweigh its adverse impacts.
- 3.15 Within this context EN-1, the overarching NPS for Energy (4.1.2), also states that:
- '...the IPC<sup>10</sup> should start with a presumption in favour of granting consent to applications for energy NSIPs. That presumption applies unless any more specific and relevant policies set out in the relevant NPSs clearly indicate that consent should be refused.'*
- 3.16 EN-1 applies across all energy projects and is supported with respect to renewable energy generation and electricity networks by EN-3 and EN-5 respectively.
- 3.17 EN-1 constitutes the primary NPS (supported by EN-3 and EN-5) for the need case for the TKES, as set out in sections 4.7 and 4.8 above.

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<sup>9</sup> Section 104 Planning Act 2008

<sup>10</sup> Note that the NPS refer to the Infrastructure Planning Commission (IPC) which was abolished by the Localism Act 2011. After this Act the IPC's decision making duties were transferred to the relevant Secretary of State. All references to the IPC in this Planning Statement should therefore be read as being to the relevant Secretary of State

- 3.18 EN-1 (4.2.2 & 4.2.4) steers the decision maker to focus on significant effects. Throughout the TKES ES, effect levels of minor, negligible and no effect are considered not significant, whilst moderate and major effects are considered potentially significant.
- 3.19 EN-3's coverage includes offshore matters, but in this respect focuses on offshore wind generating stations with a capacity greater than 100 MW. Therefore the main effects anticipated in EN-3 are those that derive from offshore wind turbines and their foundations. However EN-3 (2.6.3) also sets out that:
- 'For clarification, any reference within this NPS to offshore wind farm infrastructure includes all the elements which may be part of an application, including wind turbines, all types of foundations, onshore and offshore substations, anemometry masts, accommodation platforms and cabling.'*
- 3.20 Therefore TKOWFL considers that whilst EN-3 should not be considered the primary NPS for the development of an offshore electrical connection, the various relevant offshore technical aspects have been considered in accordance with EN-3 and against relevant policies for offshore cabling where they exist.
- 3.21 EN-3 (2.6.41) is also clear that, for offshore wind schemes:
- 'The onshore element of the grid connection (electric lines and substations) should be determined in accordance with the Electricity Networks Infrastructure NPS, EN-5. Depending upon the scale and type of this onshore development, elements of it could constitute either associated development or an energy NSIP in its own right.'*
- 3.22 EN-5 is clear that it covers both transmission systems (the long distance transfer of electricity through 400kV and 275kV lines) and associated infrastructure such as substations. EN-5 also provides coverage of matters such as site selection (2.2), including the general factors that may contribute to the location of network infrastructure and where flexibility may occur. EN-5 also cross refers frequently to the obligations placed upon network developers and licensees by the Electricity Act.
- 3.23 Section 2.3 of EN-5 includes references to the reasons why an electricity network might be brought forward separately from its associated generating station, as has occurred in the case of the TKES and the TKOWF array.
- 3.24 The latter part of each NPS, comprising the majority of each of EN-1, EN-3 and EN-5, addresses key technical topics. Each topic is introduced in a similar format, typically covering what the applicant's assessment should contain, how the SoS should make their decision and what mitigation might

be appropriate. These technical matters within each NPS are considered in detail throughout section 7 of this Planning Statement.

### Marine Policy Statement and Marine Plans

- 3.25 The UK Marine Policy Statement (MPS)<sup>11</sup> is the framework for the preparation of Marine Plans and taking decisions relating to the marine environment, implemented under the Marine and Coastal Access Act 2009 in England and Wales.
- 3.26 The MPS states that the SoS must have regard to it when making decisions in respect of development consent order applications under the Act.
- 3.27 It also requires that 'Marine Plans must be in conformity with any MPS in effect in the marine plan area, unless relevant considerations indicate otherwise.' However this is set in the context of the SoS only having to have regard to the MPS and the ordinary ability for the relevant authority to issue a decision not in accordance with the MPS or a Marine Plan, as long as its reasons are stated.
- 3.28 The East Inshore and East Offshore Marine Plans<sup>12</sup> (contained in a single document) are the relevant Marine Plans and were published in April 2014. Their boundaries cover an area which extends from Flamborough Head in the north to Felixstowe in the south. The East Inshore Plan extends out to 12 nautical miles, whilst the East Offshore Plan covers the area beyond this, out to the boundary of the Exclusive Economic Zone and borders with the Netherlands, Belgium and France.

### National Planning Policy Framework

- 3.29 The National Planning Policy Framework<sup>13</sup> (NPPF) was issued in March 2012 and replaced the majority of existing Planning Policy Statements (PPS) which guided the development of policies adopted by Local Planning Authorities (LPA) to determine applications under the Town and Country Planning Act. The NPPF (para. 3) acknowledges that:

*'This Framework does not contain specific policies for nationally significant infrastructure projects for which particular considerations apply. These are*

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<sup>11</sup> UK Marine Policy Statement, The Stationery Office (2011)

<sup>12</sup> East Inshore and East Offshore Marine Plans, Department for Environment, Food and Rural Affairs (2014)

<sup>13</sup> National Planning Policy Framework, Department for Communities and Local Government (2012)

*determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant national policy statements for major infrastructure, as well as any other matters that are considered both important and relevant (which may include the National Planning Policy Framework).'*

- 3.30 EN-1 (4.1.5) mirrors this position, albeit through reference to the PPS, as the NPPF had not yet come into force when the energy NPS were designated:

*'Other matters that the IPC may consider both important and relevant to its decision-making may include Development Plan Documents or other documents in the Local Development Framework. In the event of a conflict between these or any other documents and an NPS, the NPS prevails for purposes of IPC decision making given the national significance of the infrastructure. The energy NPSs have taken account of relevant Planning Policy Statements (PPSs) and older-style Planning Policy Guidance Notes (PPGs) in England and Technical Advice Notes (TANs) in Wales where appropriate.'*

- 3.31 The above statement also identifies that the decision-maker should consider any Development Plan Documents or other documents in the Local Development Framework.

#### **Directly or Potentially Affected Local Planning Authorities**

- 3.32 The TKES passes through the following LPA areas:
- East Lindsey District Council (ELDC), including the landfall at Anderby Creek and the IEC to the west of Orby; and
  - Boston Borough Council (BBC), including the Substation and the Unlicensed Works at the existing NGET Bicker Fen substation.
- 3.33 ELDC, BBC and Lincolnshire County Council, along with bordering authorities, will be invited to submit a Local Impact Report under the Planning Act 2008, which must be given regard by the decision-maker.
- 3.34 The landfall and cable route through East Lindsey are significantly distant from other local planning authority areas, such that no direct or indirect impacts on adjacent authorities are anticipated.
- 3.35 The cable route through Boston Borough is also distant from adjacent LPA boundaries for the majority of its length. However North Kesteven District lies adjacent to the Substation on the northwest side of the South Forty Foot Drain, whilst South Holland District and South Kesteven District lie approx. 0.6 km and approx. 3.6 km distant respectively at their nearest points.

- 3.36 None of the above authorities are unitary. Boston Borough, East Lindsey, North Kesteven, South Kesteven and South Holland Districts all lie within Lincolnshire County.

#### **East Lindsey District Council**

- 3.37 The East Lindsey District Local Plan adopted 1995 (as amended 1999) (saved policies)<sup>14</sup> is the current statutory development plan in the District.
- 3.38 ELDC commenced preparation of a Local Development Framework under the previous planning system. Within this framework it consulted upon an Issues and Options Document in November 2007 and on a Draft Core Strategy in November 2009. It has subsequently carried out a Sustainability Appraisal of the key issues and undertaken an exercise to ensure the Core Strategy conforms to the NPPF.
- 3.39 The Draft Core Strategy was released for further consultation in November 2012 until 19<sup>th</sup> January 2013. ELDC also undertook consultation on the proposed housing target and preferred growth option for the emerging Local Plan. This consultation ran between 9<sup>th</sup> May 2014 and 23<sup>rd</sup> June 2014. Furthermore ELDC has also amended some policies in the Draft Core Strategy since January 2014 through consideration by the Planning Policy Committee.
- 3.40 On the basis of the above, it is considered that saved policies of the 1995 Local Plan are of potential relevance. Furthermore the policies of the Draft Core Strategy<sup>15</sup> are considered in this Planning Statement on the basis that it has been the subject of consultation and an assessment against the NPPF.

#### **Boston Borough Council**

- 3.41 The Boston Borough Local Plan adopted 1999 (saved policies)<sup>16</sup> is the current statutory development plan in the Borough.
- 3.42 BBC also adopted, for development management purposes, the Interim Plan (Non-Statutory Development Control Policy) in February 2006. The policies of the Interim Plan can therefore be afforded very little or no weight at all, even in local planning decisions, as the plan does not comprise the statutory

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<sup>14</sup> East Lindsey Local Plan Alteration 1999, ELDC (1999)

<sup>15</sup> Draft Core Strategy, ELDC (2012)

<sup>16</sup> Boston Borough Local Plan Adopted Version, BBC (1999)

development plan and some policies were the subject of significant objections to the first draft or re-deposit draft Local Plan stages. The Interim Plan is therefore not considered further in this Planning Statement.

- 3.43 The South East Lincolnshire Joint Strategic Planning Committee was established by Order in July 2011 (for both Boston Borough and South Holland District) with the purpose of developing a Local Development Scheme and Local Development Documents, which will supersede the existing 1999 Boston Borough Local Plan (saved policies). In March 2015 the Committee issued a third revision of the Local Development Scheme setting out the timetable for delivery of the new Local Plan. The LDS set out the intention to prepare a Draft Local Plan (including site options for development) from January – September 2015. Therefore the last key document produced by the Joint Committee is the ‘*Combined Preferred Options & Sustainability Report*’ (May 2013), which was the subject of consultation in May-June 2013. This document does not constitute the draft Local Plan and as such the ‘*Combined Preferred Options & Sustainability Report*’ is not considered further in this Planning Statement. However it is acknowledged that the draft Local Plan may become of some relevance, and increasingly so, during the period of consideration of the TKES by the Planning Inspectorate (PINS) and SoS.
- 3.44 On this basis, at the submission of this application, the saved policies of the 1999 Boston Borough Local Plan are the only policies considered of potential relevance, where they accord with the NPPF, within the context of the overarching weight of the NPS.

#### **North Kesteven District Council**

- 3.45 The North Kesteven Local Plan adopted 2007 (saved policies)<sup>17</sup> is the current statutory development plan in the District. All policies of the 2007 plan were saved after they expired in September 2010.
- 3.46 The Central Lincolnshire Joint Strategic Planning Committee (CLJSPC) was established in October 2009 to produce the Central Lincolnshire Local Plan, which will progressively replace the Local Plans of the City of Lincoln, West Lindsey, and North Kesteven District Councils.
- 3.47 The CLJSPC produced the Local Development Scheme, brought into effect on 12<sup>th</sup> March 2014, which sets out the proposed timetable for achieving

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<sup>17</sup> North Kesteven Local Plan, North Kesteven District Council (2007)

submission and examination of the Local Plan in 2016. In line with the Local Development Scheme, the Preliminary Draft Local Plan was consulted upon between 1<sup>st</sup> October and 11<sup>th</sup> November 2014. The Local Development Scheme identifies that the draft Local Plan will now be developed and include site allocations, with the intention of consulting again in July–September 2015. It is therefore likely that the draft Local Plan will become of potential increasing relevance as it progresses during 2015 and beyond.

- 3.48 On the basis of the above, the saved 2007 Local Plan and latest draft Local Plan<sup>18</sup> are considered potentially relevant, albeit only where the 2007 Local Plan accords with the NPPF and on the assumption that limited or no weight should be given to the emerging draft Local Plan at this point in time.

### **South Holland District Council**

- 3.49 The South Holland Local Plan, adopted July 2006 (saved policies)<sup>19</sup> is the current statutory development plan in the District.

- 3.50 In common with Boston Borough, South Holland District is covered by work progressed by the South East Lincolnshire Joint Strategic Planning Committee as set out in section 4.41. On this basis, at the submission of this application, the saved policies of the 2006 Local Plan are the only policies considered of potential relevance, where they accord with the NPPF, within the context of the overarching weight of the NPS, as set out in section 4.42.

### **South Kesteven District Council**

- 3.51 The main adopted planning policy documents comprise the saved policies of the 1995 South Kesteven Local Plan<sup>20</sup> and the Core Strategy (2006 – 2026)<sup>21</sup>. South Kesteven has started preparing a new draft Local Plan for the period 2011 – 2036, however this is only in its early stages and is therefore not considered potentially relevant.

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<sup>18</sup> Central Lincolnshire Local Plan Core Strategy Publication Version, Central Lincolnshire Joint Strategic Planning Committee (2013)

<sup>19</sup> South Holland Local Plan, South Holland District Council (2006)

<sup>20</sup> South Kesteven Local Plan, South Kesteven District Council (1995)

<sup>21</sup> Local Development Framework for South Kesteven Core Strategy, South Kesteven District Council (2010)

## Lincolnshire Minerals and Waste Local Plans

- 3.52 The Lincolnshire Minerals Local Plan adopted 1991 (saved policies)<sup>22</sup> and Lincolnshire Waste Local Plan adopted May 2006 (saved policies)<sup>23</sup> are the statutory minerals and waste plans for Lincolnshire.
- 3.53 However the County Council is preparing the Lincolnshire Minerals and Waste Local Plan. In November 2013 the County Council consulted on a Draft Core Strategy and Development Management Policies document. Consultation on the revised pre-submission draft Core Strategy and Development Management Policies took place between 5<sup>th</sup> January 2015 and 16<sup>th</sup> February 2015 and the Council is now considering representations to that consultation.
- 3.54 The above documents indicate where minerals and waste development may occur within Lincolnshire.

## Summary

- 3.55 The NPS are the primary basis for decisions by the SoS on energy projects under the Act as long as other criteria, including the scheme benefits outweighing any adverse impacts, are met. The relevant NPS to the TKES are EN-1 (need case and general assessment categories), EN-3 (specific assessment needs with respect to the offshore cable route) and EN-5 (need case and specific assessment needs with respect to the onshore elements of the TKES).
- 3.56 The NPPF is only likely to be of limited material importance given that it fundamentally defers to the NPS.
- 3.57 Local planning policy in directly or indirectly affected planning authorities is generally in a state of flux, with various authorities having made different levels of progress. Both of the directly affected authorities of East Lindsey District and Boston Borough are reliant on saved policies prior to the introduction of the NPPF, with East Lindsey having a potentially relevant emerging draft Core Strategy.
- 3.58 All the relevant LPA are non-unitary and lie within Lincolnshire County Council, which retains responsibility for Minerals and Waste policy.

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<sup>22</sup> Minerals Local Plan, Lincolnshire County Council (1991)

<sup>23</sup> Waste Local Plan, Lincolnshire County Council (2006)

## 4 THE NEED CASE FOR THE TRITON KNOLL ELECTRICAL SYSTEM

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### Relationship to Triton Knoll Offshore Wind Farm Array

4.1 As set out in section 4.7, the TKES is an essential and integral component of the delivery of renewable electricity from the consented TKOWF array. In his decision on the Triton Knoll array given on 11<sup>th</sup> July 2013 the SoS noted that:

*‘For the reasons given in this letter, the Secretary of State considers that there is a compelling case for authorising the Triton Knoll offshore wind farm project, given the added contribution that it would make to the production of renewable energy. He considers granting consent would be consistent with energy National Policy Statements EN-1 (Overarching NPS for Energy) and EN-3 (NPS for Renewable Energy Infrastructure), which set out a national need for development of new nationally significant electricity generating infrastructure of the type proposed.’*

4.2 In the same decision the SoS noted that:

*‘In reaching this decision, the Secretary of State is satisfied that in the absence of any adverse effects which are unacceptable in planning terms, making the Order would be consistent with energy National Policy Statements EN-1 (Overarching NPS for Energy) and EN-3 (NPS for Renewable Energy Infrastructure), which set out a national need for development of new nationally significant electricity generating infrastructure of the type proposed by TKOWFL.’*

4.3 Whilst the TKES is a separate application from the Triton Knoll Offshore Wind Farm array DCO, it is clear that in their previous decision the SoS recognised the significant contribution of the TKOWF array to the national need for electricity generating infrastructure. That same contribution to the need identified in EN-1, EN-3 and EN-5 supports the case for development consent of the TKES. Without the TKES this contribution will not be realised or delivered.

### Need for Offshore Wind Energy Generation

#### International Climate Change Obligations

4.4 The United Nations Framework Convention on Climate Change (UNFCCC), signed and ratified by the United Kingdom, seeks, among other things, the *‘stabilisation of greenhouse gas concentrations in the atmosphere at a level*

*that would prevent dangerous anthropogenic interference with the climate system’.*

- 4.5 Under this Framework Convention, legally binding protocols can provide for targets aimed at reducing the emission of greenhouse gases from participating States. Under the Protocol agreed in Kyoto in 1997 the UK Government was committed to cutting the emission of greenhouse gases by 12.5% of 1990 levels by 2008-2012.
- 4.6 The Kyoto Protocol was due to expire at the end of 2012. However at a meeting on 8<sup>th</sup> December 2012 held in Doha, Qatar, the parties to the Kyoto Protocol agreed to its extension (the “second commitment period”) to create legally binding emission commitments from 2013–2020. The Doha Amendment establishing the second commitment period will enter into force shortly after 144 of the 192 Parties to the Kyoto Protocol have deposited their instruments of ratification with the UN. In November 2013 the European Commission proposed a ratification process which would conclude the Doha Amendment on behalf of the EU. Since the Kyoto Protocol is an agreement to which both the EU and its member states are parties, each member state will also need to ratify the Doha Amendment on its own behalf.
- 4.7 However, based on the existing *Climate and Energy Package* (a set of binding legislation which aims to ensure the European Union meets its climate and energy targets for 2020)., the EU and its member states are already implementing a 20% emissions reduction by 2020. This allowed them to agree to implement their mitigation commitments for the Kyoto Protocol’s second commitment period as of its start on 1<sup>st</sup> January 2013. Ratification of the Doha Amendment is nonetheless necessary to enable the entry into force of the Doha Amendment as legally-binding commitments, although it will not affect the commitments already made by EU and member states.
- 4.8 The European Commission expects the deposit of ratification instruments by the EU, its member states and Iceland to take place during early 2015. Until the Doha Agreement enters into force, the main binding obligations relevant to the UK remain at a European and domestic level.

### **European Law**

- 4.9 The *Energy Policy for Europe*, published by the European Commission in January 2007, established a target of 20% of energy consumed in Europe to come from renewable energy sources by 2020. This policy aim was secured by the EU Renewable Energy Directive (2009/28/EC) under which targets have been agreed by member states. Under this legislation, the UK is required to produce 15% of all its energy from renewable sources by 2020.

Due to the relatively inflexible nature of energy in the transport sector, this means that approximately 30% of electricity in the UK would need to come from renewable sources by 2020<sup>24</sup>.

- 4.10 In October 2014 the EU agreed its climate and energy targets for 2030. These include a legally binding cut in domestic greenhouse gas emissions by at least 40% by 2030 compared to 1990 levels, an EU-wide binding target for renewable energy of at least 27% (by 2030) and an indicative energy efficiency target of at least 27%. The minimum 40% emissions reduction target will be the EU's contribution to the global climate agreement in 2015 and keeps the EU on track to meet its long-term objective. Scientific evidence shows that to prevent global warming of more than 2°C, global emissions will need to be cut by at least half of their 1990 levels by 2050 and to continue being reduced thereafter. In line with this, and in the context of the developed world's responsibility to lead, the EU has set itself the objective of reducing its emissions by 80-95% below 1990 levels by 2050.

### **National Approach to Policy and Legislation**

- 4.11 The UK's current international and European commitments allow for the implementation of renewable energy and climate change targets to be delivered at a national level. These obligations, together with additional targets, are promoted through a variety of domestic laws and policies described below.
- 4.12 UK energy requirements have traditionally been met by fossil fuels and nuclear energy, however the UK government has set ambitious targets for renewable energy, including offshore wind. These targets are intended to help the UK to meet its international climate change obligations, and to deliver increased security of energy supply. The development of offshore wind farms is expected to be the largest contributor to the renewable energy targets.

### **Climate Change Act 2008**

- 4.13 Under the Climate Change Act 2008 the UK Government has set legally binding targets to reduce UK carbon dioxide emissions by placing a duty on the Secretary of State for Energy and Climate Change to ensure that the net UK carbon account for the year 2050 is at least 80% lower than 1990 levels.

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<sup>24</sup> National Renewable Energy Action Plan for the United Kingdom under Article 4 of the Renewable Energy Directive 2009/28/EC

## Government Energy policy

- 4.14 Subsequent to the Climate Change Act, UK policy on energy and climate change was set out in various White Papers, namely *Meeting the Energy Challenge*<sup>25</sup>, the *UK Low Carbon Transition Plan*<sup>26</sup> and the *UK Renewable Energy Strategy*<sup>27</sup>.
- 4.15 The White Paper *Meeting the Energy Challenge* highlighted three main policy drivers in respect of the UK's electricity supply, namely:
- tackling climate change by reducing carbon dioxide emissions both within the UK and abroad;
  - ensuring secure, clean and affordable energy; and
  - addressing fuel poverty.
- 4.16 The aims and need in the above documents were embodied in the NPS laid before parliament in June 2011, for use in the determination of Planning Act applications.
- 4.17 Whilst the NPS were being considered by parliament, the 2011 *UK Renewable Energy Roadmap*<sup>28</sup> was also published alongside the White Paper on Electricity Market Reform (EMR). This further set out how the government would achieve the UK's commitment to source 15% of its energy from renewable sources by 2020. The Roadmap identified that, with respect to offshore wind, *'the central range indicates that up to 18 GW could be deployed by 2020. Beyond 2020 there is a very high potential for deployment with over 40 GW possible by 2030'*
- 4.18 Updates to the 2011 *UK Renewable Energy Roadmap* are published every year. In its latest *2013 Update*<sup>29</sup>, the Department of Energy and Climate Change identified that:
- 'Offshore wind is an ideal technology for the UK where our shallow seas and strong winds make it an important national asset which will play a key role in enabling the UK to meet its legally binding 2020 renewable energy target. In*

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<sup>25</sup> Meeting the Energy Challenge, Department for Business, Enterprise & Regulatory Reform (2008)

<sup>26</sup> The UK Low Carbon Transition Plan, HM Government (2009)

<sup>27</sup> UK Renewable Energy Strategy, HM Government (2009)

<sup>28</sup> UK Renewable Energy Roadmap, Department of Energy and Climate Change (2011)

<sup>29</sup> UK Renewable Energy Roadmap Update 2013, Department of Energy and Climate Change (2013)

*the following decades, the UK has ambitious plans to decarbonise the economy as part of the drive to tackle climate change. As offshore wind becomes a more mature technology and costs fall, it has the potential to play a very significant role in the 2020s and out to 2050 alongside other low carbon technologies. The draft EMR Delivery Plan showed potential deployment of up to 16 GW of offshore wind by 2020, and up to 39 GW by 2030.*

*The offshore wind sector has the potential to become one of significant strategic economic importance to the UK, supporting a competitive and quality UK supply chain and exporting expertise and technology all over the world. The UK is currently the world's biggest offshore wind market with more capacity deployed than any other country. We are very likely to remain the biggest market up to 2020 and potentially beyond.*

*The UK has done more than any other country to support the development of a sustainable and ambitious offshore wind industry. It is the world's most attractive destination for investment in the offshore wind sector. The Government is determined to enable the sector to succeed.'*

- 4.19 Offshore wind is one of the eight technologies considered in the UK Roadmap which the EMR White Paper<sup>30</sup> stated 'evidence from the market suggests now have either the greatest potential to help the UK meet the 2020 renewable energy target in a cost-effective and sustainable way, or offer the greatest potential for the decades that follow.'
- 4.20 The NPS were designated on 19<sup>th</sup> July 2011, shortly after the release of the Roadmap, for use in determining applications for Development Consent Orders under the Planning Act 2008.

### **National Policy Statements**

- 4.21 The NPS are the primary decision-making document to be used by the relevant SoS in determining applications for Development Consent, subject to the relevant provisions of the Planning Act, as set out in section 4.14.
- 4.22 EN-1, which sets out the Government's policy for major energy infrastructure, identifies that (2.2.6):

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<sup>30</sup> Planning our electric future: a White Paper for secure, affordable and low-carbon electricity, Department of Energy and Climate Change (2011)

*‘the UK needs to wean itself off such a high carbon energy mix: to reduce greenhouse gas emissions, and to improve the security, availability and affordability of energy through diversification. Under some of the illustrative 2050 pathways, electricity generation would need to be virtually emission-free.’*

4.23 In line with this Government policy, EN-1 identifies that the SoS in their decision (and the National Infrastructure Directorate of the Planning Inspectorate in their recommendation) should act as follows (3.1.3):

*‘The IPC should therefore assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part.’*

and furthermore that (3.1.4):

*‘The IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act.’*

4.24 Importantly EN-1 also confirms that there is no limit on the contribution from any given technology, i.e. there is unconstrained need for offshore wind.

4.25 The key reasons why the Government believes that there is an urgent need for new electricity NSIP is set out in detail in section 3.3 of EN-1 under the following key categories:

- Meeting energy security and carbon reduction objectives;
- The need to replace closing electricity generating capacity;
- The need for more electricity capacity to support an increased supply from renewables;
- Future increases in electricity demand; and
- The urgency of the need for new electricity capacity.

4.26 EN-1 also identifies that whilst alternatives to new large scale electricity generation may exist, they will not alone allow the UK to meet the above objectives and will only have a limited effect on the need for such infrastructure.

4.27 EN-1 (3.7.1) specifically addresses the need for new electricity network infrastructure, such as the TKES, and identifies that:

*‘Much of the new electricity infrastructure that is needed will be located in places where there is no existing network infrastructure. This is likely to be*

*the case for many wind farms, or where there may be technical reasons why existing network infrastructure is not suitable for connecting the new generation infrastructure.'*

- 4.28 EN-5 (2.1.2) reinforces this need case specifically in relation to new electricity networks as follows:

*'EN-1 sets out the Government's conclusion that there is a significant need for new major energy infrastructure generally (see Part 3 of EN-1). EN-1 includes information regarding the specific need for new major electricity networks infrastructure in Section 3.7. In the light of this, the IPC should act on the basis that the need for the infrastructure covered in this NPS has been demonstrated.'*

- 4.29 EN-1 (3.7.4) further states that:

*'An idea of the scale and urgency of need for new electricity network infrastructure is conveyed by the work of the Electricity Networks Strategy Group (ENSG)...'*

- 4.30 TKOWFL's *Interface Selection Assessment Report (Application Document 8.18)* identifies how the TKES has evolved from initial proposals arising out of the ENSG's work.

### **Marine Policy Statement and Marine Plans**

- 4.31 The MPS identifies that:

*'A secure, sustainable and affordable supply of energy is of central importance to the economic and social well being of the UK. The marine environment will make an increasingly major contribution to the provision of the UK's energy supply and distribution.'*

- 4.32 including supporting:

*'...a growing contribution from renewable energy and from other forms of low carbon energy supply in response to the challenges of tackling climate change and energy security.'*

- 4.33 Furthermore it confirms that:

*'A significant part of the renewable energy required to meet these [binding EU and Climate Change Act] targets and objectives will come from marine sources. Offshore wind is expected to provide the largest single renewable electricity contribution as we move towards 2020 and beyond.'*

- 4.34 The East Inshore and East Offshore Marine Plans state a number of objectives, including:

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

4.35 In light of which Policy EC3 of the Plans states that:

*'Proposals that will help the East marine plan areas to contribute to offshore wind energy generation should be supported.'*

### **National Planning Policy Framework**

4.36 The NPPF identifies that the planning system needs to perform a number of roles, including to (para. 7) *'...adapt to climate change including moving to a low carbon economy.'*

4.37 Furthermore the NPPF advises that there are 12 key land-use principles that planning should achieve, including to (para. 17):

*'support the transition to a low carbon future in a changing climate, taking full account of flood risk and coastal change, and encourage the reuse of existing resources, including conversion of existing buildings, and encourage the use of renewable resources (for example, by the development of renewable energy)'*

4.38 To meet the challenge of climate change, flooding and coastal change, it guides LPA (para. 97):

*'To help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources. They should:*

- have a positive strategy to promote energy from renewable and low carbon sources;*
- design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts...'*

and that when determining applications, LPA should (para. 98):

- not require applicants for energy development to demonstrate the overall need for renewable or low carbon energy;*
- approve the application if its impacts are (or can be made) acceptable.*

- 4.39 Therefore, where the NPPF is applicable or given weight, it offers very strong support for the development of renewable energy and that LPAs should recognise the contribution that all communities need to make to tackle the impacts of climate change.

### Summary

- 4.40 International climate change obligations, European law and UK law offer a very strong and binding combination of drivers for the development of renewable energy, with offshore wind seen as having the potential to be one of the biggest contributors both to 2020 and 2030 targets.
- 4.41 These targets continue to reinforce the principles and need case identified in the energy NPS. EN-1 in particular states that the need for offshore wind has been proven; this is echoed in both EN3 and EN5. Furthermore the MPS and the relevant East Inshore and East Offshore Marine Plans identify the importance of realising the potential of renewable energy to achieve energy security and climate change aims. The NPPF, where the SoS considers that it should be given weight in Planning Act decisions, reinforces the principle of a presumption in favour of renewable energy's contribution to sustainable development, and that LPAs should support this need.
- 4.42 Without the development of the TKES, the renewable energy benefits of the TKOWF array will not be realised. In granting consent for the Triton Knoll Offshore Wind Farm array the SoS has recognised the important contribution that it would make and has subsequently accepted that the TKES is nationally significant, by virtue of it being needed to secure the successful generation from the consented array.
- 4.43 Furthermore EN-1 accepts that there will be a need for new connecting electrical infrastructure to serve developments such as the TKOWF array, particularly associated with new wind developments, which may pass through areas that may have seen limited or no development of such assets previously.

## 5 ALTERNATIVES AND SITE SELECTION

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### Applicable Legislation and Policy

- 5.1 TKOWFL considers that alternatives assessment is an essential component of the development of major infrastructure, particularly linear networks, which may connect between two points by a number of alternative routes or technology options.
- 5.2 TKOWFL's approach to alternatives for its TKES has been extensive, detailed and exhaustive, primarily to meet and exceed the requirements of three key pieces of legislation and policy, namely:
- The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009;
  - The Electricity Act 1989; and
  - National Policy Statements EN-1 and EN-5.

### EIA Regulations

- 5.3 The Infrastructure Planning (EIA) Regulations 2009 require that an Environmental Statement includes:

*'An outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant's choice, taking into account the environmental effects'.<sup>31</sup>*

- 5.4 *Volume 1: Chapter 4 Site Selection and Alternatives* of the submitted ES meets this requirement comprehensively, setting out the process that was followed in considering options which extended from 2009 until 2013. Further supporting detail is presented in TKOWFL's *Interface Selection Assessment Report (Application Document 8.18)*; National Grid's *Interface Selection Report*, which is an appendix to that document; and the TKOWFL *Site Selection and Design Report (Application Document 8.17)*.

Electricity Act 1989

- 5.5 As set out in section 4.10, the Electricity Act places an obligation on all licence holders to consider the preservation of amenity under section 38 and Schedule 9 to that Act:

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<sup>31</sup> Sch 4, Part 1, Section 18 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2009

*‘In formulating any relevant proposals, a licence holder or a person authorised by exemption to generate, transmit, distribute or supply electricity—*

*(a) shall have regard to the desirability of preserving natural beauty, of conserving flora, fauna and geological or physiographical features of special interest and of protecting sites, buildings and objects of architectural, historic or archaeological interest; and*

*(b) shall do what he reasonably can to mitigate any effect which the proposals would have on the natural beauty of the countryside or on any such flora, fauna, features, sites, buildings or objects.’*

5.6 The TKOWFL alternatives process considered such compliance as part of its planning and environmental review. Furthermore TKOWFL also applied NGET’s own Horlock Rules with respect to the design and siting of new substation infrastructure, which are accepted and established rules in this regard.

5.7 The alternatives process was carried out in partnership with NGET, who hold a transmission licence and hence are bound, as a future OFTO would be:

*‘to develop and maintain an efficient, co-ordinated and economical system of electricity transmission’<sup>32</sup>*

5.8 Such legal obligation has factored heavily in the work undertaken by NGET in partnership with TKOWFL to select an Onshore Interface Point, being the point at which the TKES connects to the existing high voltage transmission network. Furthermore TKOWFL has adopted the same principle in its generator build role, through bringing forward assets that will ultimately transfer to an OFTO and would otherwise have been designed by NGET, and consented by an OFTO.

National Policy Statements

5.9 EN-1 (4.4.1) confirms that there is no requirement for NSIPs to consider alternatives:

*‘From a policy perspective this NPS does not contain any general requirement to consider alternatives or to establish whether the proposed project represents the best option.’*

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<sup>32</sup> Section 9(2)(a) Electricity Act 1989

- 5.10 However EN-1 (4.4.3) does give guidance to the SoS on what might be factors in the weight to be given to alternatives, and includes among many other points that:

*'it is intended that potential alternatives to a proposed development should, wherever possible, be identified before an application is made to the IPC in respect of it (so as to allow appropriate consultation and the development of a suitable evidence base in relation to any alternatives which are particularly relevant).'*

- 5.11 Subsequently EN-1 and EN-5 provide helpful advice on how alternatives might be considered or what issues might be relevant, and specifically in relation to electricity networks. EN-5 (2.2.2) states that:

*'The general location of electricity network projects is often determined by the location, or anticipated location, of a particular generating station and the existing network infrastructure taking electricity to centres of energy use. This gives a locationally specific beginning and end to a line.'*

- 5.12 The NPS then goes on to identify that the connection between the beginning and end points may not be via the most direct route, since the applicant will need to take a number of factors, including engineering and environmental aspects, into account.

- 5.13 EN-5 also addresses micrositing of infrastructure once macro-routing and siting decisions have been made (2.2.5):

*'There will usually be some flexibility around the location of the associated substations and applicants will give consideration to how they are placed in the local landscape taking account of such things as local topography and the possibility of screening.'*

- 5.14 Importantly EN-5 reiterates the legal obligations on all Electricity Act licence holders (which includes TKOWFL, NGET and the future OFTO) under Schedule 9 to consider preservation of amenity, and the specific obligations on transmission and distribution licence holders to develop an efficient, co-ordinated and economical electrical system.

- 5.15 EN-1 addresses the reasons why new electricity transmission infrastructure may need to intrude into new areas (3.7.7):

*'Accordingly, new lines will have to be built, and the location of renewable energy sources and designated sites for new nuclear power stations makes it inevitable that a significant proportion of those new lines will have to cross areas where there is little or no transmission infrastructure at present, or which it may be claimed should be protected from such intrusions. The*

*urgency of need for new generating capacity means that the need for new transmission infrastructure that is required to connect that capacity will be similar.'*

5.16 Importantly EN-1 (3.7.10) identifies that:

*'The IPC should consider that the need for any given proposed new connection or reinforcement has been demonstrated if it represents an efficient and economical means of connecting a new generating station to the transmission or distribution network.'*

5.17 Not only does this reinforce the need for new electricity network infrastructure of all types, but it relates such need to the efficient and economic development of the transmission network, which has factored strongly in TKOWFL and NGET's consideration of alternatives for the TKES, in line with the Electricity Act.

5.18 EN-1 (3.7.10) also addresses the likelihood of different technology options:

*'...in most cases, there will be more than one technological approach by which it is possible to make such a connection or reinforce the network (for example, by overhead line or underground cable) and the costs and benefits of these alternatives should be properly considered as set out in EN-5...before any overhead line proposal is consented.'*

5.19 Whilst EN-5 does not specifically refer to the Horlock Rules mentioned in section 6.6 above, it does refer to the sister Holford Rules for siting of overhead lines. The Horlock Rules should be considered appropriate for use in design development for substations, on the basis that they were developed for a similar guiding purpose as the Holford Rules.

5.20 EN-5 (2.8.8) goes on to specifically address the potential for undergrounding of overhead connections as a means of mitigation:

*'Where there are serious concerns about the potential adverse landscape and visual effects of a proposed overhead line, the IPC will have to balance these against other relevant factors, including the need for the proposed infrastructure, the availability and cost of alternative sites and routes and methods of installation (including undergrounding).'*

5.21 Furthermore, through its consideration of overhead lines, EN-5 also indicates the potential areas of interest when considering the merits of underground cabling (2.8.9):

*'...it [the IPC] should consider:*

- ...

- the additional cost of any undergrounding or sub-sea cabling (which experience shows is generally significantly more expensive than overhead lines, but varies considerably from project to project depending on a range of factors, including whether the line is buried directly in open agricultural land or whether more complex tunnelling and civil engineering through conurbations and major cities is required. Repair impacts are also significantly higher than for overhead lines as are the costs associated with any later uprating.); and
- the environmental and archaeological consequences (undergrounding a 400kV line may mean disturbing a swathe of ground up to 40 metres across, which can disturb sensitive habitats, have an impact on soils and geology, and damage heritage assets, in many cases more than an overhead line would).’

5.22 In terms of alternatives at a macro level, EN-5 (2.8.10) also sets out that:

*‘In addition to following the principles set out in the Holford Rules and considering undergrounding, the main opportunities for mitigating potential adverse landscape and visual impacts of electricity networks infrastructure are:*

- *consideration of network reinforcement options (where alternatives exist) which may allow improvements to an existing line rather than the building of an entirely new line;...’*

5.23 This closely reflects NGET and TKOWFL’s approach to the selection of the Onshore Interface Point, reinforced by NGET’s Schedule 9 Statement (under the Electricity Act), which is to maximise the efficient and economic use of existing networks before considering new infrastructure or extensions.

Marine Planning Statement

5.24 The MPS requires that as a general principle, development should aim to avoid harm to biodiversity including through location, mitigation and consideration of reasonable alternatives. Multiple policies of The East Inshore and Offshore Marine Plan seek to guide development away from specific areas or uses and many seek a hierarchy which places avoidance as the first priority to mitigate effects.

National Planning Policy Framework

5.25 The NPPF guides LPAs, when seeking to grant consent, to seek to mitigate impacts on the natural environment by first considering whether significant harm resulting from a development can be avoided through locating on an alternative site with less harmful impacts.

5.26 Although targeted at LPA's development of Local Plans, it is also considered relevant to quote the NPPF's assertion that (para. 152):

*'Local planning authorities should seek opportunities to achieve each of the economic, social and environmental dimensions of sustainable development, and net gains across all three. Significant adverse impacts on any of these dimensions should be avoided and, wherever possible, alternative options which reduce or eliminate such impacts should be pursued.'*

5.27 Otherwise the NPPF provides very little coverage of alternatives or site selection.

Relevant Local Planning Policy

5.28 The East Lindsey Local Plan 1995 (saved policies) is largely silent on alternatives, although it is of note that the Plan refers to the fact that (para. 6.63) *'Only proven national interest and the lack of suitable alternative sites will justify an exception [to allowing major development in the Lincolnshire Wolds Area of Outstanding Natural Beauty]'*.

5.29 The Boston Borough Local Plan 1999 (saved policies) is also limited in its discussion of alternatives.

5.30 In respect of alternatives, the emerging East Lindsey Draft Core Strategy focuses on the impacts on key designations with respect to biodiversity and geodiversity (Strategic Policy 16):

*'The Council will protect sites designated internationally, nationally or locally for their biodiversity and geodiversity importance, species populations and habitats identified in the Lincolnshire Biodiversity Action Plan. Development, which could adversely affect such a site, will only be permitted in exceptional circumstances:*

- In the case of internationally designated sites, where there is no alternative solution and there are overriding reasons of public interest for the development;*
- In the case of nationally designated sites, there is no alternative solution and the reasons for the development clearly outweigh the value of the site;*
- In the case of locally designated sites, the reasons for the development clearly outweigh the need to protect the site in the long term.'*

5.31 It is of note that the policy focuses on seeking alternatives to adverse effects only on sites of international or national designation.

- 5.32 In relation to major infrastructure schemes the East Lindsey Draft Core Strategy states that (Strategic Policy 18):
- ‘Major infrastructure schemes will be supported provided they are shown to be essential in the national interest; contribute to sustainable development, and where they respect the distinctive character of the district and do not impact on the character of the landscape, either singly or cumulatively. The Council will require evidence to show that the impacts of such schemes are minimised, including the consideration of alternative options as part of their impact assessment.’*
- 5.33 Within an amended draft policy taken to the Planning Policy Committee since January 2014, but not yet consulted upon publicly, the East Lindsey Draft Core Strategy states:
- ‘Development within or affecting the setting of the Lincolnshire Wolds Area of Outstanding Natural Beauty, and landscape areas defined as highly sensitive within the East Lindsey Landscape Character Assessment will only be permitted in exceptional circumstances where:*
- a) there is no alternative; and*
  - b) there are overriding reasons of public interest for the development; and*
  - c) any detrimental effect on the environment, the landscape and recreational opportunities can be satisfactorily moderated.*
- The presumption will be for connecting cables to be placed underground or use made of existing or replacement infrastructure (of the same size and scale) along existing routes to carry any additional base load cabling.’*
- 5.34 This draft policy supports NGET and TKOWFL’s focus on the reuse of existing infrastructure wherever possible and the limitation of landscape impacts through avoidance of the Lincolnshire Wolds Area of Outstanding Natural Beauty (AONB) and the highest sensitivity landscape character areas, through alternative locations or undergrounding.
- 5.35 Although outside of the Proposed Development Boundary, it is worth noting that the North Kesteven Local Plan 2007 (saved policies) refers to alternatives only in respect of development for, or associated with, renewable energy generation being granted consent provided that (Policy C17) *‘...where the proposal would have an adverse effect on a site of international importance for nature and heritage conservation, there is no alternative solution and there are imperative reasons of overriding public interest;...*
- 5.36 The South Holland Local Plan 2006 (saved policies) only addresses alternatives in respect of avoiding impacts on the interest features of SSSI,

whilst renewable energy policy indicates consideration of location when stating that (Policy EN3) *'Development proposals should demonstrate any environmental, economic and social benefits as well as how any environmental and social impacts have been minimised through careful consideration of location, scale, design and other measures.'*

- 5.37 Notes to the above in the South Holland Local Plan indicate that *'proposals for onshore grid connections and associated infrastructure will be considered against current national guidance and local plan policies'*.
- 5.38 The Saved Policies and adopted Core Strategy of South Kesteven District Council do not appear to give direct or indirect coverage of alternatives relevant to the TKES and are unlikely to be relevant given the 3.6 km distance from the Proposed Development Boundary.

### Summary

- 5.39 The extensive consideration of alternatives has been critical to the development of the TKES. Whilst there is no requirement within the NPS to consider alternatives, they do provide significant support to the SoS regarding the consideration of potential alternatives. The primary guidance comes from the NPS, as the NPPF and local planning policy are generally light on formal policy or guidance relating to alternatives, except where there is a risk to internationally or nationally designated features, most often in a visual and landscape or biodiversity context.

### Alternatives Process

#### Outline

- 5.40 From the geographical starting point of the TKOWF array, the alternatives process is set out in ES Volume 1: Chapter 4, the Interface Selection Assessment Report (Application Document 8.18) and the Site Selection and Design Report (Application Document 8.17).
- 5.41 The identification of the Onshore Interface Point (the point at which the TKES connects into the national electricity transmission network) initially considered connections to 13 different existing onshore NGET substations and a further 4 potential new NGET substations, spread across a geographical area extending as far as East Riding of Yorkshire in the north to Norfolk in the south and as far west as Nottinghamshire. Initial assessment within this study area resulted in a longlist of 12 potential Onshore Interface Points for subsequent consideration. This process is explained in detail in the *Interface Selection Assessment Report (Application Document 8.18)* and summarised

- in the *Site Selection and Alternatives* Chapter of the ES (*Volume 1: Chapter 4*).
- 5.42 Through the process of assessing the merits of the viable alternatives available to meet with the above Onshore Interface Points, TKOWFL identified 12 potential offshore routes, 16 landfall locations and a number of onshore master cable corridors with localised connecting routes to meet with those landfalls.
- 5.43 Those options were assessed from a planning, environmental, engineering and commercial perspective, with the involvement of multiple specialist consultants, to arrive at a chosen Onshore Interface Point of Bicker Fen in Boston Borough. The above process is set out extensively in TKOWFL's *Interface Selection Assessment Report*.
- 5.44 Subsequent site selection work identified and assessed the relative merits of a variety of cable routes to Bicker Fen, Intermediate Electrical Compound (IEC) locations and Substation locations and is set out in detail in the *Site Selection and Design Report (Application Document 8.17)*, resulting in the following:
- 16 potential landfall sites were identified, which was subsequently refined to a shortlist of four;
  - 29 zones were identified for potential IEC sites, subsequently refined to a shortlist of 3 zones; and
  - 18 potential Substation sites were identified and refined to a shortlist of 4 zones.
- 5.45 TKOWFL subsequently undertook public consultation in spring 2013 and further stakeholder engagement on the above options.
- 5.46 Alongside TKOWFL's own extensive consideration of the merits of each option, both BBC and ELDC, as the directly affected LPAs, were given particular opportunity to comment upon and influence the selection of preferred options, including in relation to the '2013 Corridor Consultation' which included the shortlisted IEC and Substation options. Consideration of LPA feedback and wider consultation resulted in the selection of preferred IEC and Substation options and the subsequent development of the 'Preliminary Cable Alignment'. The outcome of further LPA, landowner and public engagement on this alignment saw the development of the 'PEI Cable Route' used for the generation of Preliminary Environmental Information (PEI) in TKOWFL's Statutory Consultation under the Act, carried out from October – November 2014.

5.47 The outcome of the above process was the adoption and assessment of the finalised route comprising the Proposed Development Boundary of this development consent application. It includes a landfall to the north of Anderby Creek, an IEC adjacent to Skegness stadium (known as the “Red Zone” during consultation) and a Substation in close proximity to the existing NGET Grid Bicker Fen substation (known as the “Blue Zone” during consultation).

#### Derivation of Options

5.48 The derivation of options, whether for landfall, IEC or Substation, has commenced in all cases with a constraints mapping process, seeking to avoid relevant international, e.g. Special Protection Areas (SPA) and Special Areas of Conservation (SAC), and national designations, e.g. AONB, SSSI, wherever possible.

5.49 The constraints considered ‘absolute’ or ‘very high’, and on which TKOWFL sought to avoid impacts, are set out in the *Interface Selection Assessment Report* and the *Site Selection and Design Report*, but include those relevant to the area from an environmental and planning perspective, being:

- RAMSAR wetlands;
- SSSI;
- NNR (National Nature Reserves)
- Grade I or II\* Listed Buildings;
- Allocated housing areas;
- Conservation areas;
- Scheduled monuments;
- draft Marine Conservation Zone (MCZ) reference areas and their buffer;
- AONB; and
- Protected wreck site and buffer.

5.50 With regard to SAC or SCI on course to become designated as a SAC and other European sites (SPA and RAMSAR), their presence was not necessarily considered an absolute constraint but was provisionally considered a high constraint as there are many precedents of wind farms, cables and other infrastructure passing through SACs and other European sites. However individual features of European sites may constitute absolute or very high constraints depending on the exact geographical location/extent and the season in which works are undertaken. Such specific considerations were applied on a case by case basis.

- 5.51 Conversely the ability to avoid the key features of designated areas was considered to result in the potential for only a medium impact.
- 5.52 The consideration of the planning and environmental constraints set out in 6.49 and 6.50, coupled with key engineering and commercial constraints (e.g. Silver Pit seabed feature and existing gas and oil pipelines) derived very clear opportunities for cable corridors and landfall locations which were carried into a shortlisting process with more detailed analysis.
- 5.53 In addition to avoiding key international and national designations, the search for IEC and Substation sites also applied relevant constraints (buffers) in respect of the most likely environmental impacts, particularly with respect to noise emissions, which significantly reduced the number of available onshore sites.
- 5.54 The following section identifies how the manner in which options were derived and decisions were made resulted in compliance with relevant alternatives policy.

### **Policy Assessment**

- 5.55 This section addresses the compliance of the TKES with the preceding relevant alternatives legislation and policy. References throughout this section are noted in superscript brackets and refer to which preceding sections 6.1 to 6.39 of this Planning Statement are being complied with.
- 5.56 *ES Volume 1: Chapter 4 Site Selection and Alternatives* complies with the EIA Regulations by setting out the main alternatives studied and the main reasons for the decisions made in arriving at the TKES proposal. TKOWFL's work on alternatives has been extensive and lengthy due to a large geographical opportunity with respect to the location of the Onshore Interface Point, ultimately located at Bicker Fen. This in turn has required consideration of a significant number of permutations for connecting infrastructure routing and location at a macro level, before undertaking refinement of design through micrositing<sup>(6.3)</sup>.
- 5.57 The constraints analysis undertaken by TKOWFL ensured that the requirements of the Electricity Act to preserve amenity were met inherently through the alternatives process<sup>(6.5,6.7)</sup>. This included preservation of natural beauty through avoiding areas such as the Lincolnshire Wolds and North Norfolk Coast AONBs and, despite avoiding those designations entirely, still choosing to utilise underground cabling rather than overhead lines. Furthermore the TKES alternatives process achieved the avoidance of key designations such as SSSI, Grade I and II\* listed buildings, conservation areas, scheduled monuments, SPA's, RAMSAR, NNR and protected wrecks,

thus conserving the most highly protected areas of flora, fauna and features of special interest.

5.58 The alternatives process undertaken by TKOWFL was focussed heavily on achieving an efficient and economic system of electricity transmission. The outcome of the Interface Selection Assessment process was to identify Bicker Fen as the chosen Onshore Interface Point for the TKES.

5.59 Of the 4 shortlisted Onshore Interface Point options considered, Bicker Fen was:

- Significantly lower cost in respect of works to the national grid (i.e. excluding new OFTO works) being only 22.2% of the cost of Creyke Beck, 6.3% of South Humber Bank and 4.8% of Killingholme South alternative options;
- The lowest overall cost to the transmission system (i.e. including new OFTO works) at 92.5% of the cost of South Humber Bank, 90.5% of Creyke Beck and 86.7% of Killingholme South alternative options, representing a saving of approximately £68 million over the next cheapest option (South Humber Bank);
- The joint shortest overall connection distance (with South Humber Bank, excluding the approx. 10km Humberside Reinforcements overhead connection required to facilitate that option);
- Being the only alternative not to require new material development by NGET;
- The least likely to conflict with emerging offshore, onshore and landfall proposals from schemes such as Hornsea and Dogger Bank; and
- The only option south of the Humber (considered more preferable than north of the Humber) that did not require the Humberside Reinforcements or an entirely new NGET substation.

5.60 ES *Volume 1: Chapter 4 Site Selection and Alternatives* addresses the changes that have occurred since 2011 to confirm whether they could have affected the basis on which Bicker Fen was chosen. These factors included:

- Reduction in project construction capacity to 900 MW;
- Introduction of an IEC into the proposals;
- Further clarity on Hornsea proposals;
- Change of landfall and cable route assumptions;
- Grid Connection Agreement modification application; and

- Viking Interconnector project.
- 5.61 TKOWFL considered the extent to which each of these could have affected the choice of Bicker Fen, recognising that the long timescales associated with large infrastructure projects mean that decisions cannot be revisited each time further information arises. However TKOWFL found, even when considering a  $\pm 5\%$  arbitrary change in cable route length to each option (being over and above the 3% change to the Bicker Fen route that occurred through ongoing design), that Bicker Fen was still the most economic and efficient solution.
- 5.62 On this basis TKOWFL has clearly shown that the selection of Bicker Fen as Onshore Interface Point has identified an efficient and economical solution to the connection of Triton Knoll, of a significant number of potential alternatives. This meets with the requirements of the Electricity Act<sup>(6.8)</sup> as reinforced in EN-1<sup>(6.15)</sup>.
- 5.63 In light of the fact that TKOWFL has demonstrated that the connection to Bicker Fen is an economic and efficient means of connecting the TKOWF array, the SoS can be confident that the need for the new TKES has been demonstrated<sup>(6.17, 6.18)</sup> as set out in EN-1 (3.7.10) (emphasis added by TKOWFL):
- 5.64 'The IPC should consider that the need for any given proposed new connection or reinforcement has been demonstrated if it represents an efficient and economical means of connecting a new generating station to the transmission or distribution network.'
- 5.65 Furthermore the comprehensive consideration of alternatives to arrive at the selection of Bicker Fen, and the subsequent Site Selection and Design process which identified a final IEC and Substation location, demonstrate compliance with many policies as follows:
- Whilst there is no policy requirement to consider alternatives in EN-1<sup>(6.10)</sup>, TKOWFL's alternatives process, as a means of securing the best option and mitigating impacts, has been detailed, extensive and exhaustive;
  - Alternatives have been developed and considered from a very early stage in the development of the TKES<sup>(6.11)</sup>. In 2010 TKOWFL took a significant and time-critical decision to decouple the TKOWF array NSIP and TKES specifically to allow adequate consideration of, and consultation upon, strategic alternatives prior to seeking development consent for the TKES;
  - TKOWFL ensured that whilst there is a locationally specific beginning point (at the Triton Knoll Offshore Wind Farm array) to the export of

electricity through the TKES, the potential flexibility in the location of the TKES end point (the connection to the transmission network) was reviewed rigorously and options explored across a broad geographical area to arrive at the chosen Onshore Interface Point<sup>(6.12,6.13)</sup>;

- TKOWFL identified the clear need and basis for which the underground route and its associated IEC and Substation need to pass through the relevant areas of East Lindsey District and Boston Borough<sup>(6.16)</sup>;
- TKOWFL considered the relative merits of underground and overhead connections. Whilst the TKES route avoids AONB designations and therefore supports a key alternatives policy in the East Lindsey statutory plan<sup>(6.28)</sup>, TKOWFL took the decision to progress an underground cable route to minimise the potential for landscape and visual impacts, being the key impacts of concern to the relevant LPAs, which would have been associated with the potential for an overhead line<sup>(6.21)</sup>. The ES submitted with this application properly assesses all impacts of the chosen underground alternative, which accords with both EN-1<sup>(6.19)</sup> and East Lindsey District's Draft Core Strategy<sup>(6.34)</sup>;
- The TKES complies with the tiered nature of alternatives set out in the East Lindsey Draft Core Strategy on that basis that it does not impact on international or national designations and hence the case that there is 'no alternative solution' does not need to be proven<sup>(6.31,6.32)</sup>. Nonetheless TKOWFL's extensive alternatives and site selection process does show that the chosen form and location of development is the best alternative and that to choose any other alternative would undermine compliance with other policies<sup>(6.33)</sup>;
- The selection of a route from Anderby Creek to Bicker Fen directs the TKES through a generally sparsely populated agricultural fenland environment compared with other alternatives and avoided both complex tunnelling requirements (north of Humber landfalls connecting to south of Humber Onshore Interface Points) and proximity to more heavily developed or congested areas (e.g. Grimsby and Immingham)<sup>(6.22)</sup>. Furthermore the avoidance through the alternatives process of key features in respect of SPA, SSSI, Regionally Important Geological Sites (RIGS), scheduled monuments, listed buildings and conservation areas clearly demonstrates that an underground route will have an acceptable impact and realise the benefits sought in East Lindsey District's Draft Core Strategy<sup>(6.22,6.34)</sup>;
- TKOWFL and NGET's assessment of Onshore Interface Points focussed on minimising the extension of the national grid where more efficient use

could be made of the existing network, thereby avoiding the need for new NGET linear infrastructure or substations in accordance with EN-5<sup>(6.23)</sup> and East Lindsey District's Draft Core Strategy<sup>(6.34)</sup>;

- Since there is no indirect impact on a site of international importance in North Kesteven or South Holland Districts, the scheme does not invoke their statutory plan policies<sup>(6.36,6.37)</sup> and demonstrates compliance with the aim of minimising impacts through careful consideration of location, scale, design and other measures, as set out in subsequent topic-specific sections<sup>(6.37)</sup>;
- Compliance with the MPS is achieved through avoiding RAMSAR, SPA and SAC (except the Lynn Inner Dowsing, Race Bank, and North Ridge SCI, which will become a future SAC). However the qualifying features of this SCI are avoided and the *Report to Inform Appropriate Assessment (Application Document 5.3)* concludes that there will be no likely significant effects arising from any phase of the TKES in isolation and no adverse effect from the TKES during operation arising in combination with other projects<sup>(6.25)</sup>. Furthermore the landfall location avoids the intertidal elements of SSSI.
- Macro-routing and siting to avoid key international and nationally designated features eliminate or minimises risk of causing harm to those features, which accompanied by subsequent minimisation of impacts to other features of less than national importance through site selection and micro-siting, meets with the key alternatives requirement of the NPPF to mitigate impacts on the natural environment and reduce or avoid impacts on the economic, social and environmental dimensions of sustainable development<sup>(6.26,6.27)</sup>.

## Good Design

- 5.66 Both EN-1 (4.5) and EN-5 (2.5) make reference to the need to ensure good design for energy infrastructure. TKOWFL's approach to ensuring good design and meeting with the requirements of EN-1 and EN-5 in this regard is set out in its Design Principles Document (*Application Document 8.6*).
- 5.67 This document builds on the Design Considerations Document which was one of the documents used as part of the statutory consultation undertaken by TKOWFL under the Act between October and November 2014.
- 5.68 The Design Principles Document identifies that the procurement process for electricity network infrastructure constrains the extent to which TKOWFL can provide detailed designs at the point of development consent application.

However it also advises how TKOWFL has sought to design the above ground installations, being the IEC, Substation and Unlicensed Works, to achieve good design where possible to date. Furthermore it also confirms that the future details of layout, scale and external appearance are subject to approval in accordance with the DCO.

5.69 During the pre-application stage, the maximum parameters of the IEC, Substation and Unlicensed Works were set and design principles were applied as follows.

5.70 For the IEC:

- Avoiding isolation within the wider arable landscape and minimising intrusion into the open countryside by locating between the existing grain store and Skegness Stadium on Marsh Lane;
- Balancing the location of the IEC and its access road with the adjacent geometric field and road pattern; and
- Restricting the location of the GIS building (if chosen) to the northern part of the site to keep between the existing buildings identified above.

5.71 For the Substation:

- Maximising advantage of the South Forty Foot Drain embankment to screen views from the west;
- Balancing the location of the Substation and its access road with the adjacent geometric field and road pattern; and
- Locating the Substation close to existing electrical infrastructure.

5.72 For the Unlicensed Works:

- Taking advantage of the location of the existing Western Power Distribution substation to minimise visual impact of the new infrastructure from views to the south and southeast; and
- Minimising the width of the cable corridor (if required) for connecting a second Unlicensed Works electrical bay.

5.73 TKOWFL's consultation process presented potential options in respect of colouration and cladding of some elements. The outcome of this process is that the future submission of final details of the IEC and Substation will include:

- Potential for the IEC GIS building and Substation GIS building (if utilised) to consider the use of a local vernacular design of brick or stone; and

- Potential for IEC and Substation noise attenuation panels and/or barriers to be coloured gradated green.
- 5.74 Furthermore a number of landscaping principles are set out in the Design Principles Document which will be submitted for approval pursuant to the DCO.

### Summary

- 5.75 This Chapter demonstrates the TKES's clear compliance with alternatives legislation and relevant policies within the NPS. However it also shows that TKOWFL has given extensive time and consideration to alternatives and good design, and has maintained dialogue through multiple consultation opportunities to ensure that options were identified at an early stage and third parties were given the opportunity to be involved in their refinement.
- 5.76 As a result the TKES avoids impacts on most designated areas of international or national importance. Where it does impinge on designated areas, the extensive alternatives process set out in the *Interface Selection Assessment Report* and *Site Selection and Design Report* shows that the defining features can be avoided, that the chosen option is an economic and efficient one, and also results in compliance with Electricity Act requirements on preservation of amenity. Furthermore the alternatives process and decision to proceed with an underground connection eliminates a broad range of risks to the most sensitive international and national receptors, i.e. through embedded mitigation, and ensures that compliance is achieved with alternatives related policies in statutory and emerging local policy (where the SoS considers that local and emerging policy should carry weight).
- 5.77 A process has been put in place that seeks to secure good design in accordance with EN-1 and EN-5, within the boundaries placed upon TKOWFL by the specific nature and complexity of procuring electrical network infrastructure. The Design Principles Document and the process set out within, ensures that TKOWFL meets with the requirements of the relevant NPS and will continue to conclude its design process though a process secured within the DCO.
- 5.78 TKOWFL considers that the TKES proposal is compliant with respect to all key and relevant legislation and policy relating to alternative options and good design, including identifying an economic and efficient connection solution and maximising opportunities for influencing design. Furthermore TKOWFL has achieved significant and fundamental avoidance of impacts on key environmental and planning aspects and embedded mitigation through its alternatives approach.

## 6 Topic Specific Planning and Environmental Policy Assessment

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### Introduction

- 6.1 The following sections of this Planning Statement address the majority of topics set out in the relevant NPS, which contain the primary policy with respect to decisions by the SoS under the Planning Act 2008.
- 6.2 Each topic is set out with:
- a discussion of key applicable policy;
  - a description of the scope of assessments carried out;
  - details of TKOWFL's assessment and mitigation;
  - a commentary on matters that are key to the SoS's decision; and
  - a summary of TKOWFL's opinion of the extent to which the topic should factor in any decision on granting consent.
- 6.3 Topics are generally set out in the order that they appear in EN-1, EN-3 and EN-5.
- 6.4 References in this section are of the form noted in the Introduction to this Planning Statement, i.e. EN-1 (5.8.1) refers to paragraph 5.8.1 of the Overarching National Policy Statement for Energy.

### Environmental Assessment

- 6.5 TKOWFL has followed the recommended Evidence Plan process as supported by the Major Infrastructure Environment Unit (MIEU) within the Department for Environment, Food and Rural Affairs, for agreeing the evidence base to be used and matters to be covered by TKOWFL in its EIA. Whilst an Evidence Plan might normally focus on habitats matters, TKOWFL has expanded this to cover EIA matters as well and therefore the final Evidence Plan is titled an *EIA Evidence Plan (Application Document 8.16)*.
- 6.6 The EIA Evidence Plan has been prepared using a process led by a steering group and, where relevant, specific evidence plan review panels. The review panels have drawn together the relevant contacts and specialists within TKOWFL and relevant statutory bodies to agree matters.

6.7 The Steering Group was Chaired by a representative of PINS. Members of the Steering Group<sup>33</sup> were:

- TKOWFL;
- Marine Management Organisation (MMO);
- Natural England;
- Boston Borough Council;
- East Lindsey District Council;
- Lincolnshire County Council;
- Environment Agency;
- English Heritage;
- MIEU; and
- PINS (as observers).

6.8 Members of the specific review panels<sup>34</sup> were:

- Offshore ecology: TKOWFL, Natural England, MMO and Cefas, Lincolnshire Wildlife Trust and Eastern Inshore Fisheries and Conservation Authority (IFCA) (also representing North Eastern IFCA);
- Onshore ecology: TKOWFL, Natural England, Lincolnshire Wildlife Trust;
- Terrestrial Historic environment: TKOWFL, English Heritage, Lincolnshire County Council archaeologist (on behalf of ELDC); Heritage Trust for Lincolnshire (on behalf of BBC);
- Marine historic environment: TKOWFL, English Heritage;
- Hydrology and flood risk: TKOWFL, Environment Agency; Lindsey Marsh Internal Drainage Board (IDB), Witham Fourth IDB, Black Sluice IDB, Lincolnshire Flood Authority; and
- Human environment issues: TKOWFL, BBC, ELDC, Lincolnshire County Council, Natural England (AONB issues only).

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<sup>33</sup> Note that members of the steering group often represented other related teams or organisations, for example Lincolnshire County Council's attendee also represented the county planning officer, the various county highway teams and the Lincolnshire Flood Authority.

<sup>34</sup> Note that the human environment review panel also addressed landscape and visual, noise and air quality, socio-economics and traffic and access matters and ran specific technical sub-groups for noise and air quality and traffic and access. The sub-groups involved relevant environmental health officers and highways representatives.

6.9 TKOWFL found this process to be highly valuable and has adopted its agreements and findings as the basis for the assessments that have informed the outputs, and which are measured against relevant policy, in the following sections of this Planning Statement.

## Air Quality and Emissions

### Applicable Policy

- 6.11 EN-1 (5.2.1) identifies that air quality impacts can occur at the construction, operation and decommissioning stages of infrastructure development.
- 6.12 With respect to matters relevant to the form of the TKES, EN-1 (5.2.7) identifies that the applicant's assessment should describe:
- 'any significant air emissions, their mitigation and residual effects distinguishing between the project stages and taking account of any significant emissions from any road traffic generated by the project'*
- and*
- 'existing air quality levels and the relative change in air quality from existing levels'*
- 6.13 Whilst eutrophication impacts and absolute emissions levels are also mentioned in EN-1 (5.2.3), these are not applicable to the TKES as there would be no generation of NOx or ammonia emissions. Furthermore this matter was not raised by the SoS's scoping opinion<sup>35</sup> as a matter for inclusion.
- 6.14 EN-3 only refers to air quality with respect to offshore wind in respect of the Environment Agency's remit out to 3 nautical miles for offshore physical environment. This aspect of EN-3 is addressed within the Physical Environment section of this Planning Statement and is not relevant to onshore air quality.
- 6.15 EN-5 does not address air quality matters.
- 6.16 Therefore EN-1 is the primary policy with respect to onshore air quality, subject to the potential material relevance of other policy such as the NPPF, which states at paragraph 109 that:
- 'The planning system should contribute to and enhance the natural and local environment by... preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability'*

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<sup>35</sup> Scoping Opinion: Proposed Triton Knoll Electrical System, The Planning Inspectorate (2014)

and goes on to seek local planning policies that sustain EU and national objectives and that Air Quality Management Areas (AQMA) are considered adequately.

- 6.17 BBC Local Plan 1999 saved policy G8 states that ‘Planning permission will not be granted for developments which will have an adverse effect upon the quality of air...’.
- 6.18 ELDC saved policy A4 Protection of General Amenities states that ‘*Development which unacceptably harms the general amenities of people living or working nearby will not be permitted*’ and references air pollution in its explanatory text.

### Assessment Scope

- 6.19 The following matters were scoped out in the scoping opinion:
- Operational air quality; and
  - Offshore air quality.
- 6.20 The SoS advised that TKOWFL should address onshore construction phase air quality.

### Applicant’s Assessment and Mitigation

- 6.21 ES *Volume 3: Chapter 10 Air Quality* addresses onshore air quality during construction and decommissioning, including the potential for road emissions to air.
- 6.22 No part of the TKES lies within an AQMA, since there is no AQMA declared in East Lindsey, and Boston Borough has two AQMA which lie away from any part of the TKOWFL proposals. TKOWFL’s focus on alternatives resulted in developed areas and AQMAs being avoided.
- 6.23 The primary means of TKOWFL minimising air quality impacts from the TKES has therefore been undertaken through avoiding works in close proximity to residential receptors and adopting suitable mitigation measures.
- 6.24 TKOWFL has therefore already secured embedded mitigation through the avoidance of the nearest residential receptors and areas of sensitivity in its extensive alternatives process. Any remaining dust impacts will likely be temporary in nature and restricted to areas close to construction or decommissioning activity.
- 6.25 An Outline Air Quality Management Plan (*Application Document 8.7.4*) is provided with the application as agreed at the scoping stage and contains details of mitigation such as site management, monitoring, preparing and

- maintaining the site, operating vehicles / machinery and sustainable travel, construction activities, waste management, and specific measures on earthworks, construction and trackout.
- 6.26 Furthermore the implementation of a Traffic Management Plan (outline plan *Application Document 8.9*) to minimise construction phase journeys, will further ensure that any construction traffic related impacts on air quality are negligible, in light of traffic movements derived in *ES Volume 3: Chapter 9 Traffic and Access*.
- 6.27 Potential impacts on features such as SSSI are addressed in *ES Volume 3: Chapter 4 Terrestrial Ecology* and are found to be negligible as a result of the alternatives process steering development away, wherever practicable, from key features that could be impacted.
- 6.28 Mitigation in line with that referred to in EN-1 (5.2.13) for traffic and transport impacts with respect to air quality is covered in the Traffic and Transport section of this Planning Statement.

### **Secretary of State Decision**

- 6.29 EN-1 (5.2.10) guides the SoS to refuse consent where the project would lead to non-compliance with a statutory limit and to give substantial weight to air quality where a project would lead to a deterioration of air quality or lead to a new area of breach of national air quality limits (5.2.9).
- 6.30 *ES Volume 3: Chapter 10* confirms that neither of the above will occur and that air quality impacts arising from construction and decommissioning after implementation of the mitigation measures in accordance with the Outline Air Quality Management Plan will be negligible.
- 6.31 No phase of the TKES will lie within, affect or create any AQMA. The extensive alternatives and site selection process has already ensured that the proposals are suitably distant from residential properties and other relevant receptors such that all air quality impacts are negligible.
- 6.32 Operational air quality impacts will be negligible and were scoped out of further assessment by the SoS.
- 6.33 The proposals are also in accordance with policies implemented by ELDC and BBC which seek to avoid unacceptable harm, which are met by the achievement of negligible impacts on all air quality matters.
- 6.34 TKOWFL's proposals are in accordance with EN-1 and other potentially material planning policy. Neither of the conditions in EN-1 either to refuse consent (5.2.10) or to give air quality matters substantial weight (5.2.9) are

engaged and therefore air quality and emissions matters do not weigh against granting consent.

## Biodiversity and Geological Conservation

### Applicable Policy

- 6.35 Offshore and onshore biodiversity and geological effects are covered in EN-1, including the consideration of impacts on designations and species of international, national, regional and local importance.
- 6.36 EN-3 addresses effects specific to offshore wind infrastructure, which are then covered in detail in the subsequent sections of that document. Such offshore biodiversity matters are addressed in specific sections of this Planning Statement and are therefore not covered in further detail in this section, save for confirming the extent to which overall offshore nature conservation impacts were scoped out of further assessment by the SoS, e.g. marine conservation zones (MCZ).
- 6.37 EN-5 provides coverage of specific effects in respect of collision or electrocution of large birds with overhead lines. Since no part of the TKES comprises overhead lines (see alternatives section of this Planning Statement) TKOWFL considers that there are no additional matters that EN-5 raises with respect to biodiversity and geological conservation, which are not addressed by the provisions of EN-1.
- 6.38 Therefore EN-1 is the primary policy with respect to onshore biodiversity and geological conservation, since offshore matters are addressed in line with EN-3 in other sections of this Planning Statement, subject to the potential material relevance of other policy such as the NPPF, which states at paragraph 109 that:
- ‘The planning system should contribute to and enhance the natural and local environment by...protecting and enhancing valued landscapes... minimising impacts on biodiversity and providing net gains in biodiversity where possible’*
- 6.39 ELDC policies ENV19, ENV20 and ENV21 relate to nature conservation (including SNCI (now superseded by Local Wildlife Sites)), important habitats and biodiversity and geological conservation interests. Strategic Policy 16 of the ELDC Draft Core Strategy provides a hierarchy of scenarios where development on wildlife sites will be permitted, providing the greatest protection to nationally and internationally designated sites.
- 6.40 BBC Policy C17 addresses the protection of sites of local conservation interest.

## Assessment Scope

- 6.41 Biodiversity and geological conservation matters are addressed in ES *Volume 3: Chapter 4: Terrestrial Ecology* and *Volume 3: Chapter 6: Geology, Hydrogeology and Ground Conditions*. As noted above offshore matters are addressed elsewhere in this Planning Statement and refer to relevant ES chapters therein.
- 6.42 In the scoping opinion the following matters were scoped out of further assessment:
- Separate treatment of MCZ, on the basis of the marginal overlap with the project and that Natural England's guidance was that offshore cables are unlikely to impact on the overall conditions of broad-scale impacts;
  - Impacts on nearby Regionally Important Geological Sites (RIGS) / Local Geological Sites (LGS), with Huttoft Bank Foreshore being the nearest, on the basis of their interest features and that changes to beach morphology would be localised; and
  - Operational, decommissioning and cumulative impacts of the IEC, Substation and cable, on the basis that no significant impacts are likely.
- 6.43 Following initial habitat survey work and the results from the ecological desk study, invertebrates and natterjack toads (*Epidalea calamita*) were scoped out from the impact assessment. This approach was agreed with Natural England on 15<sup>th</sup> May 2014.
- 6.44 The study area extents, data coverage and baseline characterisation and survey approaches, identification of sensitive receptors to be included in the assessment, habitat mapping and assessment approaches for the terrestrial ecology assessment have been agreed by all of the members of the relevant EIA Evidence Plan review panel.
- 6.45 The approach to dealing with areas with potentially suitable habitat for great crested newts where access has not been possible has also been agreed with Natural England as set out in the Additional Consents Document (*Application Document 8.19*).

## Applicant's Assessment and Mitigation

- 6.46 The onshore TKES does not affect any internationally designated sites, SSSI, or RIGS/LGS. This fundamental mitigation has been achieved through TKOWFL's extensive alternatives process, which placed proportionate significance on international, national and local designations. The cable route does pass through three non-statutory designated sites, comprising three

- Local Wildlife Sites (LWS), of the approximate 1,500 locally designated wildlife sites in Lincolnshire (Lincolnshire BAP 2013).
- 6.47 The dominant habitat type found throughout the Proposed Development Boundary was arable (>86%), with agriculturally improved grasslands accounting for 4.6% with all the remaining habitats occurring in the minority (3% or less).
- 6.48 The project crosses 2.1% of the Anderby / Huttoft Lincolnshire Coastal Grazing Marsh (LCGM) target area of approximately 605 ha and 1.5% of the Burgh-le-Marsh LCGM target area of approximately 2,982 ha.
- 6.49 No ancient woodland sites are located in or within the vicinity of the TKES (<2 km from cable route and <5 km from IEC/Substation) and therefore this is not a consideration under EN-1 (5.3.14).
- 6.50 TKOWFL carried out a comprehensive ecological assessment proportionate to those species and designated sites at risk of impact, in accordance with EN-1 (5.3.3), within relevant onshore study areas comprising:
- Ecological desk study (species and designated sites);
  - Extended phase 1 habitat survey;
  - Great crested newt survey;
  - Reptile survey;
  - Breeding bird survey;
  - Wintering bird survey;
  - Bat activity survey;
  - Otter survey;
  - Water vole survey; and
  - Badger survey.
- 6.51 Micro-routing of the cable route continued as surveys identified features of potential interest, seeking to avoid impacts on, for example, badger setts and important habitats.
- 6.52 Further mitigation is proposed during construction, including:
- Trenchless cable laying will be employed at the location of ecologically sensitive receptors, including all three locally designated sites that are crossed, being the three LWS;
  - Disturbed areas of habitat will be restored to their pre-construction conditions and Habitats of Principal Importance and Lincolnshire BAP

habitats will be protected where possible and enhanced post-construction to ensure continued viability;

- Seek to undertake the construction of the transition joint bays (TJBs) at the landfall within an area of raised ground, so ensure that the TJBs sit above existing and potential future water levels at all times, subject to technical feasibility and landowner agreement. This ensures that the field within which the TJBs are located is not sterilised for the future creation of new grazing marsh. Full details are provided in the Outline Construction Method Statement (CMS – Application Document 8.7.1);
- Seek to undertake the construction cable installation activities within four specific fields (within the LCGM Anderby/Huttoft and Burgh-le-Marsh Target Areas) that have been identified by the LCGM Project using agreed construction methodologies. This is subject to technical feasibility and landowner agreement. Full details are provided in the Outline Construction Method Statement (CMS – Application Document 8.7.1); and
- Reduced working width will be used at ecologically sensitive water courses and hedgerows.

6.53 As a result of the use of trenches crossing technologies, impacts on the Old River LWS and South Forty Foot Drain LWS were scoped out of the assessment by TKOWFL. Impacts on the Huttoft Bank Dunes LWS and the LCGM target areas were included for assessment.

6.54 Impacts on all habitat types except hedgerows were not considered necessary for further assessment on the basis of their limited conservation value or through avoidance of impacts by selection of trenchless cable installation methods at those locations.

6.55 Impacts on otter and great crested newt were not assessed further, as surveys showed no evidence of either species within the study area. As set out in paragraph 7.45, ponds where survey access was not granted will be checked before works commence on site. Impacts on wintering birds were not assessed further as they were found to be of 'local' or lower conservation value and are unlikely to be killed or injured by the works.

6.56 Given the low ecological value of the area of the landfall construction compound within an arable field, situated beyond the habitats for which the LWS is designated, it was found that there is little chance of an impact on the qualifying features. Furthermore the use of trenchless cable installation technology will ensure that these features are not affected and therefore effects were found to be negligible.

- 6.57 The length of hedgerow to be removed during construction would be approximately 2.5 km, of a total hedgerow resource within Lincolnshire estimated at several hundred kilometres. Hedgerow loss will be temporary as hedgerows will be replaced and hence the overall effect was found to be negligible or minor positive (as existing poor quality hedges will be replanted).
- 6.58 The majority of the LCGM target areas crossed by the Proposed Development Boundary are currently arable use. Within existing arable fields within the Target Areas that are identified by the LCGM Project at the pre-construction phase, TKOWFL has agreed to consider using specific construction techniques which would therefore mean that the works will not affect the future potential for grazing marsh to be created in that field. Full details are provided in the Outline CMS (Application Document 8.7.1). Given the relatively small area affected and the limited potential impact on future potential, the effect was found to be minor.
- 6.59 Any impact on badgers would be temporary as badgers are likely to re-colonise and build new setts after construction. Furthermore, TKOWFL would have to operate within the existing licensing regime for sett disturbance and hence effects were found to be negligible.
- 6.60 Water voles are likely to re-colonise areas affected by construction after completion and are also supported by legal protection and hence only a minor effect was predicted. However displacement of water voles would be undertaken within a post-consent method statement, ensuring that ultimately only a negligible effect occurs.
- 6.61 Effects on bats were found to be negligible on the basis of mitigation set out earlier in this Section, habitat reinstatement and operating under a European Protected Species (EPS) licence.
- 6.62 Breeding bird populations were recorded as 'local' or lower conservation value and hence the populations did not warrant further assessment in their own right, however they were considered further on the basis of their protection under the Wildlife and Countryside Act (WCA). The ES covers forms of mitigation in further detail which would ensure that the WCA is not contravened.
- 6.63 Reptiles (grass snake) effects were found to be negligible on the basis of colonisation of re-established habitats after construction is completed and the implementation of appropriate measures to ensure compliance with the WCA.
- 6.64 All operational effects were excluded from further assessment in the ES, on the basis of the lack of impact arising from the completed works and restoration of appropriate habitats. Decommissioning effects were also

excluded from further assessment on the basis that cable removal was unlikely to impact upon the various receptors, particularly if cables are removed via joint bays.

- 6.65 Only cumulative construction effects were considered on the basis of the scoping opinion. TKOWFL found that only eight of the 11 scoped projects overlap spatially with the TKES and the majority are overhead lines which are unlikely to significantly impact terrestrial habitats and species.
- 6.66 The embedded mitigation ensures that residual effects on habitats and species are all negligible and hence there is not considered any potential for cumulative significant effects.

### Secretary of State Decision

- 6.67 EN-1 (5.3.4) requires the applicant to show that they have taken opportunities to conserve and enhance biodiversity and geological conservation interests. TKOWFL's extensive alternatives process ensured that fundamental connection decisions and subsequent IEC and Substation micro-siting and cable micro-routing have responded to environmental survey outputs and minimised impacts (EN-1, 5.3.7). This has ensured that onshore:
- All international designations are avoided (EN-1, 5.3.9);
  - All SSSI are avoided (EN-1, 5.3.10 & 5.3.11);
  - Ancient woodland is avoided (EN-1, 5.3.14);
  - Regionally important sites, e.g. RIGS, are avoided (EN-1, 5.3.13);
  - A limited number of non-statutory sites are encountered, being LWS, however TKOWFL's mitigation measures ensure that impacts on these features are avoided and are therefore not significant (EN-1, 5.3.13). (Note that these features do not justify refusal of consent in their own right in any event); and
  - Habitats and other species have been protected wherever possible, to the extent that all residual impacts were found to be negligible for all stages of development.
- 6.68 EN-1 asks the SoS to give appropriate weight to different designations and species and, in the light of wholly negligible impacts, TKOWFL finds no grounds where biodiversity or geological conservation should factor as a consideration in refusal of consent.
- 6.69 The minimisation of impacts, particularly through avoiding the highest designations, and protection of conservation is in line with the relevant provisions of the NPPF, ELDC (saved and emerging) and BCC policies.

6.70 TKOWFL's proposals are in accordance with EN-1 and other potential material considerations. None of the designations warranting significant weight are affected by the proposals and effects on all lesser designations or features are found to be negligible. Therefore biodiversity and geological conservation matters do not weigh against granting consent.

## Civil and Military Aviation and Defence Interests

### Applicable Policy

- 6.71 EN-1 addresses potential impacts on civil and military aviation and defence interests. Neither EN-3 or EN-5 address such matters.
- 6.72 Therefore EN-1 is the primary policy document, subject to the potential material relevance of other policy.
- 6.73 ELDC and BBC policy is not directed at such matters.

### Assessment Scope

- 6.74 The basis for not assessing civil and military aviation and defence interests is addressed in *ES Volume 2: Chapter 10: Other Marine Users*.
- 6.75 The TKES will not impact on such interests; does not pass close to or through any airfields; and was not a matter that the SoS considered should be included for assessment.
- 6.76 The lack of any surface structures at sea, or land-based structures of any significant height (or comparably greater height than existing adjacent structures, e.g. nearby pylons) means that aviation and radar effects were not considered further.
- 6.77 The SoS agreed with TKOWFL that unexploded ordnance (UXO) impacts to the safety of equipment and personnel would be assessed in the context of development risk rather than environmental impact and therefore could be scoped out from further assessment.

### Applicant's Assessment and Mitigation

- 6.78 TKOWFL's extensive alternatives process ensured that key civil and military aviation interests were avoided by the cable route and located sufficiently distant, specifically the Donna Nook training area some distance north of the chosen landfall, and onshore airfields. No effects will occur on any potential receptors due to spatial separation and/or the form of infrastructure proposed.

### Secretary of State Decision

- 6.79 In the absence of any potential significant impacts on civil and military aviation and defence interests, none of the factors stated in EN-1 (5.4.17) will be engaged and as such there would be no basis for refusing consent due to potential impacts on civil and military aviation and defence interests.

6.80 TKOWFL's extensive alternatives process and form of infrastructure has ensured that all civil and military aviation and defence interests are unaffected. None of the conditions in EN-1 (5.4.17) are met in respect of the potential to refuse consent and hence civil and military aviation and defence interests are not relevant to the SoS's decision.

## Coastal Change

### Applicable Policy

- 6.81 EN-1 includes reference to coastal change, which is a matter that TKOWFL considered in its alternatives process. Within EN-1 this is set in the context of onshore generating stations and refers the SoS to EN-3 with respect to marine life and coastal geomorphology for offshore renewable energy projects (EN-1, 5.5.5), however there are topics of note within EN-1 that are related to landfall cable matters, not captured in EN-3, including effects on:
- Maintaining coastal recreation sites and features; and
  - The vulnerability of the proposed development to coastal change.
- 6.82 Matters in EN-3 to which the SoS is referred are addressed elsewhere in this Planning Statement.
- 6.83 Therefore EN-1 is the primary policy document in respect of coastal change, subject to the potential material relevance of other policy. However it is noted that the provisions of EN-1 (5.5.5) in respect of coastal change are given in the following context:
- This section only applies to onshore energy infrastructure projects situated on the coast.'*
- 6.84 Therefore TKOWFL has addressed the provisions of coastal change on a precautionary but inclusive basis, as it is not strictly intended to cover offshore cabling and cable landfalls.
- 6.85 ELDC Draft Core Strategy Strategic Policy 11 supports mitigation of flood risk through flood resilient design.
- 6.86 The TKES does not impact on the BBC coastal zone.

### Assessment Scope

- 6.87 The SoS's scoping opinion did not require TKOWFL to specifically address coastal change in its ES.
- 6.88 Potential coastal change matters are addressed in ES Volume 2: Chapter 10: Other Marine Users and Volume 3: Chapter 7: Hydrology and Flood Risk.

### Applicant's Assessment and Mitigation

- 6.89 TKOWFL's extensive alternatives process has fundamentally ensured that the proposals achieve an acceptable outcome in respect of the provisions of EN-1 on coastal change. In particular the alternatives process ensured that:

- The East Riding of Yorkshire coastline was avoided; this coastline is subject to rapid rates of erosion which pose a significantly greater risk of cable exposure than at the Lincolnshire coastline; and
  - All major tourist developments were avoided through the alternatives process and therefore the landfall is focussed in an area of comparably low impact, whereby all landfall impacts are recoverable and do not present a long term effect.
- 6.90 EN-1 (5.5.9) notes that applicants should be particularly careful to identify impacts on special features such as MCZ and all stages of emerging or designated SAC and SPA. Whilst potential impacts on such designations are considered elsewhere in this Planning Statement and various ES Chapters, it is notable that the alternatives process placed the highest weight on such designations or their relevant features where appropriate. As such impacts on such features were minimised through embedded design mitigation. In their scoping opinion the SoS confirmed that broad-scale impacts on MCZ could be scoped out of further assessment.
- 6.91 At the landfall TKOWFL will utilise trenchless cable installation techniques to minimise impacts on the foreshore and to pass safely underneath the existing sea defences. This will ensure that there is no risk of compromising existing defences.
- 6.92 TKOWFL's proposal is resilient to coastal erosion and deposition and its extensive alternatives process has ensured that the areas of greatest coastal erosion or highest indirect environmental sensitivity have been avoided. Notwithstanding the provisions of EN-1 (5.5.5) regarding applicability to offshore wind, the conditions for attaching substantial weight to coastal change matters in EN-1 (5.5.16) are not invoked and hence coastal change matters do not weigh against granting consent.

## Dust, Odour, Artificial Light, Smoke, Steam and Insect

### Infestation

#### Applicable Policy

- 6.93 EN-1 addresses dust, odour, artificial light, smoke, steam and insect infestation. EN-3 and EN-5 do not address such matters.
- 6.94 The air quality section of this Planning Statement addresses dust impacts and these are therefore not explored further in this section.
- 6.95 Furthermore the landscape and visual effects section of this Planning Statement advises that during normal operation the IEC and Substation will not be illuminated at night; lighting will only be used for maintenance outages or emergency repairs occurring at night. On the basis that neither construction or operational lighting are ordinarily expected to be required at night, these did not form part of the scheme parameters that were assessed in the ES; they are therefore not considered further here.
- 6.96 No significant odour, smoke steam or insect infestation effects are predicted and therefore these are not considered further.
- 6.97 Furthermore Application Document 5.2 confirms that section 79(1) of the Environmental Protection Act 1990 is not engaged in relation to odour, smoke, steam or insect infestation.
- 6.98 Secretary of State Decision
- 6.99 Other than dust, which is addressed in the air quality section of this Planning Statement, no significant effects are predicted from odour, artificial light, smoke, steam and insect infestation and as a result there would be no grounds for imposing additional mitigation or controls or for giving these matters weight in determining whether to grant consent.

## Flood Risk

### Applicable Policy

- 6.100 EN-1 specifically addresses flood risk. Neither EN-3 or EN-5 provide coverage of flood risk, except to cross-refer to EN-1.
- 6.101 Therefore EN-1 is the primary policy document in respect of flood risk, subject to the potential material relevance of other policy.
- 6.102 The NPPF outlines development requirements in terms of flood risk and the impact of climate change and requires that all development proposals within Flood Zone 3 be accompanied by a Flood Risk Assessment (FRA).
- 6.103 ELDC's Draft Core Strategy addresses flood risk as part of Strategic Policy 11, including a requirement for development in coastal East Lindsey to be flood resilient and meet the relevant tests in the NPPF. Both the ELDC (ENV3) and BBC (G3) saved policies address the potential risk from surface water flooding in the event of inadequate drainage provision.

### Assessment Scope

- 6.104 Flood risk matters are addressed in ES Volume 3: Chapter 7 Hydrology and Flood Risk and Volume 2: Chapter 10: Other Marine Users.
- 6.105 TKOWFL has produced a FRA (*ES Volume 5, Annex 7-3*) compliant with the relevant sections in EN-1 (5.7.5).
- 6.106 In the scoping opinion it was confirmed that a number of matters could be scoped out of further assessment comprising:
- Tidal, fluvial and groundwater flooding and cumulative impacts during decommissioning, on the basis that potential impacts would be, at most, similar to the construction impacts if not significantly less;
  - Pluvial flooding (at IEC and Substation) during construction, operation and decommissioning, given that significant impacts are unlikely due to the predominantly rural nature of the land;
  - Tidal flooding at the Substation during construction, operation and decommissioning, given the Substation flood risk is associated with fluvial flooding not tidal flood events; and
  - Flooding from sewers (at IEC, Substation and along the cable corridor) during construction, operation and decommissioning, given the predominantly rural nature of the land it is unlikely sewerage systems will be affected.

6.107 On the basis of the above, the assessment considered how:

- Construction may affect flood risk, surface water drainage and surface water quality;
- Trenchless construction may affect flood defences and quality of surface watercourses;
- Open cut techniques may affect drainage processes and flood risk at watercourse crossings;
- Operation may affect flood risk and surface water drainage;
- Simultaneous construction may affect surface water drainage and flood risk; and
- Simultaneous operation may affect surface water drainage and flood risk.

6.108 The data requested for use in the assessment has been reviewed with the Environment Agency and the other Evidence Plan review panel stakeholders and agreed as being adequate. Methods for the crossing of IDB, Environment Agency (EA) and Canal and Rivers Trust maintained watercourses have been agreed with consultees, as has the approach to, and process for, approving drainage schemes, including SuDS, as considered within the FRA. Agreement has also been reached with all of the review panel members on provisions for flood protection for critical equipment at the Substation and IEC, to be confirmed by post-consent topographic survey.

6.109 PINS have confirmed that they are content that the future appointed contractors can apply for environmental permit and abstraction licences when the final construction programme and methodologies are known, rather than including them within the DCO application.

#### **Applicant's Assessment and Mitigation**

6.110 TKOWFL has undertaken consultation with relevant bodies such as the EA and relevant IDB, in accordance with EN-1 (5.7.7). In particular TKOWFL has agreed a FRA as part of the EIA Evidence Plan process which is in accordance with EN-1 (5.7.8).

6.111 In respect of construction phase impacts, trenchless techniques will be used to maintain the integrity of flood defences. The distance to nearby properties, achieved through TKOWFL's extensive alternatives process, results in a minor effect from cable construction flood risk, as a result of the slight change in baseline flood conditions, very short term duration and the infrequent and limited physical and temporal extent. Effects on surface water drainage are

- also minor, partly as a result of the recoverability / reinstatement of field drainage being at the cost and responsibility of the applicant.
- 6.112 With respect to the IEC and Substation, TKOWFL's alternatives process has ensured that only a limited number of properties are potentially impacted. Coupled with the minor, temporary, infrequent and limited physical and temporal extent, the effect on flood risk and surface water drainage is found to be minor and therefore not significant at both facilities (including the Unlicensed Works at Bicker Fen which are found to be negligible for both flood risk and surface water drainage).
- 6.113 There are eight locations where trenchless crossing techniques are anticipated to be used under existing flood defences, at which the effect is found to be minor in light of the limited, very infrequent, very unlikely and short term impact of any issue arising from these techniques.
- 6.114 Open cut crossings are located sufficiently distant from settlements of larger size to ensure that potential effects on drainage processes and flood risk are minor and not significant.
- 6.115 During operation the maintenance of the cable route was found to have negligible effect on flood risk and surface water drainage, particularly since the potential for significant earthworks would be rare and therefore less than during construction.
- 6.116 The IEC and Substation will be raised above critical flood depths and therefore will be highly tolerant of surface water flooding, even taking into account climate change, in accordance with EN-1 (4.8.5). The wider economy, environment and society are unlikely to be affected by flood events during operation and hence effects were found to be negligible (including Unlicensed Works at Bicker Fen).
- 6.117 Simultaneous (cumulative) construction effects were found to be minor for flood risk and surface water drainage in light of the limited additive nature of impacts from excavated materials stored in the floodplain, limited land-take reducing permeability and limited potential for additive damage to flood defences. TKOWL's commitment to liaise with other projects in this respect and the similar scrutiny under which they would be placed, also contributed to a minor effect.
- 6.118 Cumulative operational effects on flood risk and surface water drainage were found to be minor.

## Secretary of State Decision

- 6.119 TKOWFL's alternatives process showed that the need to site the Substation and IEC in flood zone 3 was founded in an extensive and exhaustive study of options, which clearly showed that a connection at Bicker Fen was the preferred Onshore Interface Point for the TKOWF array connection to the national grid within a range of reasonably available sites and their respective constraints. This satisfies the sequential approach required in EN-1 (5.7.9).
- 6.120 The FRA (*ES Volume 5, Annex 7-3*) undertaken by TKOWFL shows that the IEC and Substation locations satisfy the Exception Test in respect of the options available, flood resilience and no reasonable alternative on previously developed land. This is therefore compliant with EN-1 (5.7.16) and the NPPF.
- 6.121 The ES finds that all flood risk related effects from the IEC, Substation and cable route are not significant and therefore in accordance with EN-1 (5.7.17), since the development will not cause any significant change in the flood or surface water regime.
- 6.122 The TKES satisfies the needs of the NPPF and local policy in respect of ensuring flood resilient design, satisfying the relevant tests set out in national policy and ensuring that all effects are not significant, including in respect of surface water drainage disposal.
- 6.123 TKOWFL's ES, FRA and mitigation proposals are in accordance with the relevant sections of EN-1 and the NPPF. TKOWFL's alternatives process has been undertaken on a sequential basis to determine the most appropriate connection point to the national grid. The IEC and Substation have been shown to be compliant with the Exception Test. All residual effects are not significant and therefore flood risk matters do not weigh against granting consent.

## Historic Environment (Offshore)

### Applicable Policy

- 6.124 EN-1 specifically addresses the historic environment, whose provisions are relevant to both onshore and offshore elements of the TKES. Furthermore the SoS indicated that out of potential seascape and visual effects, TKOWFL should consider historic seascape. Such impacts are considered here rather than in the landscape and visual section of this Planning Statement.
- 6.125 EN-3 provides specific coverage of offshore historic environment.
- 6.126 EN-5 does not address any matters of relevance to offshore historic environment.
- 6.127 Therefore EN-1 and EN-3 are the primary policy documents in respect of offshore historic environment impacts, subject to the potential material relevance of other policy.
- 6.128 Offshore historic environment considerations focus on archaeology and historic seascape.
- 6.129 The East Inshore and Offshore Marine Plan policies SOC2 and SOC3 seek to preserve the significance of heritage assets and the marine and terrestrial character of an area.
- 6.130 The NPPF describes how the historic environment is a material consideration in the planning process and indicates that applicants must provide information on the significance of assets which are likely to be impacted upon.

### Assessment Scope

- 6.131 Consideration of offshore historic environment is given in ES *Volume 2: Chapter 11: Marine Historic Environment*.
- 6.132 The following aspects were assessed offshore:
- Permanent physical loss of known and potential receptors from direct impacts during seabed trenching, placement of anchors and bottoming out barges in shallows/ intertidal areas (construction);
  - Permanent physical loss of submerged prehistoric landscapes and receptors from direct impacts during seabed trenching (construction);
  - Permanent physical loss of known and potential receptors from direct impacts from cable replacement and placement of vessel jack-up legs and anchors (operational maintenance); and
  - Decommissioning, as for construction phase.

- 6.133 For the marine historic environment the study area extents, adequacy of the evidence base for baseline characterisation and assessment approaches have been agreed as appropriate for the historic seascape character assessments for the TKES application by the review panel stakeholders. Mitigation and monitoring requirements have also been agreed.

### **Applicant's Assessment and Mitigation**

- 6.134 A number of project specific surveys were undertaken of the cable corridor and hence the study area is well understood. The desk-based assessment established that there are no designated wrecks or other cultural heritage assets with legal designations within the cable corridor and hence these key designations did not need to be considered in the alternatives process.
- 6.135 Twelve known sites were identified from the UK Hydrographic Office (UKHO) and SeaZone data. Six of these sites have been identified from the UKHO data within the geophysical survey corridor of these sites, three are listed as live wrecks, two are dead wrecks, while the remaining site is a live obstruction.
- 6.136 Further sites were identified in a wider buffer zone beyond the geophysical survey area and were assessed as part of the ES, along with all geophysical targets of medium archaeological potential.
- 6.137 Further primary mitigation beyond the embedded alternatives process (which avoided key offshore historic environment designations), is achieved by the proposal to microsite the cable route within a given corridor, which can be sought under EN-3 (2.6.146). Temporary exclusion zones, in accordance with EN-3 (2.6.145) will be implemented offshore where cultural heritage assets may be subject to direct or indirect effects to prevent impacts from anchoring or installation by jack-up vessels. The same approach will apply during operation, maintenance and decommissioning.
- 6.138 An offshore Written Scheme of Investigation (WSI) that accords with the outline WSI submitted with the application (*Application Document 8.12*) will be prepared to set out procedures for managing any features that are of archaeological importance and appear during the works. If sites of cultural heritage interest cannot be avoided, a full programme of archaeological investigation will be undertaken.
- 6.139 In light of the mitigation outlined above, the ES found all offshore impacts to be minor (three known wreck sites, four wreck sites from geophysical analysis, eight wreck sites of medium potential, 107 remaining targets from the geophysical survey and to known or potential sites in the wider study buffer).

- 6.140 The potential effect on nine locations where peat was identified was also found to be minor, in light of the likely extent of the paleo landscape and the relative impact of the export cable trench.
- 6.141 Indirect effects on wrecks and paleo-landscapes from changes in sediment regimes were found to be negligible.
- 6.142 All impacts on historic seascape were found to be negligible, except for cable installation on the character type cultural topography (paleo-landscape) which was found to be minor beneficial.
- 6.143 The effect on historic seascape during operation was found to be negligible, whilst decommissioning effects were not considered further on the basis that they would be no greater than construction effects, which were all found to be not significant.
- 6.144 All cumulative offshore effects were found to be negligible or positive (physical impacts on paleo-landscape and historic seascape), on the basis of the accumulation of archaeological knowledge through geotechnical and geophysical survey data.

#### **Secretary of State Decision**

- 6.145 Consultation has been undertaken with English Heritage to inform baseline data collection and route selection in accordance with EN-1 (5.8.8).
- 6.146 Offshore desk based assessment was informed by extensive geotechnical and geophysical studies, in accordance with EN-3 (2.6.140 & 2.6.141).
- 6.147 TKOWFL's extensive alternatives process has ensured that historic environment impacts have been minimised and designed sensitively around heritage assets offshore. The TKES should therefore be treated favourably in accordance with EN-1 (5.8.18). Furthermore the proposals are fully in accordance with EN-3 (2.6.144).
- 6.148 TKOWFL proposes temporary offshore exclusion zones and will use a range of procedures, including the opportunity to micro-site, to further minimise potential impacts, in accordance with EN-3 (2.6.146).
- 6.149 The achievement of effects on all aspects that are not significant is in accordance with the aims of East Inshore and Offshore Marine Plan policies SOC2 and SOC3.
- 6.150 TKOWFL's assessment and mitigation proposals are in accordance with the relevant sections of EN-1 and EN-3, and the East Inshore and Offshore Marine Plan. TKOWFL's alternatives process has been effective in ensuring

that all residual effects are found to be not significant and therefore historic environment matters do not weigh against granting consent.

## Historic Environment (Onshore)

### Applicable Policy

- 6.151 EN-1 specifically addresses the historic environment, whose provisions are relevant to the onshore elements of the TKES.
- 6.152 EN-3 is not relevant to onshore Historic Environment.
- 6.153 EN-5 mentions historic interest or importance in the context of reiterating licence holders' preservation obligations under the Electricity Act and in respect of landscapes of the greatest historic importance that may be avoided through undergrounding of overhead lines.
- 6.154 Therefore EN-1 is the primary policy document in respect of historic environment impacts, subject to the potential material relevance of other policy.
- 6.155 Whilst EN-5 does not provide policy on historic environment, the context in which historic interest or importance are mentioned is relevant to TKOWFL's approach to alternatives and is addressed in this historic environment section.
- 6.156 The NPPF describes how the historic environment is a material consideration in the planning process and indicates that applicants must provide information on the significance of assets which are likely to be impacted upon.
- 6.157 East Lindsey Local Plan Saved Policies C1, C2, C5 and C7 address the historic environment, including protection of conservation areas, listed buildings and historic buildings.

### Assessment Scope

- 6.158 Consideration of historic environment is given in *ES Volume 3: Chapter 8: Historic Environment*.
- 6.159 In the scoping opinion it was confirmed that a number of matters could be scoped out of further assessment, including:
- impacts on the RIGS/LGS; on the basis of their interest features and as changes in beach morphology would be localised;
  - impacts on the setting of onshore heritage receptors, which would be minimal and transitory during construction, operation and decommissioning; and
  - all impacts on designated heritage assets during construction, operation and decommissioning, on the basis that the cable corridor will be designed to ensure no direct impacts and as the cable corridor

will be underground there will only be temporary visual impacts during construction and no impact upon settings of listed buildings. The IEC and Substation are located more than 1.8 km from any designated heritage assets and early consultation with English Heritage established that the IEC and Substation (which at the time of consultation were for larger structures) will not have an indirect impact on the setting of any assets.

- 6.160 On this basis the following aspects were assessed:
- Impact to known heritage assets as a result of cable installation groundworks (construction); and
  - Impacts to hitherto unknown below-ground heritage assets as a result of cable installation groundworks (construction).
- 6.161 No potential onshore impacts during operation and decommissioning were identified and were therefore not assessed.
- 6.162 The historic environment study area extents have been agreed by all members of the Evidence Plan review panel. The adequacy of the evidence base for baseline characterisation has been agreed by English Heritage and Heritage Trust for Lincolnshire (on behalf of BBC) as adequate to undertake the EIA for the onshore historic environment assessments for the TKES application.

### **Applicant's Assessment and Mitigation**

- 6.163 TKOWFL's extensive alternatives process sought to avoid impacts on the most important heritage assets, including listed buildings, scheduled monuments and conservation areas. The success of this process in fundamentally minimising impacts on historic environment is reflected in the extent to which a number of matters were scoped out of further assessment by the SoS or effects were found to be not significant.
- 6.164 The minimisation of impacts by TKOWFL is fully in accordance with EN-1's presumption in favour of conservation of designated assets (5.8.14), and by extension of the logic within EN-1 (5.8.6), successful conservation of other non-designated assets of sufficient significance.
- 6.165 TKOWFL has committed to undertake pre-construction onshore geophysical survey and trial trenching to inform understanding of heritage assets and to programme either preservation in-situ or preservation by record.
- 6.166 TKOWFL found no predicted direct physical impacts on the single designated heritage asset within the onshore baseline study area, since it lies outside the Proposed Development Boundary (being a single Grade II listed structure).

- 6.167 On the 171 heritage assets (including natural features which may have heritage interest), TKOWFL found a range of effects prior to implementation of additional mitigation. The ES identifies that no designated assets would be affected and that no onshore heritage assets identified to date would require preservation in-situ. Once a recognised suite of mitigation measures are applied, including a Schedule of Archaeological Requirements to inform detailed site specific method statements, a WSI approved by statutory bodies, and preservation by record, all construction effects were found to be negligible or no effect.
- 6.168 With respect to cumulative impacts, the nature of archaeological remains is such that direct impacts cannot happen to the same receptor more than once. It is either avoided and preserved *in-situ*, or impacted or destroyed. Where projects overlap, the first project will resolve the matter in a manner which is likely to apply to both projects, e.g. preserve by record. On this basis direct cumulative physical impacts were found to be not significant.

#### **Secretary of State Decision**

- 6.169 Consultation has been undertaken with English Heritage to inform baseline data collection and route selection in accordance with EN-1 (5.8.8).
- 6.170 TKOWFL's extensive site selection, route design and micro-siting process has ensured that historic environment impacts have been minimised and designed sensitively around heritage assets. The TKES should therefore be treated favourably in accordance with EN-1 (5.8.18). Furthermore the proposals are fully in accordance with EN-3 (2.6.144) in terms of being designed sensitively and taking into account known heritage assets and their status.
- 6.171 TKOWFL found all onshore effects to be negligible or no effect after applying recognised approaches to mitigation, including approval of an onshore WSI by statutory bodies and preservation by record where required. Hence the scheme is compliant with the relevant aspects of EN-1 and local policy in terms of minimising or eliminating effects on designated and non-designated heritage assets.
- 6.172 TKOWFL's assessment and mitigation proposals are in accordance with the relevant sections of EN-1 and relevant local policies. TKOWFL's alternatives process has been effective in ensuring that residual effects are found to be not significant and therefore (onshore) historic environment matters do not weigh against granting consent.

## Landscape and Visual

### Applicable Policy

- 6.173 EN-1 provides general coverage of landscape and visual effects, whilst EN-3 focuses on the potential for seascape effects in relation to offshore wind farms. EN-5 specifically addresses landscape and visual effects and is of relevance to the proposed IEC and Substation.
- 6.174 Therefore EN-1, supported by the provisions of EN-3 and EN-5, is the primary policy document in respect of landscape, seascape and visual impacts, subject to the potential material relevance of other policy.
- 6.175 The NPPF sets out the government's planning objectives to contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes.
- 6.176 East Lindsey saved policies A4 (in part) and A5 seek to protect distinctive and local character and to ensure that landscaping is integrated within any proposal, whilst Policy C11 seeks to specifically protect the Lincolnshire Wolds AONB and locally designated Area of Great Landscape Value (AGLV). ELDC Draft Core Strategy Strategic Policy 14 also serves to protect designated areas, in particular the Lincolnshire Wolds AONB.
- 6.177 Boston Borough Policy G1 seeks to avoid substantial harm to amenity or general character of an area and Policy G2 seeks to avoid significant impact upon landscape resources.
- 6.178 The East Inshore and Offshore Marine Plan policy SOC3 seeks to protect terrestrial and marine character, whilst TR1 seeks to prevent impacts (including mention of seascape in the supporting text) that could impact tourism and recreation. Objective 5 of the Marine Plan seeks to ensure that decisions consider seascape.

### Assessment Scope

- 6.179 Landscape and visual matters are addressed in *ES Volume 3: Chapter 2: Landscape and Visual*.
- 6.180 In the scoping opinion it was confirmed that a number of matters could be scoped out of further assessment, including:
- Operation of the underground cable infrastructure, on the basis that significant impacts are unlikely to occur;
  - Offshore landscape, seascape and visual impacts during operation, on the basis that significant impacts are unlikely to occur; and

- Decommissioning effects, on the basis that significant impacts are unlikely to occur.

6.181 On this basis TKOWFL assessed the following:

- Landscape and visual effects during construction (onshore only) and operation (IEC and Substation only) and decommissioning (onshore only); and
- Cumulative effects for construction, operation (IEC and Substation only) and decommissioning (IEC and Substation only).

6.182 In scoping the SoS referred to comments made in relation to historic seascape and specifically referred to comments made at English Heritage. This potential effect is addressed in the historic environment (offshore) section of this Planning Statement. Since seascape effects are not expected to be significant (other than consideration of historic seascape), this is not considered further in this section or in respect of EN-3 policies which are strongly focussed on the visual impact of nearshore turbines.

6.183 The study area extents, selection of viewpoints and production of photomontages, baseline characterisations and assessment approaches for landscape and visual receptors topics have been agreed with all members through review panel discussions and provision of evidence as part of the EIA Evidence Plan process.

### **Applicant's Assessment and Mitigation**

6.184 TKOWFL's extensive alternatives process has been fundamental to the minimisation of impacts to onshore landscape and visual receptors. In particular the Site Selection and Design process placed significant weight on protection of the Lincolnshire Wolds AONB which is avoided in its entirety, along with the East Lindsey AGLV, in full accordance with EN-1 and ELDC policies.

6.185 Despite avoiding the most highly designated landscape, TKOWFL additionally took a positive decision to place its onshore TKES underground to eliminate the largely visual and landscape effects of a new overhead line in a predominantly flat fenland landscape.

6.186 Furthermore TKOWFL's Site Selection and Design process factored in proximity to residential receptors as a key criteria for site selection of the IEC and Substation. As a result these facilities are located in areas where visual impact is already minimised through embedded design mitigation. Further iterative micro-siting within the Proposed Development Boundary will ensure

- that the cable route will seek to avoid any remaining features (that are not already avoided) as the project progresses.
- 6.187 Following site selection of the proposals, desktop and site surveys established that no significant landscape and visual impacts would be experienced outside a 3 km radius buffer around the IEC or Substation, and outside a 1 km buffer either side of the cable route.
- 6.188 No part of the IEC or its 3 km study area lies within a nationally or locally designated landscape and the Lincolnshire Wolds AONB is 5.0 km west-northwest and the AGLV is approximately 4.5 km to the west.
- 6.189 No part of the Substation or its 3 km study area (which includes the study area for the Unlicensed Works in its southern portion) lies within a nationally or locally designated landscape.
- 6.190 No part of the cable route falls within a nationally or locally designated landscape.
- 6.191 The cable route, IEC and Substation all reside in generally flat agricultural land. The landfall is a flat coastal zone and also largely consists of open arable land with the small village of Anderby Creek to the south comprising predominantly holiday chalets.
- 6.192 During normal operation the IEC and Substation will not be illuminated at night; lighting will only be used for maintenance outages or emergency repairs occurring at night. On the basis that neither construction or operational lighting are ordinarily expected to be required at night, these did not form part of the scheme parameters that were assessed in the ES.
- 6.193 Whilst the primary and most effective mitigation has occurred as a result of an extensive alternatives process, TKOWFL has also included or proposed further mitigation including:
- Siting of the IEC and Substation has avoided the loss of notable vegetation cover and its site compound located immediately adjacent the works to minimise landscape and visual effects;
  - Siting of the onshore cable route has avoided notable landscape features such as groups of trees and hedgerows where possible;
  - Siting of temporary compounds along the cable route has been chosen so that they are directly adjacent to the cable route, use existing access bellmouths wherever available and are away from notable tree cover; and
  - Other mitigation as set out in the ES.

- 6.194 Operationally the IEC has been specifically sited between a grain store and Skegness Stadium to avoid it being 'isolated' within the wider arable landscape. Planting has also been proposed and is included in the project design.
- 6.195 Operationally the Substation has been located to take advantage of a position close to the South Forty Foot drain embankment which provides a screen to views from the west and is also in close proximity to the existing Bicker Fen NGET substation to minimise the proliferation of electrical infrastructure.
- 6.196 Landscape effects from construction at the IEC were found to be minor, primarily due to existing structures of a similar scale to the construction compound and alteration of a relatively small area in the context of a large scale landscape. Visual effects were also found to range between moderate and no effect for different viewpoints assessed. However the visual impact will be removed on completion of the construction works and therefore the residual effect is neutral.
- 6.197 Landscape effects from construction at the Substation were found to be minor, primarily due to the large-scale landscape and proximity to other existing electrical infrastructure. Visual effects were found to range between moderate and negligible for different receptors. However the visual impact will be removed on completion of the construction works and therefore the residual effect is neutral. Furthermore landscape effects from the Unlicensed Works were found to be minor, whilst the majority of visual receptors were found to have no effect, with just one minor effect.
- 6.198 The landscape effect of cable construction was found to be predominantly minor or negligible, with one landscape character (including the landfall) effect being moderate. However the majority of the landscape impact will be removed on completion of the construction works and therefore the residual effect is not significant. Visual effects of the same were found to range between moderate and minor, primarily in relation to users of publicly accessible locations in the vicinity of the landfall and a relatively small number of residential receptors close to construction operations. However the visual impact will be removed on completion of the construction works and therefore the residual effect is neutral.
- 6.199 Operational landscape effects at the IEC and Substation were found to be minor on a similar basis to construction effects, reducing to neutral by year 15 as mitigation planting establishes.
- 6.200 Operational visual effects at the IEC from 12 viewpoints range between moderate and negligible. However the moderate effect only occurs at two

- viewpoints and the change is reversible, such that the effect is neutral by year 15 at both these locations as a result of TKOWFL's planting proposals.
- 6.201 Operational visual effects at the Substation from 11 viewpoints range between moderate and negligible. However the moderate effect only occurs at three viewpoints and the change is reversible, such that the effect is neutral by year 15 at these locations as a result of TKOWFL's planting proposals.
- 6.202 Operational visual effects from the Unlicensed Works from seven viewpoints are predominantly no effect and are all not significant.
- 6.203 Decommissioning effects at the IEC, Substation and from the Unlicensed Works are considered to be not significant as works will occur within surrounding mitigation planting and/or there is limited potential for visual effects.
- 6.204 No significant landscape or visual effects are predicted during decommissioning of the cable route since any cable removal will be achieved by pulling the cable through transition pits.
- 6.205 The ES finds that the limited number of cumulative projects and their nature will not give rise to significant cumulative landscape or visual effects at the IEC, Substation (including Unlicensed Works) or along the cable route.

### Secretary of State Decision

- 6.206 EN-1 (1.7.11) notes that the principal area in which new energy infrastructure is likely to lead to effects that cannot be mitigated is in respect of landscape and visual effects.
- 6.207 TKOWFL has undertaken an extensive alternatives process which fundamentally minimises landscape and visual impacts by avoiding the most highly designated national (AONB) and local (AGLV) landscapes, in accordance with EN-1 and ELDC policy C11, and ensuring that proximity to dense residential and tourism development is limited. This has fundamentally contributed to the achievement of acceptable impacts. In the case of overall network efficiency, the alternatives process not only responded to the requirements of the Electricity Act to develop an economic and efficient network, but also to EN-5 (2.8.10) in respect of seeking network reinforcement options rather than the building of an entirely new line. This was a key factor, amongst others, in the selection of Bicker Fen as the Onshore Interface Point for the TKES connection.
- 6.208 In the specific landscape section EN-1 (5.9.8) notes that *'Virtually all nationally significant energy infrastructure projects will have effects on the landscape. Projects need to be designed carefully, taking account of the*

- potential impact on the landscape*’. Furthermore, in respect of AONBs, EN-1 (5.9.9) states that *‘The conservation of the natural beauty of the landscape and countryside should be given substantial weight by the IPC in deciding on applications for development consent in these areas’*. TKOWFL has avoided these areas, and also the potential for effects from outside (EN-1, 5.9.12) and therefore, by inference, other remaining impacts should be given lesser weight.
- 6.209 The TKES approach to alternatives and siting is fully in accordance with the aims of EN-1 policy in minimising landscape and visual impact, being one of the technical sections which specifically refers to the consideration of alternatives (EN-1, 4.4.2).
- 6.210 With respect to development that does not impact on nationally designated landscapes, EN-1 (5.9.14) makes it clear *‘that local landscape designations should not be used in themselves to refuse consent, as this may unduly restrict acceptable development.’* TKOWFL’s proposals do not lie within a local landscape designation and will not impact on the East Lindsey AGLV. EN-5 (2.8.9) also reinforces the importance that should be placed on avoiding impacts on areas of natural beauty or historic importance.
- 6.211 TKOWFL has undertaken a comprehensive LVIA (*ES Volume 5, Annex 2-1*) in accordance with EN-1 (5.9.5-5.9.7) and concluded that all residual effects are not significant. Where initial significant effects are predicted they are moderate, and subsequently become not significant as they reduce to neutral, either as a result of the completion of works (construction phase effects) or due to mitigation planting (operational effects after 15 years).
- 6.212 In reaching any judgement on landscape impacts in non-designated areas, the SoS is required to consider whether any adverse impact is temporary and/or reversible in a reasonable timescale (EN-1, 5.9.16). All landscape effects from the proposal, at worst moderate, reduce to neutral over time.
- 6.213 With respect to visual impact, EN-1 (5.9.18) once again accepts that *‘All proposed energy infrastructure is likely to have visual effects for many receptors around proposed sites’* and notes that coastal areas are particularly vulnerable to visual intrusion. TKOWFL’s proposals only have a temporary visual effect at the landfall and are reduced to neutral when construction, operational maintenance or decommissioning works are complete.
- 6.214 EN-1 (5.9.19) also notes that *‘It may be helpful for applicants to draw attention, in the supporting evidence to their applications, to any examples of existing permitted infrastructure they are aware of with a similar magnitude of impact on sensitive receptors’*. The presence of existing electrical infrastructure at Bicker Fen was a factor in the siting of the Substation to

- avoid a proliferation of such assets beyond those that have already resulted in existing visual impact.
- 6.215 TKOWFL's site selection and planting proposals are in accordance with EN-1 (5.9.22) in seeking to minimise landscape and visual effects and this is evidenced through the reduction over time of effects to neutral, as planting is established.
- 6.216 In discussing site selection by applicants, EN-5 (2.2.5) notes that there is usually some flexibility around site selection. Furthermore EN-5 (2.8.2) identifies that at some '*particularly sensitive*' locations overhead lines may be unacceptable. By inference, TKOWFL's decision to locate its cable route underground and outside of designated landscapes or sensitive areas should be given significant credit as a fundamental mitigating measure.
- 6.217 Furthermore the same should apply to the avoidance of such areas by the IEC and Substation alternatives process, which was undertaken over an extended period with both statutory and public consultees informing it.
- 6.218 In addition to the fundamental mitigation employed by TKOWFL of installing the TKES electrical connection underground, the proposals implement extensive landscaping schemes in accordance with EN-5 (2.8.11), which are successful in reducing the operational landscape and visual effects at the IEC and Substation to neutral over time.
- 6.219 Seascape effects are only considered relevant in respect of historic seascape and are therefore addressed in the historic environment (offshore) section of this Planning Statement. The effect of the proposals in respect of direct seascape effects are not significant and are therefore compliant with EN-1, to which the SoS is referred in terms of how to consider them (EN-3, 2.6.198).
- 6.220 No significant seascape effects are predicted from offshore construction and hence there can be no indirect effects on tourism and recreation or marine character. Whilst the landfall construction works do result in a temporary moderate effect on landscape and visual receptors, this becomes neutral after reinstatement. Therefore indirect effects on tourism, recreation and marine character in the context of seascape will be limited in duration and localised and have been through a sequential approach to alternatives and subsequent mitigation in accordance with East Inshore and Offshore Marine Plan Policies SOC3 and TR1.
- 6.221 The outcome of TKOWFL's assessment confirms that significant irreversible effects will not occur to landscape resources, general amenity and local character and that landscaping will be integrated and serves to significantly mitigate effects over time. The proposals are therefore in accordance with

relevant local policies of ELDC and BBC, in particular through the avoidance of the Lincolnshire Wolds AONB and ELDC AGLV.

- 6.222 TKOWFL's design, assessment and mitigation proposals are in accordance with the relevant sections of EN-1, EN-3, EN-5, the NPPF and local plan policies. TKOWFL's alternatives process has achieved fundamental and substantial minimisation of potential effects through avoidance of the most highly designated landscape areas and most densely populated locations. All residual effects are not significant and therefore landscape and visual matters should not weigh against the proposal.

## Land Use including Open Space, Green Infrastructure &

### Green Belt

#### Applicable Policy

- 6.223 EN-1 addresses land use including open space, green infrastructure and green belt. The relevant Section of EN-1 (5.10.24) also makes reference to coastal paths, national trails and Public Rights of Way (PRoW), and hence these are addressed in this section of the Planning Statement, whereas broader tourism impacts are addressed within the Socio-economic Section.
- 6.224 Where a proposal conflicts with a proposed local land use, EN-1 (5.10.13) guides the SoS to base the weight to be given to this impact on the status of the statutory Development Plan. Furthermore the SoS should not grant consent for development on existing open space, sports and recreational buildings and land except where it is surplus to requirements or the benefits of the scheme outweigh the impacts. The loss of playing fields should only be allowed where they will be replaced with equivalent facilities.
- 6.225 EN-1 guides the SoS to ensure that applicants do not site their proposals on Best and Most Versatile (BMV) agricultural land without justification. EN-1 also makes it clear that inappropriate development is by definition harmful to the Green Belt and the general planning policy presumption against such development applies with equal force in relation to major energy infrastructure projects.
- 6.226 The SoS is expected to require applicants to take appropriate mitigation measures to address adverse effects on coastal access, national trails and other rights of way.
- 6.227 EN-3 and EN-5 do not address land use policy.
- 6.228 Therefore EN-1 is the primary policy document in respect of land use impacts, subject to the potential material relevance of other policy.
- 6.229 Paragraphs 70, 73, 74, 75, 90 and Section 9 of the NPPF provide support for the protection of Green Belt from development, the preservation of community facilities and PRoW. Paragraph 112 reinforces the avoidance of BMV land as set out in EN-1.
- 6.230 ELDC provides a number of policies in support of forms of development in allocated area, e.g. industrial or tourism use. REC3 seeks to avoid loss of recreational and sports provision and REC6 for the protection of local country parks. Policy C15 provides protection to Coastal Conservation Area (CCA) 2 (within which Anderby Creek lies) whereby development is only permitted in

that area if it is essential and does not harm amenities or character through its impacts.

- 6.231 ELDC's policy on PRoW was not saved and the Draft Core Strategy does not address this matter directly. Strategic Policies 11, 13 and 15 of the Draft Core Strategy provide support to safeguarding serviced holiday accommodation, sports and recreational spaces, and green space.
- 6.232 BBC policy CO1 states that '*Development will not be permitted in the countryside unless it is supported by other local plan policies.*' and subsequently includes reference to BMV land, however BBC's specific policy G9 on BMV land was not saved.

### Assessment Scope

- 6.233 ES Volume 3: Chapter 5 Land Use, Soils and Agriculture (all matters), Volume 3: Chapter 3 Socio-economics, Tourism and Recreation (PRoW only), Volume 3: Chapter 6: Geology, Hydrogeology and Ground Conditions (mineral resources and ground contamination only) provide the assessment relevant to this section.
- 6.234 The study area extents, baseline characterisations, including source data, and assessment approaches for tourism and recreation topic have been agreed with all review panel members, either through the scoping process or directly addressed through discussions and provision of evidence as part of the EIA Evidence Plan.

### Applicant's Assessment and Mitigation

- 6.235 Fundamental embedded mitigation with respect to land use was achieved through the extensive alternatives process undertaken by TKOWFL. This process, set out in the *Interface Selection Assessment Report* and *Site Selection and Design Report*, introduced a hierarchy of land use constraints including industry, residential, primary tourism uses and designations such as green belt and open space.
- 6.236 Through this approach the alternatives process minimised the impact on the most potentially sensitive or highly designated land uses set out in EN-1. As such the cable route, IEC and Substation do not impinge on developed residential or industrial areas, Green Belt, proposed development allocations within Development Plans or designated areas of open access or common land. Play areas and sports facilities are not affected.
- 6.237 Whilst the cable route does lie within the East Lindsey CCA and the evolving Lincolnshire Coastal Country Park (LCCP), mitigation such as trenchless

- cable installation at the foreshore and the potential use of specific construction techniques within specific fields within the LCGM Target Areas will minimise the impacts on those intended land uses, such that the ES concludes that those locally allocated sites, including the Lincolnshire Coastal Grazing Marshes (LCGM) are not affected or their development hindered significantly.
- 6.238 The Proposed Development Boundary does not sterilise any designated mineral sites, including mineral safeguarding areas and sites with extant planning consent for mineral extraction, or affect any waste proposals.
- 6.239 The percentage of land within the study area falling within each Agricultural Land Classification (ALC) grade is approximately;
- ALC Grade 1 = 12.2%
  - ALC Grade 2 = 54.6%
  - ALC Grade 3 = 31.8%
  - ALC Grade 4 = 0.5%
- 6.240 Installation of the onshore cabling will only temporarily affect land currently under arable and pastoral management, influencing how current agricultural practices within affected holdings are undertaken in the short term.
- 6.241 Following completion of the works, the working cable corridor width will be fully reinstated as near as practically possible to its former condition. Full reinstatement will allow normal farming practices to continue (i.e. crop growth, ploughing, machine loads). In the case of pasture, any reinstated land will need to have achieved a condition robust enough to sufficiently withstand grazing pressure. Reinstated arable areas will be able to be brought back into full agricultural use at the next sowing season following completion of construction.
- 6.242 Larger agricultural holdings are expected to experience minor adverse impacts whilst smaller holdings may experience moderate adverse impacts. However this is only during the period of construction and in all cases following reinstatement above the cable the residual impact is negligible.
- 6.243 With the adoption of embedded mitigation including the adoption of standard best practice measures for soil handling and the implementation of a Soil Management Plan, the impact on BMV land is considered of minor significance, whilst impacts on soil resources and agri-environmental schemes are considered negligible.
- 6.244 Operation of the landfall will result in the permanent loss of approximately 0.5 ha of Grade 3 ALC agricultural land. Whilst the cable route does encounter

- ALC grades 1-3(a), adverse impacts on such areas are only temporary during cable laying and are negligible following reinstatement. The primary focus of achieving a cable alignment that respects other land uses and negates greater impacts, such as avoiding removal of tourist or recreation facilities, has necessarily impacted on varying grades of ALC land. This temporary minor effect, reverting to negligible on completion, is considered entirely justifiable in the light of avoiding significantly greater impacts that might be contrary to a number of national and local policies. As such TKOWFL considers that the justification of cable routing through BMV land is essential to achieve broader embedded mitigation for other aspects of the EIA.
- 6.245 The siting of the IEC and Substation was, in the same manner as the cable route, steered by an extensive alternatives process, seeking to minimise land use impacts across all aspects of EIA. The input from BBC and ELDC to the site selection process did not raise significant concern with respect to BMV land as a priority over other considerations.
- 6.246 The IEC will result in the permanent loss of approximately 6.2 ha of Grade 3 ALC agricultural land, whilst the Substation will result in the permanent loss of approximately 25.02 ha of Grade 2 ALC land and 4.59 ha of Grade 1 ALC land. The combined permanent agricultural landtake of 36.3 ha of land within the footprint of the IEC and Substation including the Substation permanent access track, and landtake associated with the permanent access track and transition joint bays at the landfall, as a percentage of Grade 1, 2 and 3 land within the east midland region is 0.00003%. On this basis the impact is considered minor. Furthermore the location of the Substation is significantly affected by the need to achieve proximity to the existing Bicker Fen substation which lies in an area of predominantly Grade 1 and Grade 2 ALC land. On this basis there was little alternative to avoid BMV land and the site selection is justified in respect of policy within EN-1 (5.10.15).
- 6.247 Although cable joint bays and manholes will remain at surface level at discrete locations along the cable route, these are considered of minor impact, even for small holdings. Negligible impacts are predicted as a result of cable heat dissipation effects on crops.
- 6.248 Given the relatively small additional areas of land within or immediately adjacent to the Proposed Development Boundary that will potentially be directly impacted by the cumulative projects set out in *ES Volume 3: Chapter 5 Land Use, Soils and Agriculture*, cumulative impacts on land use, soils and agriculture are not anticipated to be of greater significance than those predicted for the TKES in isolation.

- 6.249 Based on definitive maps provided by Lincolnshire County Council in May 2014, there are 19 PRoW within the Proposed Development Boundary (18 of which are categorised as public footpaths with one being a public bridleway). The South Forty Foot Drain PRoW is crossed by the Proposed Development Boundary and then runs alongside it for a time. This footpath is part of a network of access routes within the Fens Waterways Link.
- 6.250 A number of PRoW will be closed and diversions provided within the immediate vicinity (temporary diversions will be within the working width as per the PROW Diversion Plan presented in Application Document 2.7) except for the temporary closure of Hutt/10/4 for specific periods during the construction phase. However alternative routes to Anderby Creek beach will be available via Moggs Eye car park to the north and Anderby Creek to the south, whilst PRoW Ande/964/1 and Hutt/10/5 will also remain open throughout the duration of the landfall works. Therefore access to the beach via this route will be possible throughout the construction phase. There will be potentially significant visual effects on users of South Forty Foot Drain PROW Swdh/13/1. However this impact is considered to be minor adverse as it involves temporary impacts on access routes with regional importance and is therefore not significant. Impacts on PRoW during operation are negligible.
- 6.251 Six historic landfills lie within 1 km of the TKES, however none lie within the Proposed Development Boundary. However there is the potential of encountering other unforeseen contamination during construction, which if encountered will be dealt with under a process whereby any necessary remedial measures are agreed with relevant regulators (as set out in the Code of Construction Practice). As a result of the predominantly agricultural nature of the route and the likely limited change from baseline conditions, this effect was found to be negligible. Due to the potential for chronic impacts on human health the effect on farmers increases to minor when considered in the same context of unforeseen contamination.
- 6.252 The ES found that impacts on agricultural land as a result of spillages were found to be minor due to the likelihood of only a minor shift away from baseline conditions. Similarly effects from imported contaminants on agricultural land were also found to be minor.

### **Secretary of State Decision**

- 6.253 In accordance with EN-1, TKOWFL considered whether the TKES proposals could preclude any use in the Development Plan. Through an extensive alternatives process the TKES avoids significant effects on key designations

- such as open space, green infrastructure and Green Belt and also does not reduce the availability of any recreational areas; hence the proposals are in accordance with EN-1 (5.10.14).
- 6.254 LPAs were provided with the opportunity to inform the process of site selection for the IEC and Substation and to raise any concerns (EN-1, 5.10.7).
- 6.255 Whilst the proposals do, to some extent, impact upon BMV land, this is a consequential outcome of a robust alternatives process that has secured embedded mitigation to avoid a range of effects that would have been more significant. The impact on BMV land at the IEC and Substation is minor and set in a context of a region comprising abundant quantities of such land and with spatial constraints such as a defined starting point at the TKOWF array and the requirement for proximity to Bicker Fen. BMV land and agricultural uses affected by the cable route construction are impacted in the short term, before the majority of the route is reinstated and left with a negligible impact. In this context TKOWFL finds that the use of BMV land is justified in accordance with EN-1 (5.10.15).
- 6.256 No minerals resources or Green Belt are affected by the proposals as a result of the positive outcome of the alternatives process. The adoption of a Soil Management Plan ensures that impacts on soil resources and agri-environmental schemes are negligible. The proposals are compliant with EN-1 (5.10.9 & 5.10.10) in this respect and therefore there is no further need to consider whether the TKES could be considered 'appropriate'.
- 6.257 The impact on coastal recreational features and land use proposals is limited by the adoption of trenchless crossing techniques at the foreshore and the temporary nature of the cable route, meaning that the aims of local LCCP, LCGM and CCA designations are only affected temporarily. Such residual impacts are a consequence of avoiding international and nationally designated sites and more sensitive areas throughout the alternatives process to minimise overall impacts of the TKES.
- 6.258 Whilst some PRoW are affected through temporary closure (with localised diversion except for Hutt/10/4 ) or visual effect, the overall impact to access is categorised as minor adverse. No further mitigation requirements are considered necessary under EN-1 (5.10.24).
- 6.259 The proposals are therefore of not significant impact, placing them in accordance with EN-1, ELDC and BBC policies which secure areas of land for specific uses and seek to avoid impacts on key recreational uses and protections, such as Green Belt and play facilities.

6.260 TKOWFL's assessment and mitigation proposals show that the aims set out in EN-1 and other potentially material planning policies are met. Whilst BMV land is affected, this is not significant in nature and is a consequence of embedded mitigation to eliminate numerous other potential impacts. Nearly all impacts on PRoW have been avoided and all residual impacts are not significant. Impacts on mineral resources and those arising from unforeseen contamination or spillages are also found to be not significant. Impacts on the LCCP and LCGM are temporary and not significant and do not affect the long term aims of those projects; such impacts being a consequence of an extensive alternatives process that has avoided international and national designations and potentially more significant effects arising from other options. Therefore land use factors should be given limited weight in granting consent.

## Noise and Vibration

### Applicable Policy

6.261 EN-1 addresses noise and vibration and notes that (5.11.3):

*'Factors that will determine the likely noise [and vibration] impact include:*

- *the inherent operational noise from the proposed development, and its characteristics;*
- *the proximity of the proposed development to noise sensitive premises (including residential properties, schools and hospitals) and noise sensitive areas (including certain parks and open spaces);*
- *the proximity of the proposed development to quiet places and other areas that are particularly valued for their acoustic environment or landscape quality; and*
- *the proximity of the proposed development to designated sites where noise may have an adverse impact on protected species or other wildlife.'*

6.262 EN-1 then goes on to identify what aspects should be included in the applicant's assessment and guides them to consult with the Environment Agency and Natural England (since noise assessment may also inform ecological assessments).

6.263 Ultimately EN-1 (5.11.9) advises that the SoS:

should not grant development consent unless it is satisfied that the proposals will meet the following aims:

- avoid significant adverse impacts on health and quality of life from noise;
- mitigate and minimise other adverse impacts on health and quality of life from noise; and
- where possible, contribute to improvements to health and quality of life through the effective management and control of noise.

6.264 EN-5 addresses additional potential for noise impacts from overhead lines (colloquial "crackle and hum") and substation equipment noise, with the latter being applicable to the TKES.

6.265 EN-3 only addresses noise in the context of supporting the potential for generic impacts as identified in EN-1.

- 6.266 Therefore EN-1 and EN-5 are the primary policy documents in respect of noise and vibration impacts, subject to the potential material relevance of other policy.
- 6.267 The NPPF (para. 109 and 123) seeks to prevent unacceptable noise pollution whilst also (para. 144) seeking mitigation and the establishment of noise limits where appropriate.
- 6.268 ELDC policy A4 seeks to avoid substantial harm to amenity, as does BBC policy G1. North Kesteven, which lies outside the Proposed Development Boundary, seeks to avoid unacceptable adverse effects on amenity through its policy C5.

### Assessment Scope

- 6.269 In the scoping opinion it was confirmed that a number of matters could be scoped out of further assessment, including:
- Operational noise and vibration from the cable route, which are unlikely to result in significant effects;
  - Traffic noise from the maintenance of the Substation, IEC and cabling, should only a low number of vehicles and visits be required during operation as part of routine inspections and occasional maintenance works; and
  - Operational vibration from the Substation and IEC, which are unlikely to result in significant impacts.
- 6.270 On the basis of the above, the assessment focussed on construction noise and vibration impacts from the entire onshore works and operational noise from the IEC and Substation.
- 6.271 The study area extents, identification of noise receptors and assessment approaches for the noise and vibration assessment have been agreed, either through the scoping process or directly addressed through discussions and provision of evidence as part of the EIA Evidence Plan process.

### Applicant's Assessment and Mitigation

- 6.272 Noise and vibration matters are addressed in ES *Volume 3: Chapter 11 Noise and Vibration*. TKOWFL assessed potential impacts to properties that lie within 1 km of the Proposed Development Boundary.
- 6.273 Assessment for construction noise was undertaken to BS5528-1 and operational noise to BS4142, in accordance with the requirements of EN-1 (5.11.6).

- 6.274 The area around the Proposed Development Boundary can be characterised as predominantly rural, with a relatively limited number of individual residential properties. Specific noise sources near the onshore cable route are generally limited to the main roads that run in the vicinity of the Proposed Development Boundary (including the A52, the A158, the A16, the A112 and the A17). Specific noise sources in the vicinity of the IEC include the Skegness Stadium (a motor racing circuit), and the grain stores which are both immediately adjacent to the proposed IEC site. Noise sources in the near vicinity of the Substation include the existing Bicker Fen Wind Farm, the existing Bicker Fen NGET substation and the A17 and A52.
- 6.275 The results of TKOWFL's background noise surveys showed that, typically, daytime ambient noise levels are of the order of 50 to 60 dB LAeq across all of the measurement locations, with typical daytime background noise levels of 30 to 35 dB LA90. During the late evening and for the majority of the night-time period, background noise levels regularly drop below 30 dB LA90 at all measurement locations.
- 6.276 TKOWFL's extensive alternatives process ensured that all onshore and nearshore elements of the TKES were located away from residential properties and other sensitive areas wherever possible, thus limiting the potential for impacts to occur. Construction works will be restricted to the hours of 07:00 to 19:00 Monday to Saturday, except:
- (a) as agreed in any Code of Construction Practice, where such hours must be agreed in advance with the relevant planning authority and must relate to works such as necessarily continuous periods of construction (concrete pouring and finishing, cable pulling and jointing, and testing), for the delivery and unloading of abnormal loads, for the landfall works and any other time critical element of the onshore works; or
  - (b) Where continuous 24 hour working is required and the relevant planning authority is notified in advance of such works; or
  - (c) Where a trenchless technique is to take place within 100m of an occupied dwelling, where agreed in advance with the resident of that dwelling and notified to the relevant planning authority.
- 6.277 All construction activities will adhere to best practice outlined in BS 5228 and the aforementioned Code of Construction Practice will be produced prior to the commencement of construction works detailing the measures that will be taken to control and minimise the environmental effects (including noise and vibration) of construction. This will accord with the Outline Code of Construction Practice (*Application Document 8.7*), which states that in addition to the above constraints, construction activities that generate

potentially significant noise levels at the nearest receptors will be generally restricted to the hours of 07:30 to 19:00 on weekdays and 08:00 to 13:00 on Saturdays. Furthermore it states that where possible, trenchless works likely to result in significant noise levels will be restricted to daytime working on weekdays only.

- 6.278 Trenchless works will be completed in the shortest time possible and no trenchless work will be carried out at locations within 100 m of a residential property during night time hours without the consent of the resident. No trenchless works will be carried out at locations less than 50 m from any residential property at any time, which is the assumed worst case in the ES. Temporary noise barriers will be installed around trenchless works compounds in order to provide screening for sources located at low heights. Where a significant effect is predicted beyond 100 m, residents will be offered temporary re-housing for the duration of those trenchless works. This ensures that only a moderate adverse noise impact is achieved at properties less than 400 m distant for the short duration of such works after mitigation measures are applied, and only a minor effect for those over 400 m distant. If residents were to accept TKOWFL's offer of temporary re-housing then the effect would be removed and become not significant.
- 6.279 TKOWFL also considered the potential for noise impacts arising from sheet piling associated with the specific trenchless crossing methods of pipe-jacking and micro-boring and found these to be minor and would take no more than 10 days to complete at each location.
- 6.280 The ES finds the potential for a minor noise effect after embedded mitigation in relation to daytime trenchless works where they occur within 50m of residences. However such works would be of very short duration and avoided wherever possible.
- 6.281 Open cut noise impacts were also found to be minor.
- 6.282 Through TKOWFL's extensive alternatives process, proximity of the IEC and Substation to residential receptors has been avoided. The minimum distance between the Substation boundary and the nearest residential receptor location is approximately 680 m (and Unlicensed Works at 950 m), whereas the minimum distance between the IEC and the nearest residential receptor location is approximately 620 m. This embedded mitigation ensures that construction noise and vibration impacts are short term, temporary and of minor adverse impact. All works will be undertaken during daytime.
- 6.283 Noisy items of plant at the IEC and Substation will be housed within sound insulating enclosures wherever required and practicable, with appropriate attenuation fitted to fans, air handling units, cooling equipment etc. as

necessary. All necessary noise attenuation measures such as enclosures, attenuators etc. will remain fitted to the relevant items of plant at all times whilst the plant is operational. All items of plant will be regularly inspected and maintained.

- 6.284 Potential construction traffic noise impacts on local roads were found to be minor at worst in all locations, as a result of no traffic flows increasing more than 10% above existing levels. Furthermore use of the mitigating haul and access routes to the IEC, Substation and along the cable route were also found to be minor adverse at worst.
- 6.285 The noise impact at the nearest residential receptor to the Substation and IEC during operation was found to be minor adverse.
- 6.286 The decommissioning phase was also found to be minor adverse at worst in all respects, particularly because cable would be removed but ducts would be likely to remain *in-situ*.

### Secretary of State Decision

- 6.287 In accordance with EN-1, TKOWFL has avoided significant impacts on health and quality of life as a result of noise and vibration impacts. This has been achieved by an extensive alternatives process that inherently avoided closest proximity to residential receptors, particularly with respect to operational noise generating assets at the IEC and Substation.
- 6.288 Although only predominantly minor (i.e. not significant) adverse construction impacts will occur in the worst case, TKOWFL has committed to minimising their likelihood or impact further, through maximising separation distances wherever possible and only undertaking night-time works where they are unavoidable. In the unlikely event that residences are within 100 m, works will only take place with the consent of the resident. For works beyond 100 m, mitigation in the form of temporary re-housing would be offered to residents which would reduce the impact to not significant.
- 6.289 TKOWFL has also considered the specific noise implications of electrical equipment at the IEC and Substation in accordance with EN-5 (2.9.7) and assessed in accordance with EN-1.
- 6.290 The TKES, by achieving a majority of minor adverse impacts in the worst case only, also meets the requirements of BBC, ELDC and North Kesteven policies that are implemented to protect amenity.
- 6.291 TKOWFL's assessment and mitigation proposals show that the aims set out in EN-1, EN-5 and other potentially material planning policies are met. Whilst particular construction noise impacts will occur, these are short term,

temporary and the majority are not significant. Where effects are moderate, residents would be offered further mitigation which would eliminate the impact entirely to become not significant. Therefore noise and vibration matters should not weigh against the proposal.

## Socio-economic

### Applicable Policy

- 6.292 EN-1 addresses socio-economic impacts and states that the applicant's assessment should consider all relevant impacts which could include:
- Creation of jobs and training opportunities;
  - Provision of additional local services and infrastructure;
  - Effects on tourism;
  - Influx of workers associated impacts on services and demographics; and
  - Cumulative effects.
- 6.293 EN-1 guides the SoS to have regard to the potential socio-economic impacts of new energy infrastructure identified by the applicant and from any other sources that they consider to be both relevant and important to their decision.
- 6.294 EN-5 does not consider socio-economic matters and EN-3 does not consider them in a relevant context to the TKES.
- 6.295 Therefore EN-1 is the primary policy document in respect of socio-economic impacts, subject to the potential material relevance of other policy.
- 6.296 The NPPF notes that the purpose of the planning system is to contribute to the achievement of sustainable development, of which a key dimension is an economic role. The policies of the NPPF seek to achieve this, including securing economic growth.
- 6.297 The ELDC Draft Core Strategy Strategic Policy 11 notes that the Council will give a high priority to development '*that...contributes directly to the local economy*'.
- 6.298 Offshore the proposals fall within the remit of the East Inshore and Offshore Marine Plan, whose policies EC1 and EC2 support proposals that provide additional employment benefits, particularly in onshore areas local to the Marine Plan.

### Assessment Scope

- 6.299 Socio-economic matters are addressed in ES Volume 3: Chapter 3: Socio Economics, Tourism and Recreation.

- 6.300 In the scoping opinion a number of matters were scoped out of further assessment due to the limited generation of employment by the TKES, comprising:
- Operational impacts offshore (below Mean High Water Springs (MHWS));
  - All operational impacts within the onshore and landfall areas with the exception of impacts relating to quality of life, access, land use and tourism and recreation; and
  - All potential impacts during decommissioning (since any impacts would be, at most, similar to the construction impacts if not significantly less).
- 6.301 The study area extents, baseline characterisations, including source data, and assessment approaches for socioeconomics and tourism have been agreed with all review panel members, either through the scoping process or directly addressed through discussions and provision of evidence as part of the EIA Evidence Plan.

#### **Applicant's Assessment and Mitigation**

- 6.302 Socio-economic matters are addressed within ES *Volume 3: Chapter 3 Socio-economics, Tourism and Recreation*. Compliance with policy relating to recreational uses such as PRoW is addressed in the *Land Use including Open Space, Green Infrastructure & Green Belt* section of this Planning Statement.
- 6.303 In accordance with EN-1 (5.12.4) the ES describes the existing socio-economic conditions in the areas surrounding the proposed development.
- 6.304 Agriculture has traditionally been the most concentrated employment sector in East Lindsey District and Lincolnshire is the nation's largest arable and horticulture producer.
- 6.305 In 2012 recreation and tourism brought just over £1 billion revenue into Lincolnshire; tourism was thought to employ approximately 39,000 people in the county; and there were 17.4 million visitors (Source: *Volume 3: Chapter 3: Socio Economics, Tourism and Recreation*). Lincolnshire is the 4<sup>th</sup> most popular coastal resort in the UK and the coast is considered to be a key tourist attraction for the region with the bulk of recreational and tourist interests focussed at the coast.
- 6.306 Offshore tourism is focussed on beaches and bathing, diving and watersports and recreational fishing. In the vicinity of the landfall tourism is supported by caravan parks, the developing Lincolnshire Coastal Country Park and the

- Lincolnshire Coastal Grazing Marsh. Multiple potential tourism related activities occur within the landfall area and along the onshore cable route.
- 6.307 Many aspects of development which may ultimately have a socio-economic effect, including on tourism, are addressed in other sections of this Planning Statement, for example noise impacts on PRoW and loss of land used for tourist activities.
- 6.308 TKOWFL addressed many potential direct or indirect socio-economic impacts through its extensive alternatives process. This process ensured that the cable route and IEC/Substation locations avoided developed areas and settlements, including ensuring avoidance or minimal impacts on those for leisure/tourist use.
- 6.309 Trenchless cable installation is proposed to minimise the potential impact at the landfall to beach users. The landfall location itself has been chosen to avoid the more densely developed and important tourist areas further south towards Skegness.
- 6.310 Positive aspects of the proposal include the ability for local companies to become involved in the construction works, which TKOWFL will encourage through supplier information. The nearest tourism sites will be provided with information when works are due to commence so that they can understand how their operations might be affected and plan around these effects.
- 6.311 The study by Regeneris Consulting (see *Volume 5 Annex 3.3*) estimated that the construction phase for the TKES would support an average of over 300 full time equivalent jobs per year in the east midlands. This includes over 200 full time equivalent jobs supported in the region by direct spending of the wind farm on goods and services, and the lower supply chain spending benefits captured in the region. Almost 100 further full time equivalent jobs would be supported in the wider east midlands region by the induced spend which arises from additional spend of direct and indirect employees in the region.
- 6.312 Whilst the overall contribution of full time equivalent jobs is positive, it is at a level which is relatively minor in the context of their spread at a national, regional and local level. As a consequence the potential negative impacts of any influx of workforce were also found to be minimal, resulting in negligible impacts on demographics, minor positive impacts on education and skills, and minor adverse effects on quality of life. Potential risks to health and safety were also found to be negligible by reference to traffic, air quality and noise assessments.
- 6.313 As a result of the low level of seaborne activities and temporary nature of the TKES construction, impacts on offshore tourism and recreation activities were

- found to be negligible. Impacts on Blue Flag Beaches and Designated Bathing Waters were also found to be negligible from a tourism perspective as a result of consequential effects from physical processes impacts (See ES *Volume 2: Chapter 2*).
- 6.314 Installation of the cable and trenchless operations will have a negligible effect on recreational fishing and supporting fish species due to the limited spatial extent and the short term effect. The limited spatial extent of works also ensures that impacts on diving and watersports would also be negligible.
- 6.315 Although the LCCP is an important focus for tourist potential in the area, impacts will be temporary and spatially limited during construction. Whilst there will be a noise impact arising from trenchless works, TKOWFL has proposed that no night time works will occur within 100 m of a residential property without the consent of the resident and specific mitigation measures are proposed for night time works within 100 to 400 m of residential properties.
- 6.316 As the cable route extends inland it continues to pass through the areas proposed for the LCGM and LCCP, but does not limit the timing of creation of grazing marsh and hence no impacts are predicted on recreational / tourist use of those assets. No impact is expected on users of the River Witham as TKOWFL has chosen to use trenchless crossing techniques at this location to minimise impacts.
- 6.317 Noise impacts are avoided as the alternatives process has ensured that the cable route, IEC and substation are all located approximately 400 m or further from all caravan and chalet parks.
- 6.318 ES Chapters *Volume 3: Chapter 2: Landscape and Visual* and *Volume 3: Chapter 11: Noise and Vibration* found no operational impacts at the landfall, cable route, IEC or Substation which could result in consequential tourism impacts.
- 6.319 The ES found that cumulative impacts were not likely to have a greater significance than the TKES alone and hence cumulative impacts were also found to be not significant.

### **Secretary of State Decision**

- 6.320 EN-1 (5.12.6) guides the SoS to consider socio-economic effects where they are relevant and important. Whilst the TKES will provide a positive contribution to employment and the economy, which is supported by the Central Lincolnshire policy CL17 and Marine Plan policy EC1/EC2, this is not significant in the national, regional and local context. As such impacts on

- jobs, training, demographics, local services and infrastructure are also consequently not significant.
- 6.321 In light of the above, all non-tourism related socio-economic matters addressed by EN-1 are not significant and should not attract weight in any consideration of adverse impacts.
- 6.322 Where construction works have the potential to impact directly or indirectly on tourism uses or receptors, those works have either been placed a suitable distance away from receptors, or mitigation measures have been introduced. These include controls on trenchless construction at the landfall where nearest to residences, such that impacts are adequately controlled.
- 6.323 Mitigating controls implemented at the landfall or other trenchless installation locations, coupled with distance from receptors and short term temporary effects result in no significant socio-economic or tourism related effects and therefore they do not need to be given weight in the SoS's decision (EN-1, 5.12.6) and no further mitigation measures are necessary (EN-1, 5.12.9).
- 6.324 TKOWFL's assessment and mitigation proposals are in accordance with the relevant Section of EN-1 and supported by other potentially material planning policies. All effects were found to be not significant and therefore socio-economic matters, including tourism, should not weigh against granting consent.

## Traffic and Transport

### Applicable Policy

- 6.325 EN-1 addresses traffic and transport matters and requires that the applicant undertakes a transport assessment where impacts are likely to be significant and also, where appropriate, develop a travel plan.
- 6.326 EN-1 (5.13.7) also guides the SoS decision by stating that:  
*‘Provided that the applicant is willing to enter into planning obligations or requirements can be imposed to mitigate transport impacts identified in the NATA/WebTAG transport assessment, with attribution of costs calculated in accordance with the Department for Transport’s guidance, then development consent should not be withheld, and appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure.’*
- 6.327 EN-3 only addresses traffic and transport in the context of supporting the potential for generic impacts as identified in EN-1.
- 6.328 EN-5 does not consider traffic and transport impacts.
- 6.329 Therefore EN-1 is the primary decision-making document in respect of traffic and transport impacts, subject to the potential material relevance of other policy.
- 6.330 The NPPF mirrors the principles of EN-1 by stating (para. 32) that all developments that generate significant amounts of movement should be supported by a transport assessment and (para. 36) that applicants should prepare a travel plan where significant amounts of movement are generated.
- 6.331 ELDC policy TR3 requires satisfactory means of vehicular and pedestrian access to be provided for new development.
- 6.332 BBC policy G1 Amenity seeks development that will not substantially harm the amenities of other nearby land users or residents, or the general character of the area, whilst policy G6 requires satisfactory means of vehicular and pedestrian access to be provided for new development; whilst ED11 requires that renewable energy schemes do not generate levels of traffic that will significantly harm the surrounding environment.

### Assessment Scope

- 6.333 ES *Volume 3: Chapter 9: Traffic and Transport* assesses the impacts relevant to this section the Planning Statement.
- 6.334 In the scoping opinion potential traffic and transport impacts during operation were scoped out from further assessment on the basis that onshore cables

will require less than one visit per month and there will only be up to two visits to the IEC and Substation per week.

- 6.335 The study area extents, baseline traffic data, road crossing methodologies, access routes, locations of temporary construction compounds and assessment approaches for the assessment of traffic and access aspects of the TKES have been agreed with all review panel members, either through the scoping process or directly addressed through discussions and provision of evidence as part of the EIA Evidence Plan. It has also been agreed that a traffic management plan will be adopted for the construction of the project.

### **Applicant's Assessment and Mitigation**

- 6.336 TKOWFL has undertaken a transport assessment under IEMA guidelines which meets the requirement set out in EN-1 (5.13.3). Operational onshore and offshore traffic impacts were found to be not significant and this is supported by the SoS adopting the position that they could be scoped out of the ES.
- 6.337 ES *Volume 3: Chapter 9* therefore addresses onshore construction traffic and transport and also the potential impacts of deliveries and workers associated with offshore construction.
- 6.338 A and B classified roads are expected to be used to access the temporary construction compounds from the wider highway network, commencing with the principal roads of the A16, A17 and A52. Interconnecting A and B roads provide access along with a number of minor roads that will serve the temporary construction compounds.
- 6.339 TKOWFL used Department for Transport, Lincolnshire County Council and its own traffic survey data to inform understanding of the baseline. Figures from other construction projects were used to estimate the likely movement arising during this phase, including an additional contingency of 20%. Flows were estimated based on the likely origin of workers and materials.
- 6.340 Due to its tourism focus, the roads nearest the coast and Skegness experience the greatest increase in flows over the summer months, with this effect dissipating further inland. The limited coverage of public transport in rural areas and large onshore geographical spread of the TKES limit the potential for use of public transport.
- 6.341 On the basis of an indicative construction programme the worst case trip generation was found to be:
- At the landfall: 96 per day (72 HGV, 24 car/LGV) worst case but this only occurs for a maximum duration of one month, with most others

months generating less than 10 daily movements with 20% or less HGVs;

- Along the cable route: 66 per day (42 HGV, 24 car/LGV) worst case, but this only occurs in eight months over a period up to 30 months. Approximately 60% of the time the total daily movements are below 40 per day and over 50% of the time are less than 10 per day, comprising 50% or less HGVs;
- At the IEC: 126 per day (58 HGV, 68 car/LGV) worst case for a 6 month period, however for almost 75% of the construction programme the trips are 80 per day or less, with HGV trips accounting for less than 15% of those movements for the significant majority of months;
- At the substation: 240 per day (172 HGV, 68 car/LGV) worst case for around 17% of the construction programme, reducing to less than 100 per day for the remainder. HGV proportion is less than 40% of trips for 64% of those months.

6.342 In response to the above, TKOWFL adopted embedded mitigation by avoiding proximity to the largest settlements and careful siting of temporary construction compounds to minimise use of minor roads. The route of the proposed temporary haul road from the A158 to the IEC site for HGV movements to avoid the village of Orby is a direct response to public consultation. Similarly, a decision was taken to construct dedicated temporary and permanent access tracks from the A17 for the substation, which is the site where movements are most intense.

6.343 An Access Management Plan will be produced that identifies localised access solutions and how they will be managed, such as to the landfall temporary construction compound and which is in accordance with the Outline Access Management Plan (*Application Document 8.13*).

6.344 The establishment of a temporary haul road through each cable route section will enable plant, materials, labour and deliveries to be transported through this area, minimising the need to use the local road network. The haul road will run the full length of the onshore cable route for the duration of the construction period relevant to that cable route section.

6.345 An evaluation of crossings of the public highway by the cable route resulted in a commitment to use trenchless crossing methodology for every public road. Therefore the construction of the onshore cable route will not require any temporary road closures.

- 6.346 At the IEC all HGV traffic and abnormal loads will be routed along the haul road, as set out in the Access Management Plan, from the A158 to the south in order to avoid the village of Orby.
- 6.347 The implementation of an Access Management Plan (in accordance with the Outline Access Management Plan *Application Document 8.13*) and stage-specific Traffic Management Plans (in accordance with the Outline Traffic Management Plan *Application Document 8.9*) will ensure that traffic routing is by the most suitable to limit impacts. In light of embedded mitigation and the proposed plans, TKOWFL found that all construction phase impacts (as a % increase on baseline flows) were negligible except for Sea Road between the A52 and Roman Bank. This was found to be only a minor adverse impact.
- 6.348 Consequential construction phase impacts to pedestrian amenity, fear and intimidation, accidents and road safety, were all found to be negligible.
- 6.349 It is anticipated that the underground cables would not be removed upon decommissioning and, therefore, it is likely that decommissioning activities will only focus around the IEC and Substation. However, if cables are to be removed, the conduit would be retained and the cables pulled through the existing jointing pits. Such activities should represent no worse, and potentially significantly less, an impact than for construction, and result in all impacts being negligible.
- 6.350 Cumulative traffic impacts were also found to be negligible.
- 6.351 Overall ES *Volume 3: Chapter 9* finds that embedded mitigation, particularly dedicated access routes to the Substation, IEC and along the cable route, and adoption of the proposed Plans ensures that all impacts are not significant and no further mitigation is therefore required.

### **Secretary of State Decision**

- 6.352 TKOWFL's transport assessment is compliant with the requirements of EN-1 and shows that all impacts are negligible in respect of all matters that are traffic and transport related, save for a minor adverse impact on Sea Road during a maximum 1 month period, which occurs at each end of landfall construction operations. Hence all impacts are not significant.
- 6.353 Negligible impacts have been achieved through careful consideration of options in light of extensive public consultation during the TKES site selection and design process. This has resulted in positive decisions to use the temporary cable route haul road that connects directly from the A158 to avoid the village of Orby. Furthermore a commitment has been made for a

- permanent new track to connect the Substation to the A17 for use during construction and operational phases.
- 6.354 In light of the successful embedded mitigation actions, TKOWFL finds that there is no need to further consider mitigation or requirements (EN-1, 5.13.6 & 5.13.11), although Access Management Plans and Traffic Management Plans will be adopted to ensure that all mitigation aims are met.
- 6.355 Whilst the increases in traffic flows are not significant, and there is a large geographical spread and limited public transport opportunities, TKOWFL still intends to develop a Travel Plan which will form part of any Traffic Management Plan to satisfy EN-1.
- 6.356 Since TKOWFL has identified significant embedded mitigation and will adopt appropriate plans, all residual impacts are not significant.
- 6.357 Furthermore the proposals ensure satisfactory means of access and that increases in traffic are acceptable, in accordance with potentially relevant Boston Borough and East Lindsey policies.
- 6.358 TKOWFL's assessment and mitigation proposals are in accordance with the relevant section of EN-1 and in accordance with other potentially material planning policies. All effects are not significant meaning that no further mitigation or requirements are required and the benefits of the proposal clearly outweigh any insignificant traffic and transport effects.

## Waste Management

### Applicable Policy

- 6.359 EN-1 provides specific coverage of waste management. Neither EN-3 or EN-5 address waste (in the context of offshore wind or associated cabling).
- 6.360 The NPPF only addresses waste in the context of reinforcing that sustainable development seeks to minimise waste.
- 6.361 Therefore EN-1 is the primary decision-making document in respect of waste management, subject to the potential material relevance of other policy.
- 6.362 The Lincolnshire Waste Local Plan sets out detailed land-use policies and proposals for waste management and disposal. The plan provides the basis for examining planning applications for waste development proposals.

### Assessment Scope

- 6.363 The scoping opinion confirmed that no further assessment of other emissions and waste was necessary within the ES, with the exception of material to be stored onsite or removed offsite.
- 6.364 In light of the proposal to submit a Site Waste Management Plan (SWMP), in line with the Outline SWMP (*Application Document 8.7.7*) and in accordance with EN-1 (5.14.6), no further assessment of this matter was deemed necessary.

### Secretary of State Decision

- 6.365 TKOWFL will produce and agree with the relevant LPA a SWMP to ensure that waste is minimised and managed satisfactorily (in accordance with the Outline Site Waste Management Plan *Application Document 8.7.7*), by application of the waste hierarchy in accordance with EN-1 (5.14.2 & 5.14.7). TKOWFL considers that this will achieve the aims of EN-1 and that no further requirements or obligations will be necessary (EN-1, 5.14.8).
- 6.366 TKOWFL's proposal will adopt a Site Waste Management Plan to ensure that waste is minimised in compliance with the waste hierarchy and EN-1. Waste management is not a matter that should weigh against granting consent.

## Water Quality and Resources

### Applicable Policy

- 6.367 EN-1 provides specific coverage of water quality and resources. Water quality impacts offshore are addressed in EN-3 in respect of physical processes and are therefore addressed in that section of this Planning Statement. EN-5 provides no coverage of water quality effects.
- 6.368 Therefore EN-1 is the primary policy document in respect of water quality and resources matters covered in this section, subject to the potential material relevance of other policy.
- 6.369 The NPPF at paragraph 109 seeks to prevent '*both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution...*'.
- 6.370 Boston Borough policy G4 specifically seeks to avoid adverse effects on the water environment, or the quality of surface or ground water.

### Assessment Scope

- 6.371 Water quality matters are addressed in ES Volume 3: Chapter 7 Hydrology and Flood Risk and Volume 3: Chapter 6 Geology, Hydrogeology and Ground Conditions (impacts to groundwater, surface water and land drains).
- 6.372 The TKOWFL ES assessment considered how:
- Construction (and also specifically trenches crossing and open cut techniques), including unforeseen contamination and creation of additional migration pathways may affect surface water quality;
  - Operation may affect the quality of surface watercourses;
  - Decommissioning may affect the quality of surface watercourses; and
  - Simultaneous construction or operation may affect surface water quality.
- 6.373 In doing so the ES describes the existing quality of watercourses and the potential impacts of the project on water bodies or protected areas under the Water Framework Directive (WFD) and source protection zones.

## Applicant's Assessment and Mitigation

- 6.374 Embedded mitigation in the form of the following requirements would be undertaken to minimise impacts with respect to water quality, whether watercourses are crossed by trenchless crossing or open cut techniques:
- Construction will not be undertaken during very extreme wet weather where erosion of sediments may increase;
  - Construction will be undertaken using experienced contractors adhering to industry best practice; and
  - Appropriate published guidelines will be followed to reduce pollutant and sediment movement.
- 6.375 There are no surface water abstractions for public water supply downstream of the cable route. Therefore, if contamination of connected surface waterbodies does occur, this will not influence public water supplies. WFD surface waterbodies that intersect the cable route are of either good or moderate ecological status (See *Volume 5, Annex 7-2 of the ES*).
- 6.376 Trenchless crossing techniques are proposed to be used at a number of watercourse crossings to minimise the potential impact of the cable route, as a minimum being those falling under the remit of relevant IDB. These techniques in themselves can present a risk to existing watercourses. However since any impact would be of limited physical extent, short term duration and occur infrequently the effect was found to be minor.
- 6.377 Non-IDB watercourses, where not crossed by trenchless crossing techniques, would be crossed using open cut techniques, which may increase sediment runoff, although this is only expected in small amounts. The resulting minor shift away from current water quality conditions, coupled with the medium sensitivity of receptors, resulted in a minor effect being predicted as a result of open cut crossings.
- 6.378 Elsewhere along the cable route, i.e. not at watercourse crossings, general construction activities also have the potential to affect surface water quality. Mitigation set out for trenchless crossing techniques and open cut watercourse crossings would be used, along with:
- Clay bungs being used where necessary to prevent the creation of preferential drainage pathways.
- 6.379 The Proposed Development Boundary of the TKES does not pass through any groundwater Source Protection Zones (SPZ), which are areas defined in order to protect drinking water from pollution. In the area around Skegness,

- the underlying principle chalk aquifer, which is used for some abstraction, lies below around 30 m or more of drift deposits.
- 6.380 WFD surface waterbodies that intersect the cable route are of either good or moderate ecological status. There are no WFD waterbodies or abstractions from surface or groundwater within a 250 m buffer zone of the IEC, whilst the WFD waterbody near the proposed Substation site, the south Forty Foot Drain, is of moderate ecological status.
- 6.381 As for watercourse crossings any impacts would be of limited physical extent, short term duration and occur infrequently and hence effects were found to be minor.
- 6.382 The IEC and Substation comprise similar developments in terms of their risk to water quality. Embedded mitigation, would be applied, supplemented by bunding of all installed oil-filled equipment to ensure that leakage of pollutants does not occur. Impacts at both sites, including the South Forty Foot drain WFD waterbody, are expected to result in a negligible shift from current water quality conditions, which coupled with limited physical extent and short term duration, resulted in a minor effect on surface water quality.
- 6.383 Potentially unforeseen contamination on the cable route would be unlikely given the agricultural nature of the majority of the route, however risks to drains and dykes may arise through leaching or surface run-off of unforeseen contaminants. Due to the potentially minor shift away from baseline conditions the overall effect was found to be minor.
- 6.384 Construction works also have the potential to create new pathways for contaminants to water resources. The TKOWFL alternatives process ensures that the cable route avoids the most sensitive receptors, such as residential dwellings, principal aquifers and groundwater SPZs. Coupled with mitigation measures set out in *Volume 3: Chapter 7*, of the ES and the predominantly agricultural nature of the route, ensures that this effect is negligible.
- 6.385 The effect on shallow hydrogeology as a result of damage to land drains during excavation was found to be negligible in light of their low sensitivity and limited expected change from baseline conditions.
- 6.386 The effect on superficial deposit aquifers was found to be minor, since the majority are classified as unproductive strata and both glacio-fluvial deposits and blown sand are considered secondary A aquifers.
- 6.387 The impact on principal aquifers is negligible as the proposed cable trench will pass through the superficial deposits rather than the higher sensitivity bedrock, and the effect would be short term and temporary owing to natural attenuation and remediation as well as reversibility.

- 6.388 During the operational phase, maintenance to the cable route would be rare. In the worst case operation and maintenance inspections would be needed throughout the life of the IEC and Substation. However the same mitigation measures would be used as during construction and hence effects were also found to be minor for this phase.
- 6.389 Worst case decommissioning effects on the cable route, at the IEC and at the Substation are the same as for construction and are therefore of minor effect.
- 6.390 Cumulative effects were only considered for construction and operational impacts on surface water quality. Surface water quality may be most greatly affected where impacts occur in the same catchment over the same period of time.
- 6.391 Temporal and spatial overlap of cumulative operational impacts is very unlikely, given both the rare nature of impacts arising from operation and maintenance inspections at the IEC or Substation and their short term nature if they did occur. On this basis the potential effect was found to be minor.

#### **Secretary of State Decision**

- 6.392 The ES considers the potential for impacts upon groundwater, surface water bodies and those areas protected under the WFD, in accordance with EN-1 (5.15.2 & 5.15.3).
- 6.393 The cable route, IEC and Substation do not pass through any Source Protection Zones (established to protect drinking water abstraction) and do not directly impinge on any WFD waterbody. Whilst the Substation lies adjacent to the South Forty Foot Drain WFD waterbody; construction, operation and decommissioning effects are all found to be minor and hence should be given limited weight in accordance with EN-1 (5.15.5).
- 6.394 Furthermore all other assessed impacts relating to the cable route (including trenchless and open cut crossing types), IEC and the Substation are all found to be minor and therefore not significant. On this basis TKOWFL considers that its proposed mitigation is sufficient and no further requirements are necessary in respect of EN-1 (5.15.7 & 5.15.8).
- 6.395 TKOWFL's assessment and mitigation proposals achieve an outcome in accordance with the relevant sections of EN-1 and relevant local policies, with all effects being shown to be minor and therefore not significant. Therefore no further mitigation or requirements should be required and water quality and resources matters should not weigh against granting consent.

## Fish

### Applicable Policy

- 6.396 EN-1 only provides coverage of fish in the context of risks arising from eutrophication due to air emissions primarily of NO<sub>x</sub> and ammonia from generating plant. This is not relevant to the TKES.
- 6.397 EN-3 specifically highlights the risks to fish biodiversity and commercial fish stocks. Impacts on commercial fisheries and fishing are addressed in a separate section of this Planning Statement.
- 6.398 In its fish section, EN-3 (2.6.74) guides the SoS to identify impacts relating to:
- spawning grounds;
  - nursery grounds;
  - feeding grounds;
  - over-wintering areas for crustaceans; and
  - migration routes.
- 6.399 whilst consideration of fish is also identified within EN-3 under general biodiversity considerations.
- 6.400 Whilst EN-5 acknowledges that it could be relevant to sub-sea cables, the only impact within EN-5 that could be considered relevant to fish is EMF, which is covered adequately by the EN-3 fish section.
- 6.401 Therefore EN-3 contains the most relevant policies in respect of fish and shellfish, subject to the potential material relevance of other policy.
- 6.402 The East Inshore and Offshore Marine Plan policy ECO1 ensures that cumulative impacts are assessed on the ecosystem which includes fish and shellfish. Policy BIO1 seeks to protect biodiversity whilst policy FISH2 seeks to avoid or minimise impacts on fish spawning and nursery areas.

### Assessment Scope

- 6.403 The scoping opinion confirmed that shellfish of commercial interest with limited or no mobility could be scoped out of further assessment due to the small area of impact, the wide availability of suitable habitat in the area, the temporary nature of works and the high recoverability of species.
- 6.404 Furthermore the effects of electromagnetic fields (EMF) on fish during operation were scoped out on the basis that the cables will be alternating current (AC) and will be buried to 1.5 m where possible or armoured.

- 6.405 A detailed description of the spawning and nursery habitats of relevant fish and shellfish receptors has been agreed within the EIA Evidence Plan (*Application Document 8.16*).

### **Applicant's Assessment and Mitigation**

- 6.406 TKOWFL's assessment of fish impacts is set out in ES *Volume 2: Chapter 5: Fish and Shellfish Ecology*. The ES sets out the range of surveys that were undertaken by TKOWFL to inform the assessment, along with data drawn from long term studies undertaken by Cefas and other projects (e.g. Lynn and Inner Dowsing Offshore Wind Farms).
- 6.407 In accordance with EN-3 the assessment addresses spawning and nursery areas, finding that plaice is the only species of 'high intensity' spawning within the array area and that there were no species of 'high intensity' spawning within the cable corridor. 'Low intensity' spawning of herring, sole, lemon sole; and sandeel was found within the cable corridor, whilst the same low intensity species, with the addition of cod, were found in the array area.
- 6.408 For fish nursery grounds the only 'high intensity' grounds within the cable corridor are for herring. Low intensity grounds are for cod, whiting, sole, lemon sole, plaice and thornback ray. The species with 'high intensity' nursery grounds in the array area were herring and cod, whilst 'low intensity' nursery grounds were found for whiting, sandeel, sole, lemon sole, plaice, mackerel and thornback ray.
- 6.409 The assessment found that most fish and shellfish receptors in the study area are deemed to be of low vulnerability and high recoverability. Although berried edible crab and lobster, sandeel and herring were found to be of higher vulnerability, overall significance of effect from direct damage to them was found to be negligible on all such receptors, in light of the limited spatial extent, short term duration, intermittency and reversibility.
- 6.410 Temporary effects arising from increased suspended sediment concentrations and smothering during construction were found to be negligible. This is on the basis that the bulk of species have some tolerance to the impact, coupled with the temporary nature of impacts and relatively small proportion of habitat affected.
- 6.411 Direct disturbance during cable maintenance (i.e. during operation) was found to be negligible, particularly as the spatial extent and duration of any disturbance would be even less than during construction.
- 6.412 *Volume 2: Chapter 5* of the ES specifically addresses the potential for EMF effects during operation in accordance with EN-3. Elasmobranch species,

- known to be most electro-receptive, were deemed of local importance only, whilst other species of potential regional importance were found to be of low sensitivity. Coupled with the highly localised spatial extent the impact was found to be negligible.
- 6.413 With respect to permanent habitat loss, e.g. due to cable protection areas, the worst case affected area of 0.29 km<sup>2</sup> represents a very small percentage of the TKES footprint and negligible proportion of the wider North Sea. On this basis the effect of permanent habitat loss was found to be negligible.
- 6.414 Impacts from decommissioning are expected to be no greater than for construction, particularly if cables are left *in-situ*.
- 6.415 The potential for interaction between the TKES and other works, such as aggregate extraction with respect to sediment increase, and other wind farms with respect to EMF, was found to be low. In part TKOWFL's extensive alternatives process sought to avoid interaction with, or proximity to, aggregate extraction areas and other wind farm electrical infrastructure, ensuring that the project design evolved to limit impacts in accordance with EN-3 (2.6.70). Cumulative habitat loss was found to be negligible in light of the very small proportion of habitat affected.
- 6.416 Consideration of cumulative effects by TKOWFL meets with the requirement of Marine Plan policy ECO1.
- 6.417 TKOWFL has committed in the deemed marine licence to produce a Project Environmental Management Plan to cover operation and maintenance of the project, including planning for accidental spills, potential contaminant releases and key emergency contacts. Furthermore a construction method statement will be developed and implemented. Cables will be buried appropriately and adequately and will be protected where required.

### Secretary of State Decision

- 6.418 TKOWFL's assessment of impacts is in accordance with EN-3's coverage of biodiversity impacts to fish. The assessment addresses the lifespan of the proposal on relevant matters and shows that the effects of temporary disturbance, operational disturbance and loss of habitat are all negligible on species with a range of sensitivities.
- 6.419 Both embedded mitigation through scheme design, having a particular benefit in reducing the potential for cumulative impact, and the adoption of ecological planning and monitoring, ensure that TKOWFL's mitigation proposals are in accordance with EN-3.

- 6.420 EMF has been given specific consideration in accordance with EN-3 (2.6.75) (and EN-5) and also finds negligible impacts, regardless of whether a burial depth of 1.5 m is achieved.
- 6.421 Relevant East Inshore and Offshore Marine Plan policies ECO1, BIO1 and FISH2 have been complied through the assessment process and findings of negligible impacts.
- 6.422 TKOWFL's assessment and mitigation proposals are in accordance with the relevant sections of EN-3 and the East Inshore and Offshore Marine Plan and finds that all impacts are negligible. Therefore impacts on fish and shellfish matters should not weigh against the proposal.

## Intertidal

### Applicable Policy

- 6.423 The intertidal zone is the area between MHWS and MLWS. EN-1 provides general policy towards protection of biodiversity, whilst EN-3 addresses general biodiversity impacts to intertidal seabed habitats, as well as containing a specific section on such matters.
- 6.424 EN-5 does not cover any intertidal impacts.
- 6.425 Therefore EN-3, supported by the overarching biodiversity coverage within EN-1, is the primary policy document, subject to the potential material relevance of other policy.
- 6.426 The East Inshore and Offshore Marine Plan policy ECO1 protects against cumulative impact on marine ecology and is relevant to potential intertidal habitat impacts whilst policy BIO1 seeks to protect biodiversity.

### Assessment Scope

- 6.427 Effects on the intertidal area are addressed in ES *Volume 2: Chapter 4: Intertidal and Subtidal Ecology*.
- 6.428 In the scoping opinion a number of matters were scoped out of further assessment, including:
- Operational impacts on intertidal ecology where the cable is buried to a depth of at least 1.5 m on the basis that the ES will assess the impacts of the introduction of new substrates (i.e. cable protection) where burial is not possible.
- 6.429 As a result the assessment covers:
- Impacts on intertidal benthos from release of bentonite during trenchless installation drilling; and
  - Direct disturbance and secondary disturbance to intertidal from smothering;

### Applicant's Assessment and Mitigation

- 6.430 TKOWFL's extensive Interface Selection Assessment process sought to avoid the most important habitats and therefore the chosen cable route does not enter the sensitive Humber and Wash areas, or the more extensive intertidal areas in the vicinity of North Cotes and Gibraltar Point. This consideration of alternatives ensures that potential impacts on intertidal habitats are already minimised in accordance with EN-3 (2.6.81). The landfall

sites considered and the reasons for the final choice are set out in the *Interface Selection Assessment Report*, the *Site Selection and Design Report* and *ES Volume 1: Chapter 4 Site Selection and Alternatives*.

- 6.431 As a result of design mitigation there are no designated intertidal habitats within the cable corridor, apart from the Huttoft Bank Dunes LWS, which is covered as a terrestrial habitat in the Biodiversity and Geological Conservation section of this Planning Statement, on the basis that the trenchless cable installation techniques which commence in the intertidal zone will pass entirely beneath the LWS. The proposals proactively avoid the Huttoft Bank Foreshore and Wolla Bank Foreshore Regionally Important and Local Geological Sites.
- 6.432 In the intertidal zone the only notable benthic features of conservation importance were small areas of relict piddock beds or peat material. Small areas of peat outcrops were found on the lower shore immediately to the north and south of the boundary of the planned cable corridor and therefore outside of the Proposed Development Boundary. These habitats fall under the BAP habitat '*Peat and Clay Exposures with Piddocks*', although it is of note that the peat outcrops present in the survey area did not appear to support live piddocks.
- 6.433 Direct disturbance to the intertidal zone was therefore found to be negligible for all except the potential peat outcrops, on the basis of the low sensitivity of biotopes and the small area (maximum 750 m<sup>2</sup>) of intertidal zone affected. With respect to peat outcrops a minor potential effect was identified for 'live' piddock in peat and clay exposures, whereas the available evidence suggests that the exposures may be relict and therefore less sensitive, resulting in a negligible effect.
- 6.434 Given the small footprint affected, the naturally dynamic environment with mobile sediments and the naturally impoverished biological communities, amongst other mitigating factors, the impact from secondary smothering was found to be negligible.
- 6.435 On the basis of the same factors, potential smothering as a result of increased suspended sediment concentrations from possible bentonite release during trenchless cable installation, was also found to be of negligible effect.
- 6.436 Only negligible effects were found on intertidal areas in respect of operation and decommissioning, except for the potential effect on peat outcrops during decommissioning (only if cables are removed) which could potentially result in a minor effect. However this effect is still not significant and becomes

negligible if 'live' piddock are not supported, or no effect if cables are left *in-situ*.

- 6.437 Cumulative secondary smothering in the intertidal zone, the only assessment considered necessary to undertake in light of cumulative proposals, was found to be negligible.

### Secretary of State Decision

- 6.438 TKOWFL has assessed impacts on intertidal habitats in accordance with the wider biodiversity requirements of EN-3, including appropriate consultation on methodology. Furthermore the alternatives process undertaken by TKOWFL has been fundamental to the minimisation of impacts on the intertidal zone and is therefore in full accordance with EN-3 (2.6.70, 2.6.85 and 2.6.88) which notes that mitigation may be possible in the form of careful design of the development and acknowledges that effects on intertidal habitat cannot be avoided entirely.
- 6.439 Nonetheless TKOWFL has identified a cable route through its alternatives process which ensures that all effects are not significant, with all but one aspect negligible. The only effect of minor significance occurs to peat outcrops on the precautionary assumption that peat outcrops occur within the Proposed Development Boundary in the intertidal zone and that piddock are 'live' whereas surveys suggest they may be relict.
- 6.440 Cumulative effects that are entirely not significant shows that the proposals are in accordance with the East Inshore and Offshore Marine Plan policy ECO1 which protects against cumulative impact on marine ecology and policy BIO1 which seeks to protect biodiversity.
- 6.441 TKOWFL's design, assessment and mitigation are in accordance with the relevant sections of EN-3 and the East Inshore and Offshore Marine Plan for the type of infrastructure proposed. The ES finds that all effects are not significant and therefore intertidal effects should be given limited weight in granting consent.

## Marine Mammals

### Applicable Policy

6.442 Impacts to marine mammals are addressed in EN-1 and EN-3 under general biodiversity and specifically within EN-3 in the Marine Mammals section, where it sets out that the applicant's assessment should include (2.6.92):

- likely feeding areas;
- known birthing areas/haul out sites;
- nursery grounds;
- known migration or commuting routes;
- duration of the potentially disturbing activity including cumulative/in-combination effects with other plans or projects;
- baseline noise levels;
- predicted noise levels in relation to mortality, permanent threshold shift (PTS) and temporary threshold shift (TTS);
- soft-start noise levels according to proposed hammer and pile design; and
- operational noise.'

6.443 EN-5 does not address marine mammals.

6.444 Therefore EN-3 is the primary policy document, supporting the general protection of biodiversity set out in EN-1, subject to the potential material relevance of other policy.

6.445 The East Inshore and Offshore Marine Plan policy ECO1 seeks to address cumulative impacts on the marine ecosystem whilst policy BIO1 seeks to protect biodiversity.

### Assessment Scope

6.446 The assessment of effects arising on marine mammals is covered in *Volume 2: Chapter 6: Marine Mammals* of the ES.

6.447 In the scoping opinion a number of matters were scoped out of further assessment, including:

- Noise emissions likely to impact on cetaceans; since porpoise were recorded at low density, grey seal tracks only occasionally traverse the cable corridor and harbour seal tracks nearer to the shore were limited<sup>36</sup>;
- Temporary localised increase in suspended sediment concentrations and smothering, given the mobile nature of marine mammals and the temporary and localised nature of the impact;
- Disturbance and displacement of seal from haul out and breeding sites, given the distance of the seal breeding colonies and the small area of the landfall which is unlikely to be used as a haul out area given its proximity to settlement and sandy nature;
- EMF, given the mobile nature of marine mammals and the lack of evidence for electro-sensitivity; and
- Localised changes in distribution of prey during operation: Given the impacts on prey would be limited to a small part of the marine mammals foraging range.

6.448 Specific focus is provided within EN-3 on piling noise in the context of offshore wind farm development, however this would not be undertaken on the TKES and hence removes the most prominent underwater noise source envisaged in that NPS.

### **Applicant's Assessment and Mitigation**

6.449 Harbour Seal is listed as a primary reason for site selection in the Wash and North Norfolk Coast SAC, whilst grey seal is cited as a qualifying feature of the Humber Estuary SAC and a non-qualifying feature of the Inner Dowsing, Race Bank and North Ridge SCI. Harbour porpoise is named as a non-qualifying species in the Inner Dowsing, Race Bank and North Ridge SCI.

6.450 TKOWFL's Interface Selection Assessment process extensively considered alternatives, including those passing through the areas mentioned above, and sought to avoid the most important nature conservation designations where the relevant features might be considered a significant constraint. On this basis the chosen route avoids the Wash and North Norfolk SAC and the Humber Estuary SAC. The alternatives process has therefore been

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<sup>36</sup> This excludes Offshore Substation Platforms (OSP), if included in the Development Consent Order. TKOWFL has subsequently confirmed that no OSP will be included and therefore this aspect of the scoping decision applies to the entirety of the Triton Knoll Electrical System.

- fundamental to the minimisation of impacts on marine mammals and is therefore in full accordance with EN-3 (2.6.70) which notes that mitigation may be possible in the form of careful design of the development.
- 6.451 A large amount of information on the marine mammal communities was compiled by TKOWFL in 2012 to inform the TKOWF array EIA following consultation on assessment methodologies with relevant regulators.
- 6.452 As a result of the SoS's scoping response, the nature of the construction works associated with the TKES, and the achievements of the Interface Selection Assessment process in avoiding relevant SAC, the only aspect requiring further assessment was in relation to impacts from dynamic positioning vessels (DP vessels). This responds to increasing concern since 2008 in relation to the unconfirmed cause of 'corkscrew injury' to seals and harbour porpoise, as set out in the ES, which could be attributable to being drawn through a ducted propeller on a DP vessel.
- 6.453 In the eventuality of vessels with ducted propellers being used (during construction, repair, maintenance or decommissioning), TKOWFL would agree appropriate mitigation with regulatory authorities in accordance with relevant guidance and best practice at the time (this commitment has been made for work within the offshore array and will also be adopted for the export cable route and will follow the JNCC (2012) guidance.
- 6.454 Only two species, grey seal and harbour seal were considered at potential risk from ducted propellers during construction. Evidence of lethal injury to harbour porpoise suggests this is rare. The Humber Estuary SAC is approximately 10 km distant which requires no mitigation according to the JNCC guidance. Given the relatively low frequency of grey seal tracks across the cable corridor and discrete presence of DP vessels, the ES finds that the effect is negligible.
- 6.455 Although harbour seals do traverse the outer extent of the cable corridor, DP vessels would only be operating there for part of the construction period. Therefore the effect was found to be negligible.
- 6.456 Since no significant impacts were found, no further mitigation above that already embedded, is necessary.
- 6.457 Any operational maintenance events would be shorter than for construction and hence effects were found to be negligible. Decommissioning effects were also found to be negligible, since in the worst case of cable removal the impacts would still be no greater than for construction.
- 6.458 Cumulative effects were found to be negligible in all respects.

## Secretary of State Decision

- 6.459 With a consistent outcome of negligible effect, it is clear that the proposals will not result in significant effects on marine mammals and is therefore in accordance with EN-3's aims on biodiversity, particularly with respect to avoiding relevant Natura 2000 sites (EN-3, 2.6.69) through extensive consideration of alternatives in the Interface Selection Assessment process. Furthermore the majority of effects envisaged in EN-3 (2.6.81) are not encountered due to the form of construction associated with a subsea cable, rather than an offshore wind farm.
- 6.460 Consequentially, cumulative negligible effects result in clear compliance with The East Inshore and Offshore Marine Plan policies ECO1 and BIO1.
- 6.461 TKOWFL's design, including avoidance of relevant Natura 2000 sites, in combination with a commitment to follow relevant guidance with regard to vessel impacts, and assessment process are in accordance with the relevant Sections of EN-1, EN-3 and the East Inshore and Offshore Marine Plan. The ES finds that all effects are negligible and there are no matters of concern that would warrant refusal under EN-3, 2.6.94. Therefore marine mammals matters should not be given weight in the determination of the application.

## Birds

### Applicable Policy

- 6.462 Generic biodiversity consideration which would include birds is set out in EN-1 (5.3), whilst impacts specific to birds from offshore wind are set out in EN-3 under the Biodiversity and Birds sections.
- 6.463 EN-5 only considers impacts to birds in respect of collision risk with overhead lines and hence is not relevant.
- 6.464 Therefore EN-3 is the primary policy document, supporting the general principles set out in EN-1, in respect of birds, subject to the potential material relevance of other policy.
- 6.465 The Biodiversity section of EN-3 sets out the primary SoS decision-making criteria as being the effects on marine ecology and biodiversity, and notes that designation of a Natura 2000 site does not necessarily restrict the construction or operation of offshore wind farms.
- 6.466 The specific Birds section of EN-3 is focussed on the impact of offshore wind development, however the following potential impacts identified therein (2.6.101) are relevant to offshore cabling:
- *‘direct habitat loss;*
  - *disturbance from construction activities such as the movement of construction/decommissioning vessels and piling; and*
  - *displacement during the operational phase, resulting in loss of foraging/roosting area.’*
- 6.467 Note that direct habitat loss was only in respect of the intertidal zone and all operational impacts were scoped out of further assessment, see section 6.470 below.
- 6.468 The East Inshore and Offshore Marine Plan policy TR1 notes the potential impact on birds within the context of minimising impacts to tourism and recreation activities, whilst policy ECO1 covers cumulative impacts affecting the ecosystem and policy BIO1 seeks to protect biodiversity.

### Assessment Scope

- 6.469 The assessment of effects arising on birds is covered in ES *Volume 2: Chapter 3: Marine Ornithology* and *Volume 3: Chapter 4: Terrestrial Ecology*. Effects on onshore birds, assessed within *Volume 3: Chapter 4*, are addressed in the Biodiversity and Geological Conservation section of this Planning Statement.

- 6.470 A number of matters were scoped out of further assessment offshore including:
- potential sub-tidal habitat loss, which would be limited and localised;
  - Indirect effects on prey species during construction due to impacts on fish, given the nature and duration of the construction, the mobility of fish species and the localised area of impact; and
  - Operational impacts, since there are no reasonable effect-receptor pathways for impacts during operation of the proposed development.

### Applicant's Assessment and Mitigation

- 6.471 The EIA Evidence Plan process with Natural England identified red-throated divers, cormorant and common scoter as the species of interest. No further seabird surveys were required subsequent to the very extensive surveying carried out in support of the Triton Knoll Array EIA.
- 6.472 A survey of wintering birds was undertaken along the cable corridor with a 250 m buffer. The coastal part of the landfall was considered to have potential wintering bird habitat for seabirds and waders.
- 6.473 The ES identifies the following species as being potentially affected, as a result of there being sufficient numbers such that a significant disturbance could occur and on the basis that they are species that are potentially vulnerable to disturbance:
- common scoter (*Melanita nigra*);
  - cormorant (*Phalacrocorax carbo*);
  - guillemot (*Uria aalge*);
  - razorbill (*Alca torda*); and
  - red-throated diver (*Gavia stellata*).
- 6.474 Surveys by TKOWFL and other data showed that species were widespread and not focussed in the cable corridor; further detail regarding the distribution of species vulnerable to disturbance is presented in *Volume 2: Chapter 3 Marine Ornithology* of the ES.
- 6.475 With respect to mitigation, standard vessel practice management will occur and therefore areas where rafting is noted will be actively avoided to minimise disturbance.
- 6.476 TKOWFL's extensive Interface Selection Assessment process placed high importance on Natura 2000 sites and therefore all SPA were avoided. This project design mitigation has provided the most fundamental minimisation of

- potential impacts on the most important bird populations and species. This is fully in accordance with EN-3's suggestion that mitigation may be possible in the form of careful design of the development itself (2.6.70).
- 6.477 Residual vessel disturbance is limited during the construction phase (12 months within a 2 year period) and also represents a transient impact. Interaction with any species will also be limited to an extremely low proportion (<0.1%) of the population. On this basis the significance of effect from vessel disturbance was found to be negligible in all cases.
- 6.478 Vessel disturbance nearshore was also found to be negligible for all but common scoter on the basis of short duration, limited extent and lower sensitivity (comorant, guillemot and razorbill). The effect on common scoter was found to be minor on the basis of their increased numbers within the nearshore area.
- 6.479 No potential pathway was identified for other construction works to impact on seabirds outside the nearshore area, e.g. via underwater noise, and hence there is no effect.
- 6.480 Within the nearshore and intertidal area the duration of works is short, being 12 hours for each of the 'components', spread over a number of months. Furthermore impacts would again be on less than 0.1% of each species population. For guillemot, razorbill and cormorant the ES found effects to be negligible. On a very precautionary basis, effects on common scoter were found to be minor due to their higher sensitivity and numbers present.
- 6.481 Decommissioning was found to provide for no greater effect than construction and hence was assumed to be negligible for all species except common scoter, which was therefore assumed to be minor effect.
- 6.482 It is considered that there would be no likely significant effect on the Red Throated Diver population and specifically no effect on the Outer Thames Estuary SPA or the future Greater Wash SPA either alone or in-combination. Further information on this matter is presented in *Volume 2: Chapter 3* and the EIA Evidence Plan (*Application Document 8.16*).
- 6.483 Cumulative effects were found to be negligible for guillemot, razorbill and cormorant and minor for common scoter, on the same fundamental assessment basis as for construction and decommissioning effects.
- 6.484 As embedded mitigation, construction vessels associated with the cable route will avoid rafting seabirds during sensitive periods, reflecting the primary relevant mitigation within the EN-3 (2.6.109) Birds section for the cable route.

- 6.485 Since the assessment concluded that there would be no significant effects, no further mitigation beyond that embedded in the project was necessary.
- 6.486 The proposals are in accordance with East Inshore and Offshore Marine Plan policies ECO1 and BIO1 by virtue of no significant effects occurring and consequently with TR1 through the avoidance of potentially significant secondary effects on tourism and recreation.

### **Secretary of State Decision**

- 6.487 The offshore cable route inherently avoids the majority of impacts of concern within the specific Offshore Wind: Birds section of EN-3. Relevant impacts arising from vessel disturbance and other construction disturbance were all found to be not significant for all species, primarily as a result of the very small (<0.1%) proportion of the relevant population potentially impacted.
- 6.488 TKOWFL will adopt the primary specific mitigation identified in EN-3 (2.6.109) of avoiding rafting seabirds.
- 6.489 Any residual impacts to marine biodiversity will be insignificant and the TKES has avoided passing through or near SPA through its extensive Interface Selection Assessment process. As such the effect on the most important species and most highly designated sites is inherently minimised in line with the overarching decision-making principle set out for biodiversity in EN-1 (5.3).
- 6.490 TKOWFL's design, consultation and assessment are in accordance with the relevant sections of EN-1, EN-3 and the East Inshore and Offshore Marine Plan. The ES finds that all effects are reduced to a negligible level, except for Common Scoter where they are minor. All effects are not significant and therefore (marine) birds matters should not be given weight in the determination of the application.

## Subtidal

### Applicable Policy

- 6.491 EN-1 provides general policy towards protection of biodiversity, whilst EN-3 addresses general biodiversity impacts to subtidal seabed habitats, as well as containing a specific section on such matters.
- 6.492 EN-5 does not cover any subtidal impacts.
- 6.493 Therefore EN-3, supported by the overarching biodiversity coverage within EN-1, is the primary policy document, subject to the potential material relevance of other policy.
- 6.494 The subtidal zone is the area which remains submerged at low tide and EN-3 notes that this includes loss of subtidal habitat and potential for impacts on benthic ecology. In particular EN-3 (2.6.113) notes that assessment of the subtidal environment should include:
- 'loss of habitat due to foundation type including associated seabed preparation, predicted scour, scour protection and altered sedimentary processes;
  - environmental appraisal of inter-array and cable routes and installation methods;
  - habitat disturbance from construction vessels' extendible legs and anchors;
  - increased suspended sediment loads during construction; and
  - predicted rates at which the subtidal zone might recover from temporary effects.'
- 6.495 EN-3 (2.6.119) notes that primary mitigation may come in the form of surveying and micrositing and through burying cables at sufficient depth.
- 6.496 The East Inshore and Offshore Marine Plan policy ECO1 protects against cumulative impact on marine ecology and is relevant to potential subtidal habitat impacts whilst policy BIO1 seeks to protect biodiversity.

### Assessment Scope

- 6.497 Effects on the subtidal area are addressed in ES *Volume 2: Chapter 4: Intertidal and Subtidal Ecology*.
- 6.498 In the scoping opinion a number of matters were scoped out of further assessment, including:

- Direct damage impacts on subtidal benthic communities (except *S. spinulosa*), given the high recoverability of biotopes and the short duration and limited extent of the potential impact; and
- Operational impacts on subtidal ecology where the cable is buried to a depth of at least 1.5 m on the basis that the ES will assess the impacts of the introduction of new substrates (i.e. cable protection) where burial is not possible.

6.499 As result the assessment covers:

- Direct damage of *Sabellaria spinulosa* reefs during construction (e.g. from cable installation footprint, anchors), the impact for which will be confined to a very small footprint;
- Loss of subtidal habitat / habitat alteration through introduction of new substrata (e.g. cable protection) onto the seabed; and
- Suspended sediment and smothering impacts on subtidal benthic habitats.

### Applicant's Assessment and Mitigation

- 6.500 The Inner Dowsing and Race Bank SCI is designated for the protection of two Annex I habitats: *S. spinulosa* reefs and sandbanks slightly covered by seawater all of the time. The export cable corridor passes >2.5 km away from the nearest designated *S. spinulosa* feature.
- 6.501 Pre-construction Annex I habitat surveys will be undertaken along the cable route and will inform mitigation measures to be agreed with the MMO and relevant statutory nature conservation bodies as part of an Annex I monitoring and mitigation plan to minimise direct impacts on Annex I habitat (specifically, any *Sabellaria spinulosa* reefs present along the offshore cable route).
- 6.502 Ploughing or mechanical trenching are the proposed methods of cable installation in areas of chalk substrate. These methods are considered to reduce the potential level of environmental impacts associated with cable installation when compared to jetting.
- 6.503 Where possible, the export cable will be buried at a depth of at least 1.5 m, in line with EN-3 (2.6.114), to limit impacts from EMF.
- 6.504 Direct disturbance to benthic biotopes was found to be negligible on the basis of high or very high recoverability of the biotopes and the minimal direct subtidal seabed impact footprint of 1.98 km<sup>2</sup> versus the widespread nature of all the biotopes found.

- 6.505 Approximately 6 km of the cable corridor crosses an area classed as having 'high reefiness potential' for *S. Spinulosa* reef. The maximum potential area of impact within the 'high reefiness potential' area is 0.19 km<sup>2</sup>. The final routing of the cable corridor and installation techniques will be in accordance with an Annex I Mitigation Plan agreed with the MMO which will respond to the pre-construction surveys and hence ensure that effects on reefs are minimised. Thus these effects have been assessed as negligible. Consequently this ensures that the impact on this qualifying feature of the Inner Dowsing and Race Bank SCI is also negligible.
- 6.506 The maximum combined footprint of cable protection and anchor handling during construction would be 0.59 km<sup>2</sup>. Such impacts will be temporary and localised and the habitats present are common and widespread, therefore the effects were all found to be negligible.
- 6.507 The effect of secondary disturbance from nearfield smothering by spoil heaps was found to be negligible on the basis of low sensitivity of the biotopes and the common and widespread nature of the species concerned. The secondary effect of increased suspended sediment was also negligible, as a result of a maximum medium sensitivity of biotopes present and as a result of increases in suspended sediment concentrations being within the natural range for the area.
- 6.508 The effect of secondary disturbance due to deposition of suspended material was also found to be negligible on the basis of the low, very low or non-sensitivity of the benthic habitats to smothering.
- 6.509 Post lay bed levelling, added to the assessment subsequent to the 2014 scoping opinion, was found to affect a maximum area of 5.94 km<sup>2</sup> and to be temporary and localised. This resulted in negligible effects on the basis of the low sensitivity of biotopes and the minimal area impacted relative to the common and widespread extent of those biotopes in the southern North Sea.
- 6.510 Operational effects through the change in bed material where cable protection is required, and direct disturbance from maintenance jack-up barges, were found to be negligible primarily on the basis of the relatively small area of impact versus the common and widespread extent of biotopes in the southern North Sea, and in the case of jack-up barges, the temporary and highly localised nature of the impact.
- 6.511 Direct disturbance from cable maintenance was found to be negligible, with a maximum impacted area of 0.03 km<sup>2</sup>, low sensitivity and widespread biotopes, and secondary effects of a lesser magnitude than during construction.

- 6.512 All decommissioning effects were found to be negligible on a similar basis to the construction phase, and further reduced if the cables are left *in-situ*.
- 6.513 Cumulative effects were also found to be negligible, on the basis of the generally low sensitivity of biotopes and their common and widespread presence in the southern North Sea.

### Secretary of State Decision

- 6.514 TKOWL has undertaken an assessment of all the key and relevant areas in accordance with EN-3, including consideration of those habitats (*S. spinulosa*) that are of the greatest conservation importance.
- 6.515 Since the effects are not significant (negligible in all cases), the SoS does not need to give particular consideration to whether the effects are temporary or reversible (EN-3, 2.6.117), however in most cases the impacts are.
- 6.516 Whilst TKOWFL acknowledges that not all lengths of cable will be practicable to bury at 1.5 m below the seabed, the outcome of the assessment shows that shallow buried, or unburied protected cabling, are not a matter of concern.
- 6.517 TKOWFL's proposals to undertake pre-construction survey and avoid effects on sensitive habitats and biogenic reef (esp. *S. Spinulosa*) are in direct compliance with the primary mitigation for those habitats outlined in EN-3 (2.6.119).
- 6.518 Cumulative effects are all negligible and therefore there is no requirement from EN-3 for applicants to work together (2.6.120), however TKOWFL's extensive Interface Selection Assessment process sought to avoid the risk of coincidence and conflict with other schemes and has therefore inherently reduced the risk of greater cumulative impacts. On the basis of negligible cumulative effects the proposals are fully compliant with the East Inshore and Offshore Marine Plan policies ECO1 and BIO1.
- 6.519 The *Report to Inform an Appropriate Assessment* (Application Document 5.3) concludes that there will not be a likely significant effect arising from the works associated with the TKES during the construction, operation and maintenance, or decommissioning phases of the project. In light of the works associated with the operation and maintenance phases of the Lincs and Lynn and Inner Dowsing Offshore Wind Farm projects it is considered that whilst a likely significant effect cannot be ruled out, there will not be an adverse effect on the Inner Dowsing, Race Bank, and North Ridge SCI features arising from the TKES either alone or in-combination with other projects.

6.520 TKOWFL's design, assessment and mitigation are in accordance with the relevant sections of EN-3 and the East Inshore and Offshore Marine Plan for the type of infrastructure proposed. The ES finds that all effects are negligible and therefore subtidal effects should not weigh against the proposal.

## Commercial Fisheries and Fishing

### Applicable Policy

- 6.521 EN-3 specifically addresses impacts on commercial fisheries and fishing. Neither EN-1 or EN-5 address matters of direct relevance on this topic that are not covered by EN-3.
- 6.522 Therefore EN-3 is the primary policy document in respect of commercial fisheries and fishing, subject to the potential material relevance of other policy.
- 6.523 The East Inshore and Offshore Marine Plan policy FISH1 seeks proposals to demonstrate, in order of preference:
- *‘that they will not prevent fishing activities on, or access to, fishing grounds*
  - *how, if there are adverse impacts on the ability to undertake fishing activities or access to fishing grounds, they will minimise them*
  - *how, if the adverse impacts cannot be minimised, they will be mitigated*
  - *the case for proceeding with their proposal if it is not possible to minimise or mitigate the adverse impacts.’*
- 6.524 A hierarchy for the minimisation of impacts due to displacement is covered under policy GOV3. Potential impacts to fish spawning and nursery areas covered by policy FISH2, and shellfish covered by policy AQ2, which have a consequential impact on commercial fisheries and fishing, are addressed in the Fish section of this Planning Statement.

### Assessment Scope

- 6.525 The assessment of impacts on commercial fisheries and fishing is covered in *ES Volume 2: Chapter 8: Commercial Fisheries and Fishing*.
- 6.526 The scoping opinion noted the requirement for construction related items to be recovered from the seabed and of stakeholder notification and agreed that this would reduce the potential for snagging of fishing gear and as such could be scoped out from further assessment.
- 6.527 The scoping opinion also advised that due to the small area of seabed impacted, recoverability of fishing grounds during operation and the potential for fishermen to be reluctant to move back into disturbed grounds could be scoped out from further assessment.

6.528 Transboundary effects were scoped out of the assessment and this was agreed by the Planning Inspectorate.

### **Applicant's Assessment and Mitigation**

6.529 Consultation with the fishing industry commenced in 2008, becoming specifically focussed on the cable corridor from July 2012.

6.530 The ES identifies a wide range of data sources including TKOWFL's own surveys along the cable corridor from August 2012 to August 2013.

6.531 Plots of surveillance sightings of fishing activity contained in the ES show that the predominant activity is outside the cable route to the north (off the East Riding of Yorkshire coast) and south (in the Greater Wash). These areas were in part avoided through TKOWFL's extensive alternatives process which avoided the areas of highest ecological value and protection.

6.532 TKOWFL will employ a Fisheries Liaison Officer during all phases to ensure appropriate and proactive communication with the fishing community, and a Marine Traffic Co-ordinator to ensure navigational safety. Guard vessels will be employed during construction where appropriate to protect construction activities and with a parallel benefit to other vessels in terms of safety, awareness and communication.

6.533 Cables will be buried in line with the Burial Protection Index and protected where sufficient burial cannot be achieved.

6.534 All commercial fisheries fleets are considered to have high availability of alternative fishing grounds and hence are low sensitivity to impacts from construction. VMS plots shown within the ES reinforce the fact that the cable corridor routing has avoided the areas of highest value to UK fishermen in IECS rectangle 35F0 and that there are numerous locations outside the cable route where the same types of fishing gear are used. On this basis the effects on displacement and temporary loss of traditional fishing grounds were found to be negligible.

6.535 Impact on steaming times is covered in the Navigation section of this Planning Statement, however with respect to commercial fishing vessels it is noted that vessels will be in a position to avoid construction areas with minimal or no impact upon steaming times. Based on the extent of construction traffic, exclusions during construction and the general co-existence of fishing vessels with other marine traffic, both disruption due to construction and effects on steaming time impacts were found to be negligible.

- 6.536 A maximum footprint of 0.29 km<sup>2</sup> is expected to require secondary protection and with standard protocols should snagging occur, the effect was found to be of negligible significance.
- 6.537 For the same reasons as set out for construction, in the unlikely event of cable maintenance being required, impacts were found to be negligible in all respects. Whether cables are left *in-situ* or removed on decommissioning the impacts will be no greater than during operation or construction respectively and hence effects are also negligible.
- 6.538 Given the high availability of alternative areas outside the cable route, all cumulative effects were also found to be negligible.
- 6.539 Through the achievement of negligible impacts in all respects the East Inshore and Offshore Marine Plan policy FISH1 is complied with.

### Secretary of State Decision

- 6.540 TKOWFL has undertaken surveys, considered a wide range of other data sources and identified the potential impact on commercial fisheries; ongoing consultation has been undertaken with relevant fishing interests in compliance with EN-3 (2.6.129 & 2.6.127).
- 6.541 TKOWFL's alternatives process inherently avoided the areas of highest ecological importance and designation, which has fundamentally framed a cable route which also avoids the areas of highest intensity of fishing, therefore securing mitigation through project design.
- 6.542 No safety zones are possible as the scheme comprises a subsea cable only and thus no assessment of safety zone impacts is required (EN-3, 2.6.130).
- 6.543 Where works affect commercial fisheries, impacts are short term and impact a comparatively small area within that available for various types of fishing activity; all impacts are therefore negligible.
- 6.544 The cable route will not therefore have an impact on important fishing grounds, prevent or impede the protection of sustainable fisheries or fishing activities and hence little weight should be given to these matters by the SoS (EN-3, 2.6.132).
- 6.545 TKOWFL's design, consultation and assessment are in accordance with the relevant sections of EN-3 and the East Inshore and Offshore Marine Plan. The ES finds that all impacts are negligible and therefore EN-3 guides the SoS to conclude that commercial fisheries matters should not weigh against the proposal.

## Navigation and Shipping

### Applicable Policy

- 6.546 EN-3 provides specific coverage of navigation and shipping matters, albeit primarily focussed on offshore wind farms themselves, however cable routes are considered.
- 6.547 Neither EN-1 or EN-5 refer to navigation and shipping matters and hence EN-3 is the primary policy document in respect of navigation and shipping, subject to the potential material relevance of other policy.
- 6.548 Policy ECO2 of the East Inshore and Offshore Marine Plan covers the risk of release of hazardous substances due to increased collision risk, whilst policies PS1, PS2 and PS3 seek to protect against significantly reduced under-keel clearance (PS1 only) and impacts from static sea surface infrastructure in important navigation routes.
- 6.549 Policy DD1 presents a hierarchy to avoid impacts to adjacent licensed and dredging disposal areas. Such impacts are covered in the Other Marine Users section of this Planning Statement. Policy GOV3 provides a general hierarchy to minimise displacement effects on other marine activities.

### Assessment Scope

- 6.550 The assessment of effects arising on Shipping and Navigation is covered in *ES Volume 2: Chapter 9: Shipping and Navigation*.
- 6.551 Given the relatively limited impacts arising to navigation and shipping from a cable corridor (as opposed to a wind farm), a number of matters were scoped out of further assessment in the scoping opinion, including:
- Wake effect of ships passing close to construction/installation vessels, based on the implementation of recognised marine practices;
  - Increased vessel population increasing the risk of accidents during construction;
  - Increased vessel population increasing the risk of pollution incident, with regulatory controls in place concerning the control of discharges;
  - The presence of temporary marks laid for construction purposes not known to mariners;
  - The presence of vessels involved in unplanned maintenance of the cable installation, particularly in the shipping lanes to the south and west of the TKOWF, limiting the sea room available to passing vessels;

- Existence and positions of newly laid cables and related structures being unknown to mariners in the area, resolved through UKHO mapping and information promulgation;
- Reduction in navigable depths in the vicinity of the cable landfall due to the presence of transition ducts and any related structures, since there will be no structures above the seabed between MLWS and MHWS to interfere, or pose a threat to the safety of craft and their users in the vicinity of the landfall;
- EMF effects on vessels' compasses and navigational aids on the basis that MCA trials concluded the effects were not significant enough to affect navigational efficiency or safety; and
- Existence of the TKOWF electrical infrastructure on the seabed interfering with the operation of vessels that may be required to service/repair existing pipelines and other cables, on the basis that the Crown Estate leases take into consideration proximity guidelines.

### **Applicant's Assessment and Mitigation**

- 6.552 TKOWFL undertook extensive consultation with relevant stakeholders, as set out in the ES, in accordance with EN-3 (2.6.153). This included both commercial operators and recreational bodies, such as the Royal Yachting Association (RYA).
- 6.553 Consultation with key regulators established that the TKOWF array Marine Navigational Risk Assessment (MNRA) was appropriate for use in relation to the TKES. The MNRA was developed during regular consultation with the MCA, Trinity House and the Chamber of Shipping; the RYA was also consulted. In this respect the TKES is fully compliant with the requirements of EN-3 (2.6.167) to consult with stakeholders, undertake a MNRA and to use this to look at solutions to navigational and shipping issues.
- 6.554 Safety zones will not be implemented and are therefore not relevant for consideration in accordance with EN-3 (2.6.158).
- 6.555 TKOWFL's response to potential navigation and shipping risks was captured as an essential and integral component in its Interface Selection Assessment process, whereby more intensive shipping areas in the Humber and Wash were avoided. In particular the Traffic Separation Scheme and anchor areas at the Humber were seen as important constraints and are entirely avoided by the TKES through project design. This embedded mitigation inherently reduces risks to shipping and navigation.

- 6.556 A range of embedded mitigation measures will be used including guard vessels, promulgation of information (e.g. through Notice to Mariners) and through burial of cables in line with a Cable Burial Assessment which reflects the types and sizes of vessels navigating above.
- 6.557 As sub-sea cables which will be buried along almost its entire length, the risk to navigation and shipping arises during the construction phase and any maintenance works, with risk during operation arising from reduced navigable depth which was found to be negligible.
- 6.558 Decommissioning effects were found to be no greater than construction or operation (depending on whether cables are removed or not) and hence all tolerable/negligible.
- 6.559 Cumulative effects, arising from interaction between vessels from the TKES and other developments, were found to be tolerable on the basis of very low frequency, limited duration of presence of craft and embedded mitigation and controls.
- 6.560 No static surface infrastructure is required or any that significantly reduce under-keel clearance. There are no International Maritime Organisation designated routes within the Order Limits or nearby, hence the proposals are in full accordance with East Inshore and Offshore Marine Plan policy PS1.
- 6.561 Policy PS2 focuses on important navigation routes, which do cross the cable corridor. However all impacts were found to be tolerable/negligible and hence the proposals are also fully compliant with policy PS2.
- 6.562 The TKES is fully compliant with policy PS3's highest preference, through avoidance of interference with port activities (or their future expansion) through TKOWFL's extensive alternatives process.
- 6.563 The ES found that impacts on licensed dredging and disposal areas, in respect of interaction on shipping and navigation will be tolerable and hence compliant with the highest preference in policy DD1.
- 6.564 General displacement of shipping has been considered in accordance with policy GOV3 and any potential secondary effects were found to be tolerable.

### **Secretary of State Decision**

- 6.565 The SoS should be guided by EN-3 (2.6.61) not to grant development consent where a development will interfere with the use of recognised sea lanes essential to international navigation. There are no such lanes within the Proposed Development Boundary and no impacts to such lanes will occur. The alternatives process, in accordance with EN-3 (2.6.162) specifically sought to avoid the Humber Traffic Separation Scheme, a critical UK port

- entry, and the more active fishing area south of Skegness. The TKES results in no static surface obstructions and effects of construction and maintenance traffic are tolerable. Cable protection covers an extremely limited area and was also found to be of tolerable effect.
- 6.566 The ES finds that there will be tolerable effects on interaction and collision risk and anchoring potential in non-routine situations. TKOWFL has worked to reduce impacts to As Low As Reasonably Practicable (ALARP), also in accordance with EN-3 (2.6.163).
- 6.567 In light of the above the proposals do not raise concerns in respect of EN-3's (2.6.168 & 2.6.169) consideration of the nature and extent of interference, obstruction or danger to navigation.
- 6.568 TKOWFL's design, consultation and assessment are in accordance with the relevant sections of EN-3 and the East Inshore and Offshore Marine Plan. The ES finds that all effects are reduced to a tolerable/negligible level. The proposals will not pose an unacceptable risk to navigational safety and therefore navigation and shipping matters should not weigh against the proposal.

## Oil, Gas and Other Offshore Infrastructure and Activities

### Applicable Policy

- 6.569 Impacts on other commercial activities such as oil and gas and other infrastructure are not specifically covered by EN-1. EN-3 (2.6.35) notes that there may be constraints imposed on the siting or design of offshore wind farms because of restriction from other offshore infrastructure or activities. This is addressed in a specific section of EN-3 (2.6.179 & 2.6.180), which requires engagement and assessment of impacts to the potentially affected offshore sectors throughout the lifespan of the offshore wind development. The intention is for engagement to result in successful co-existence, to minimise negative impacts and reduce risks to as low as reasonably practicable (ALARP).
- 6.570 EN-5 does not address such impacts.
- 6.571 Therefore EN-3 is the primary policy document, subject to the potential material relevance of other policy.
- 6.572 The East Inshore and Offshore Marine Plan policies AGG1, AGG2 and AGG3 all guard against development of areas that have an aggregate extraction licence granted or applied for, or that will prevent high potential aggregate resources.

### Assessment Scope

- 6.573 Effects on oil, gas and other offshore infrastructure and activities are addressed in *ES Volume 2: Chapter 10: Other Marine Users*.
- 6.574 In the scoping opinion a number of matters were scoped out of further assessment, including:
- Impacts to carbon capture and storage (CCS), marine disposal, wind farm development, other marine renewables and Ministry of Defence practice and exercise areas (PEXAs), given the distance of receptors; and
  - Cumulative impacts to reasonably foreseeable future wind farms, CCS, marine disposal sites, other marine renewable sites and linear infrastructure, given that no reasonably foreseeable projects were identified.
- 6.575 As such the assessment covers:
- Damage to oil and gas pipelines that will be crossed by the proposed development (construction, operation and decommissioning;

- Access to aggregate areas in close proximity to the installation vessels (construction); and
- Cable protection within 250 m of aggregate licence areas limiting access to aggregate areas (operation).

### Applicant's Assessment and Mitigation

- 6.576 Although EN-3 identifies the potential for a proposal to have impacts on other offshore users, it is also a critical consideration in respect of the applicant's own assessment of engineering and commercial risk. Conflict with other marine users can result in significant challenges to construction and associated costs.
- 6.577 On this basis TKOWFL's alternatives process was heavily steered by proximity to, or conflict with, other commercial marine users, such as oil and gas; other renewable energy schemes and their connecting cabling; aggregate extraction and application areas; and PEXA. The ability to scope out a multitude of such receptors is a consequence of the extensive alternatives process undertaken by TKOWFL and its successful avoidance of a large number of offshore interests, in accordance with EN-3 (2.6.183 & 2.6.184).
- 6.578 The cable corridor does not cross any power or telecommunications cables. The closest existing cables are 7.8 km distant and are the export cables from the Inner Dowsing Wind Farm.
- 6.579 Although the cable corridor crosses a number of gas pipelines, the alternatives process ensured that the extent of such crossings was minimised to an acceptable level within the balance of other commercial and environmental considerations. Extensive information on decisions on cable routing in relation to other marine users is provided in both the *Interface Selection Assessment Report (Application Document 8.18)* and the *Site Selection and Design Report (Application Document 8.17)*.
- 6.580 Consultation was undertaken with the nearest application/licence areas for aggregates, being Westminster Gravels and Hanson Aggregates Marine Limited (HAML). The project development boundary has been realigned to allow for a 250 m buffer between the TKES and the Westminster Gravels aggregate area 515/1; consultation with Westminster Gravels will be ongoing until the final cable routing has been determined. Consultation with HAML has ensured that the project development can achieve adequate mitigation and safe working. Other licence holders are more distant.

- 6.581 TKOWFL is in discussion with pipeline operators and will enter into agreements that govern the proposed crossing of the pipelines by the export cables once more detailed engineering design of the TKES has been undertaken.
- 6.582 In light of the proposed controls that TKOWFL is progressing with pipeline owners, the effect was found to be negligible.
- 6.583 In light of the local spatial extent, very short duration and reversible nature, the impact of aggregate area sterilisation in proximity to cable installation vessels was found to be negligible.
- 6.584 Given the relatively infrequent nature of maintenance activities, and the adoption of controls, principles and agreements similar to those during construction, the effect of damage during operational repairs was found to be negligible.
- 6.585 Since the presence of secondary cable protection does not prevent aggregate dredging up to the licence boundary, effects of cable protection within 250 m of licenced areas were found to be negligible.
- 6.586 Decommissioning will use the same controls, principles and agreements with pipeline owners and hence decommissioning stage effects of damage to oil and gas pipelines were found to be negligible.
- 6.587 Cumulative effects on linear infrastructure were scoped out of the assessment on the basis that they were not significant.

### **Secretary of State Decision**

- 6.588 TKOWFL fundamentally avoided the potential for conflicts with oil, gas and other offshore infrastructure and activities through its alternatives process, which placed significant weight on the avoidance of such uses. As such the majority of interests are avoided by some distance, including telecommunication cables, PEXA, other offshore renewable energy schemes and their connecting cables. The cable corridor also avoids the majority of aggregate licence areas that have been granted or applied for.
- 6.589 The assessment found that all impacts were negligible, including those relating to the nearest aggregate licence areas and all pipeline crossings.
- 6.590 TKOWFL has therefore achieved satisfactory minimisation of disruption through its alternatives process, in full accordance with EN-3 (2.6.184), which has resulted in fundamentally reduced potential for negative impacts on other marine users, and therefore means that substantial weight should not be given to such matters (EN-3, 2.6.185).

- 6.591 Where interaction cannot be avoided, TKOWFL has undertaken engagement and is moving towards agreements which will ensure adequate mitigation of effects in accordance with EN-3 (2.6.186).
- 6.592 Negligible impacts on all matters ensure that the proposals are fully compliant with East Inshore and Offshore Marine Plan policies AGG1, AGG2 and AGG3.
- 6.593 TKOWFL's design, assessment and mitigation are in accordance with the relevant sections of EN-3 and the East Inshore and Offshore Marine Plan for the type of infrastructure proposed. In particular TKOWFL's approach to alternatives has significantly reduced the potential for interaction with, and effects on, other offshore infrastructure. The ES finds that all effects are negligible and therefore oil, gas and other offshore infrastructure and activities is a matter where effects have been reduced such that the SoS can grant consent (EN-3, 2.6.186).

## Physical Environment

### Applicable Policy

- 6.594 EN-1 does not specifically address the physical environment. EN-3 (2.6.189) provides specific coverage of physical environment effects (although primarily focussed on impacts from wind turbines), comprising:
- water quality – disturbance of the seabed sediments or release of contaminants causing indirect effects on habitats and biodiversity and fish stocks;
  - waves and tides – indirect effects on flood defences, marine ecology and biodiversity, marine archaeology and potentially, coastal recreation activities;
  - scour effect – changes in water movements within the immediate vicinity of the infrastructure, resulting in scour (localised seabed erosion) around the structures. This can indirectly affect navigation channels for marine vessels and marine archaeology;
  - sediment transport – the resultant movement of sediments, such as sand across the seabed or in the water column, can indirectly affect navigation channels for marine vessels; and
  - suspended solids – the release of sediment during construction and decommissioning can cause indirect effects on marine ecology and biodiversity.
- 6.595 EN-5 does not address any aspects of physical processes.
- 6.596 Therefore EN-3 is the primary policy document, subject to the potential material relevance of other policy.
- 6.597 The East Inshore and Offshore Marine Plan policy ECO1 protects against cumulative impact on marine ecology, whilst MPA1 seeks to protect the Marine Protected Area network.

### Assessment Scope

- 6.598 Effects on physical environment are addressed in ES *Volume 2: Chapter 2: Physical Environment*.
- 6.599 In the scoping opinion a number of matters were scoped out of further assessment, including:
- Impacts on geology below the maximum burial depth of the cable, since there is no pathway for impact and on the assumption the

assessment will be undertaken in line with the burial depth parameters of the draft DCO;

- Remobilisation of contaminated sediments; and
- Elevations in Suspended Sediment Concentrations (SSC) in the water column, since physical process receptors are unlikely to be sensitive to such changes.

### **Applicant's Assessment and Mitigation**

6.600 Consultation was undertaken with the MMO, CEFAS, Natural England and the Environment Agency, in accordance with EN-3 (2.6.191 and 2.6.192).

6.601 Receptors considered in the Physical Environment assessment comprised various SAC (and SCI), SPA and SSSI; the Triton Knoll sandbank and the Lincolnshire coast in general.

6.602 In light of the matters scoped out by the SoS, the ES considers the following effects during construction:

- Elevations in suspended sediment levels and associated small-scale changes in bed levels;
- Release of sediment and lubricant through trenchless installation operations;
- Changes to beach morphology resulting from installation of the export cable at the landfall; and
- Alteration of bathymetry due to indentations in the seabed from vessel legs and vessel anchors.

6.603 and the following effects during operation:

- Introduction of rock armour and/or concrete mattresses resulting in a change in the local hydrodynamic, wave and sediment transport processes; and
- Introduction of scour due to the exposure of export cables as well as the presence of cable protection measures.

6.604 Therefore the assessment considers all matters in EN-3 (7.288) where they are relevant to a subsea cable corridor, the stage of the project and where there is a potential for significant effect. The minimal extent of protrusions above the seabed serves to minimise the potential for wave and tidal effects.

6.605 TKOWFL's extensive alternatives process sought to avoid the most sensitive offshore and nearshore areas designated at an international or national level. Micrositing at the landfall resulted in the avoidance of the Chapel Point to

- Wolla Bank SSSI. Furthermore, wherever possible, the cable route was chosen to avoid sandwaves. Where sandwaves are unavoidable, installation to a stable burial depth will minimise the potential for exposure and requirement for cable protection and disturbance.
- 6.606 The beach morphology impact at the landfall and the Chapel Point to Wolla Bank SSSI is assessed as negligible, in light of the temporary change to beach morphology, which at the SSSI are not expected to be discernible from background conditions.
- 6.607 Effect of changes in bathymetry from vessel legs and anchors were found to be minor to the Inner Dowsing, Race Bank and North Ridge SCI and negligible for the Triton Knoll sandbank.
- 6.608 Operational effects arising from rock armour or concrete matressing were found to be minor for the Inner Dowsing, Race Bank and North Ridge SCI, the coast generally and the Wolla Bank to Chapel Point SSSI. The effect on the Triton Knoll sandbank was found to be negligible.
- 6.609 Operational effects due to scour were found to lie only in the near-field subtidal area and therefore only effects on the Inner Dowsing, Race Bank and North Ridge SCI and the Triton Knoll sandbank were considered. For the former, effects were found to be minor and for the latter negligible. This is on the basis of the higher (international) importance of the SCI, but both receptors having high capacity to accommodate change.
- 6.610 Decommissioning effects were found to be no higher than those experienced in construction or operation, depending on whether cables are left *in-situ*. Therefore no significant effects were identified for the decommissioning phase.
- 6.611 All cumulative impacts were found to relate to sediment plumes and were found to be minor for designated seabed/intertidal areas and negligible for the non-designated banks (e.g. Triton Knoll sandbank).
- 6.612 Overall no significant effects were identified for any aspect arising from the cable corridor works at any stage of development. On this basis there is no direct or indirect risk to the MPA network or marine ecology resulting from physical environment impacts; as such the proposals are fully in accordance with policies MPA1 and ECO1 of the East Inshore and Offshore Marine Plan.

### Secretary of State Decision

- 6.613 TKOWFL has assessed the relevant aspects identified in EN-3 relating to cable infrastructure, which has significantly reduced potential for impacts compared with an offshore array, due to the absence of any protrusion above

the seabed. Furthermore TKOWFL's alternatives process has sought to avoid key international designations and this has fundamentally reduced the potential for physical processes impacts on those key receptors.

- 6.614 EN-3 (2.6.196) sets out that the SoS must be satisfied that the potential for impacts on the physical environment has been reasonably minimised, including minimising use of rock to protect cables (2.6.196). No significant impacts are identified from the TKES, with designated sites being subject to a minor effect or lesser extent.
- 6.615 TKOWFL has adopted principles of cable burial and minimising the extent of cable protection, thus meeting with the mitigation requirements of EN-3 (2.6.197).
- 6.616 TKOWFL's design, assessment and mitigation are in accordance with the relevant sections of EN-3 and the East Inshore and Offshore Marine Plan for the type of infrastructure proposed. The ES finds that all effects are not significant, i.e. negligible or minor, and therefore physical environment matters should not be given weight in in the decision on granting consent.

## Electric and Magnetic Fields

### Applicable Policy

- 6.617 EN-1 does not address Electric and Magnetic Fields (EMF). EN-3 addresses EMF in respect of fish only and is not relevant to onshore cabling.
- 6.618 EN-5 provides specific coverage of EMF with reference to compliance with ICNIRP (1998) in relation to onshore overhead lines, which is also applicable to underground cabling.
- 6.619 Neither the NPPF or relevant local plan policies provide coverage of EMF.
- 6.620 Therefore EN-5 is the primary policy document in respect of EMF impacts.

### Assessment Scope

- 6.621 In the scoping opinion it was confirmed that onshore EMF effects could be scoped out of further assessment on the basis that the design of the Substation and IEC will comply with the Electrical Safety, Quality and Continuity Regulations 2002 and any new advice that may emerge, and as such will comply with current public exposure guidelines.
- 6.622 Furthermore, since TKOWFL's cabling proposals will be compliant with ICNIRP (1998), and therefore EN-5 (2.10.9), no further assessment was considered necessary.

### Applicant's Assessment and Mitigation

- 6.623 No specific mitigation is proposed for EMF over and above achieving compliance with current public exposure guidelines and safety regulations.
- 6.624 Secretary of State Decision
- 6.625 TKOWFL's proposal will be in compliance with current EMF exposure guidelines and safety regulations and therefore in conformance with EN-5 (2.10.9). EMF matters are therefore not material to the decision on granting consent.

## 7 The Planning Balance

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### Introduction

- 7.1 This section reviews the outcomes of the various technical sections of this Planning Statement with a view to drawing together conclusion on the case for the SoS granting consent under the Planning Act 2008.
- 7.2 In making his decision the SoS is required by EN-1 (1.1.2) to '*decide an application for energy infrastructure in accordance with the relevant NPSs except to the extent it is satisfied that to do so would:*
- *lead to the UK being in breach of its international obligations;*
  - *be in breach of any statutory duty that applies to the IPC;*
  - *be unlawful;*
  - *result in adverse impacts from the development outweighing the benefits; or*
  - *be contrary to regulations about how its decisions are to be taken.'*
- 7.3 On the fundamental understanding that TKOWFL and the SoS will comply with all international and legal obligations, regulations and duties, the decision whether to grant consent therefore rests on being in accordance with the relevant NPS, except where to do so would result in adverse impacts outweighing the benefits of the development.
- 7.4 The following section sets out the extent to which the effects of the TKES could be deemed to result in significant enough adverse impacts to outweigh the very significant benefit derived from the facilitation of renewable energy export from the TKOWF array. This is done through reference to preceding sections and the relevant NPS.
- 7.5 It should be noted that the majority of effects are limited, as set out throughout this Planning Statement, by TKOWFL's extensive alternatives process which has ensured significant mitigation by design and inherently results in the vast majority of effects being not Significant. In this respect TKOWFL is already compliant with all the key requirements and aims of alternatives (whether policy or guidance), set out in the NPSs.

### Potential Effects

- 7.6 TKOWFL has considered the various significant effects that could arise from the TKES. Many effects were scoped out of further assessment by the scoping opinion of May 2014 on the basis that no effects, or no significant

- effects, were considered likely. Potential effects not scoped out of assessment are addressed in TKOWFL's EIA of both offshore and onshore matters, presented in its ES.
- 7.7 This Planning Statement has followed the format of the relevant NPSs, being EN-1, EN-3 and EN-5. In doing so it has drawn together findings of the EIA and compared them with NPS and other material policies. In this respect this Planning Statement found that all of the following matters resulted in effects that were not significant and therefore TKOWFL respectfully requests that these matters should not weigh against the SoS granting consent (summary reasons given):
- 7.8 **Air Quality and Emissions** – Absolute emissions and eutrophication impacts are not a consideration for the TKES; no part of the proposals lie within, affect or create any Air Quality Management Area; statutory limits will be complied with and no significant deterioration of air quality will occur. Hence air quality matters do not weigh against granting consent (EN-1, 5.2.9 & 5.2.10);
- 7.9 **Biodiversity and Geological Conservation** – All internationally important sites are avoided (except the Lynn and Inner Dowsing SCI, whose key qualifying features are avoided); all SSSI are avoided, as are regionally important geological sites; ancient woodland is avoided; impacts on all habitats and species are found to be not significant; the effects on non-statutory local sites (LWS) are found to be negligible in light of mitigation. Hence biodiversity and geological conservation matters do not weigh against granting consent (EN-1, 5.3.8);
- 7.10 **Civil and Military Aviation and Defence Interests** – No civil and military aviation or defence interests are affected, as a result of avoidance through the alternatives process and the form of the TKES proposals. No impacts can occur and therefore such matters are not relevant to the SoS's decision (EN-1, 5.4.17).
- 7.11 **Coastal Change** – Vulnerable stretches of coastline and those with major tourist developments have been avoided through the TKOWFL alternatives process; The IEC and Substation are located sufficiently far from the coast such that they are not at risk from coastal change. The conditions for attaching substantial weight to coastal change matters have not been met as no significant effects are predicted (EN-1, 5.5.16) and therefore these matters do not weigh against granting consent.
- 7.12 **Dust, Odour, Light, Smoke, Steam and Insect Infestation** – Dust impacts are addressed within the Air Quality section of this Planning Statement; all other effects were found to have no potential to be significant; as a result there would be no grounds for imposing additional mitigation or controls or for

- giving these matters weight in determining whether to grant consent (EN-1, 5.6.8, 5.6.9 & 5.6.10).
- 7.13 **Flood Risk** – TKOWFL’s alternatives process showed that the connection to Bicker Fen was the most appropriate connection point and that no other reasonably available sites of lower flood risk could be brought forward within the boundaries of the legislation and policy that NGET, a future OFTO or TKOWFL need to adhere to. The IEC and Substation were shown to satisfy the Exception Test (EN-1, 5.7.12) and all residual effects are negligible. The Environment Agency does not have concerns regarding the proposal (EN-1, 5.7.11). Flood risk does not present potentially significant adverse effects and does not weigh against granting consent.
- 7.14 **Historic Environment (Offshore and Onshore)** – TKOWFL has avoided, through its alternatives process, the most highly valued heritage assets, resulting in all residual effects being not significant. TKOWFL has ensured that the strongest presumption in favour of conservation of the most significant assets has been met (EN-1, 5.8.14) and, on the basis that all residual effects are not significant, TKOWFL found that the benefits of the proposal clearly outweigh the insignificant effects identified (EN-1, 5.8.18).
- 7.15 **Socio-economic** – TKOWFL found that all effects were not significant, including to tourism receptors. On this basis TKOWFL does not consider that such matters should weigh against granting consent (EN-1, 5.12.6).
- 7.16 **Traffic and Transport** – TKOWFL found that all effects are not significant, principally as a result of the extensive alternatives process, cable micro-routing and public consultation. This ensured that key elements of the scheme are in close proximity to suitable highways and or new temporary or permanent routes are included within the proposals that mitigate any potentially significant impacts. TKOWFL does not therefore consider that any further mitigation measures are necessary by the SoS (EN-1, 5.13.6) and the benefits of the proposal clearly outweigh any insignificant impacts identified.
- 7.17 **Waste Management** – TKOWFL found no significant effects associated with waste management, particularly as a SWMP will be produced and agreed with the relevant LPA, which will ensure compliance with the waste hierarchy and best practice (EN-1, 5.14.7).
- 7.18 **Water Quality and Resources** – The IEC, Substation and cable route do not pass through any SPZ and do not directly impinge on any WFD waterbody; all effects on the South Forty Foot Drain WFD waterbody are found to be not significant; all effects arising from open cut or trenchless crossings of watercourses are not significant. Therefore water quality and resources

- matters should not be given significant weight against grant of consent (EN-1, 5.15.5).
- 7.19 **Fish** – EMF effects were scoped out by the SoS (EN-3, 2.6.75); all other effects were found to be negligible including on fish and shellfish receptors and due to increased suspended sediment concentrations and smothering. Fish does not present potentially significant adverse effects and therefore impacts should not weigh against the proposal.
- 7.20 **Intertidal** – TKOWFL considered various landfall sites (EN-3, 2.6.81) and therefore minimised impacts through embedded design mitigation (EN-3, 2.6.85), particularly through avoiding the most sensitive designations in, and towards, the Humber and Wash areas. All effects were found to be not significant, particularly as a result of the small area affected and hence limited weight should be given to such matters in the grant of consent.
- 7.21 **Marine Mammals** – The TKES does not result in the primary noise impacts envisaged by EN-3 as offshore piling will not occur (2.6.91). The TKES alternatives process has ensured that it avoids the SAC where marine mammals comprise a qualifying feature, which has fundamentally minimised the potential for significant effects. All effects were found to be negligible and therefore should not be given weight in the determination of the application. (EN-3, 2.6.94).
- 7.22 **Birds** – Surveys by TKOWFL showed that bird species were widespread and not focussed in the TKES corridor, whilst the TKES alternatives process ensured that SPA were avoided and therefore potential impacts are minimised (EN-3, 2.6.70). All effects were found to be not significant, particularly on the basis of the small proportion of the relevant population affected. Since significant harm is avoided EN-1 (5.3.7) compensation measures do not need to be considered and hence impacts on marine birds should not be considered to weigh against the proposal.
- 7.23 **Subtidal** - TKOWL assessed all key and relevant areas in accordance with EN-3, including consideration of those habitats (*S. spinulosa*), not already avoided through the extensive alternatives process, that are of the greatest conservation importance; all effects were found to be negligible and therefore the SoS does not need to give particular consideration to whether the effects are temporary or reversible (EN-3, 2.6.117). Since significant harm is avoided EN-1 (5.3.7) compensation measures do not need to be considered and hence subtidal impacts should not weigh against the proposal.
- 7.24 **Commercial Fisheries and Fishing** – The areas of predominant activity were avoided through the extensive alternatives process and therefore lie outside the cable route to the north (off the East Riding of Yorkshire coast)

- and south (in the Greater Wash) (EN-3, 2.6.132). Safety zones will not be implemented and all effects were found to be negligible. No further mitigation is therefore necessary (EN-3, 2.6.136) and impacts on commercial fisheries and fishing should not be given weight against the proposal.
- 7.25 **Navigation and Shipping** – The TKES inherently avoids many of the potential impacts envisaged in EN-3, however temporary impacts may occur. The TKES avoids the most intense shipping areas in the Humber and Wash, in particular the Traffic Separation Scheme and anchor areas in the Humber (EN-3, 2.6.162). Safety zones will not be implemented and are therefore not a consideration. All effects were found to be tolerable/negligible and major navigation routes are avoided, hence navigation and shipping impacts should not weigh against the proposal.
- 7.26 **Oil, Gas and Other Offshore Infrastructure and Activities** - TKOWFL's alternatives process avoided proximity to, or conflict with, other commercial marine users, such as oil and gas; other renewable energy schemes and their connecting cabling; aggregate extraction and application areas; and PEXA; this is in full accordance with EN-3 (2.6.183 and 2.6.184). The ES finds that all effects are negligible and therefore oil, gas and other offshore infrastructure and activities should not be given weight in the decision on granting consent (EN-3, 2.6.185 and 2.6.186).
- 7.27 **Physical Environment** – The TKES avoids the Chapel Point to Wolla Bank SSSI; wherever possible the cable route avoids sandwaves. All effects were found to be not significant, primarily due to the inherent nature of the works and therefore all effects on physical environment have been reasonably minimised (EN-3, 2.6.196) and is not a factor that should be given weight in the decision on granting consent.
- 7.28 **Electric and Magnetic Fields** – Offshore EMF effects were scoped out of further assessment by the SoS; onshore works will comply with the Electrical Safety, Quality and Continuity Regulations 2002 and any new advice that may emerge, and as such will comply with current public exposure guidelines. No specific mitigation is proposed for EMF over and above achieving compliance with current public exposure guidelines and safety regulations. As a result, EMF impacts are not material to the decision on granting consent.

### Potentially Significant Adverse Effects

- 7.29 The only matters where effects may be significant are:
- 7.30 **Landscape and Visual** – EN-1 (5.9.8 & 5.8.19) accepts that virtually all energy infrastructure projects will, or are likely to have, impacts on landscape

and visual receptors. Some visual effects were found to be moderate, however these reduce to neutral over time through the establishment of mitigation planting. Notwithstanding this, TKOWFL found that all residual landscape and visual impacts are not significant, primarily as a result of the alternatives process avoiding the most highly designated landscapes (AONB), local designations (AGLV) and the densest areas of population. In accordance with EN-1 (5.9.9, 5.9.12, 5.9.14 & 5.9.18) the impacts on landscape and visual receptors are acceptable and should not weigh against the proposal.

- 7.31 **Noise and Vibration** – TKOWFL has fundamentally minimised the potential impacts arising from the proposals through its alternatives process which avoided proximity to the densest areas of residential development and to the most highly designated non-human receptors (EN-1, 5.11.12 – Lay-out). Furthermore no significant effects will be experienced by all but the closest receptors to trenchless crossing works. Where there is a potential moderate effect on those properties within 100m of trenchless works, TKOWFL has committed to maximising the final works distance wherever possible, avoiding night-time works wherever possible and only undertaking with the consent of the resident. TKOWFL will also offer the opportunity for temporary re-housing of residents with a potentially significant impact until works complete, which eliminates the impact entirely. TKOWFL therefore considers that the proposals are in accordance with EN-1 (5.11.9) and that the noise impacts are temporary, resolvable and reversible and are significantly outweighed by the benefits of the TKES.
- 7.32 **Land Use including Open Space, Green Infrastructure and Green Belt** – EN-1 (5.10.1) accepts that energy infrastructure projects will have direct effects on the existing use of the proposed site and may have indirect effects. Nevertheless TKOWFL found that all such effects would be not significant, except for a temporary moderate effect on marginal (smaller) agricultural holdings. The predominantly non-significant effects are on the basis that a very small proportion of BMV land is affected as a result of the alternatives process undertaken (EN-1, 5.10.15); most PRoW impacts are avoided (EN-1, 5.10.24); there is no sterilisation of mineral resource (EN-1, 5.10.9); significant effects on existing open space, sports and recreational buildings are avoided (EN-1, 5.10.14); no green belt is affected (EN-1, 5.10.17). The effects to marginal agricultural holdings are temporary, resolvable and reversible and are significantly outweighed by the benefits of the TKES.
- 7.33 TKOWFL considers that the identification of such a limited extent of significant impacts, which are temporary and resolvable, is a major achievement for a project of the scale of the TKES. This is a very positive

outcome of the decision to separate the TKES development consent application from that of the TKOWF array and to pursue a subsequently rigorous, exhaustive and extensive alternatives process to arrive at an economic and efficient electrical connection solution to Bicker Fen.

## Benefits

- 7.34 The benefits of the TKES alongside the TKOWF array are indisputable in helping to meet the international, European and national need for new renewable energy infrastructure set out in section 5 of this Planning Statement. As the sole electrical connection facilitating the transmission of electricity from the TKOWF array, the TKES will ensure that the urgent delivery of additional renewable energy capacity is realised to increase energy security and affordability and to tackle climate change in accordance with the UK's legally binding obligations.
- 7.35 The TKES will support an export capacity of 900 MW, sufficient to meet the electricity needs of up to 800,000 average UK households each year and therefore representing a sizeable proportion of the UK's electricity capacity. Furthermore the TKES is likely to have minor positive impacts on skills and education in the onshore local area.

## Conclusion

- 7.36 EN-1 (3.1.3 and 3.1.4) is clear that:
- 'The IPC should...assess all applications for development consent for the types of infrastructure covered by the energy NPSs on the basis that the Government has demonstrated that there is a need for those types of infrastructure and that the scale and urgency of that need is as described for each of them in this Part.*
- The IPC should give substantial weight to the contribution which projects would make towards satisfying this need when considering applications for development consent under the Planning Act 2008.'*
- 7.37 This Planning Statement finds that for a project of the national importance of the TKES, effects are very limited and almost entirely not significant. Where effects are potentially significant, they are spatially and temporally constrained and apply to a very limited extent of policy coverage, namely visual, noise and agricultural use impacts.
- 7.38 In the case of potentially significant (moderate) visual impact, the temporary (prior to the establishment of mitigation planting) visual effect at the

- Substation and IEC applies to only a limited number of the receptors considered, whose impact reduces to neutral over time.
- 7.39 With respect to potentially significant (moderate) noise impacts, these are confined to only those receptors closest to the cable construction works, and more specifically trenchless crossing works, which are implemented to avoid other effects. In these cases the final works location within the Proposed Development Boundary may lie further than the worst case assessment has assumed and thus effects may be reduced. Furthermore in the event that those effects remain significant (moderate) the residential receptors would be offered alternative accommodation to entirely mitigate the adverse effect.
- 7.40 With respect to the potentially significant (moderate) impact on marginal agricultural holdings a process will be followed of agreeing commercial terms with affected parties; providing sufficient time between the serving of notice for entry and the commencement of on-site activities to allow farmers and landowners time to adapt their working practices prior to construction; and returning areas of temporary impact back to their former agricultural use. This ensures that effects are minimised and after full reinstatement the effects on operation are negligible.
- 7.41 TKOWFL finds that in the context of a scheme which facilitates the transmission of renewable energy sufficient to meet the average needs of up to 800,000 average UK households each year and is a significant contributor to addressing the UK's climate change obligations and energy security aims, these effects are minimal and only affect a limited number of receptors on a non-permanent basis.
- 7.42 This Planning Statement has found throughout the various technical topics covered, that the scenarios where the NPS advises the SoS to consider refusal of the application are not engaged, or close to being engaged. In particular the TKES has, through its rigorous, extensive and consultative alternatives process, avoided impacts on all key international and national designations or habitats to which the NPS attribute greatest weight in the SoS's decision.
- 7.43 TKOWFL finds that the planning balance falls clearly in favour of the benefits of the proposal outweighing its limited effects, that the proposals are fully in accordance with the relevant National Policy Statements and other material considerations, and therefore respectfully requests that the Secretary of State grants development consent in accordance with the criteria set out in section 104 of the Planning Act 2008.

## References

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## Glossary

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<b>Term</b>	<b>Meaning</b>
AC	Alternating Current
AGLV	Area of Great Landscape Value (an East Lindsey District Council landscape designation)
AIS	Air Insulated Switchgear
ALARP	As Low As Reasonably Practicable
ALC	Agricultural Land Classification
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
BBC	Boston Borough Council
BMV	Best and Most Versatile (agricultural land, being grades 1 - 3a under the ALC system)
CCA	Coastal Conservation Area (and East Lindsey District Council landscape designation)
CCS	Carbon Capture and Storage
CLJSPC	Central Lincolnshire Joint Strategic Planning Committee
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
DEFRA	Department for the Environment, Food and Rural Affairs
DP	Dynamic Positioning
EA	Environment Agency
EIA	Environmental Impact Assessment
ELDC	East Lindsey District Council
EMF	Electric and Magnetic Fields
EMR	Electricity Market Reform

EPS	European Protected Species
ES	Environmental Statement
FRA	Flood Risk Assessment
FRA	Flood Risk Assessment
GIS	Gas Insulated Switchgear
HDD	Horizontal Directional Drilling
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDB	Internal Drainage Board
IEC	Intermediate Electrical Compound
IFCA	Inshore Fisheries Conservation Authority
kV	kilovolt
LCC	Lincolnshire County Council
LCCP	Lincolnshire Coastal Country Park
LCGM	Lincolnshire Coastal Grazing Marsh
LGS	Local Geological Site
LPA	Local Planning Authority
LWS	Local Wildlife Site
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MHWS	Mean High Water Springs
MIEU	Major Infrastructure Environment Unit (part of DEFRA)
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MNRA	Marine Navigation Risk Assessment
MPA	Marine Protected Area

MSA	Minerals Safeguarding Area
MPS	The UK Marine Policy Statement
NGET	National Grid Electricity Transmission plc (owners and operators of the high voltage 275/400kV transmission network in England and Wales)
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OFTO	Offshore Transmission Owner
OSP	Offshore Substation Platform
PEI	Preliminary Environmental Information
PEXA	Practice and Exercise Areas (military)
PINS	The Planning Inspectorate
PPS	Planning Policy Statement
PRoW	Public Right of Way
REZ	Renewable Energy Zone
RIGS	Regionally Important Geological Site
RYA	Royal Yachting Association
SCI	Site of Community Importance
SNCI	Site of Nature Conservation Importance
SoS	Secretary of State (for Energy and Climate Change)
SPZ	Source Protection Zone (groundwater)
SSC	Suspended Sediment Concentration
Substation	Triton Knoll 'step-up' substation (to 400kV)
SWMP	Site Waste Management Plan

TJB	Transition Joint Bay
TK	Triton Knoll
TKES	Triton Knoll Electrical System
TKOWFL	Triton Knoll Offshore Wind Farm Limited
UKHO	United Kingdom Hydrographic Office
UNFCCC	United Nations Framework Convention on Climate Change
UXO	Unexploded Ordnance
WCA	Wildlife and Countryside Act
WFD	Water Framework Directive
WSI	Written Scheme of Investigation