



Triton Knoll Offshore Wind Farm Limited Triton Knoll Electrical System

Appendix 35: Outline Construction Environmental
Management Plan (Revision B)

February 2016

Appendix 35 of the Applicant's response to deadline 7

APFP Regulation 5(2)(q)



Triton Knoll Offshore Wind Farm
Limited

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1 INTRODUCTION

Overview

- 1.1 Triton Knoll Offshore Wind Farm Limited (TKOWFL) is submitting an application to the Planning Inspectorate (PINS), on behalf of the Secretary of State for Energy and Climate Change, for a Development Consent Order (DCO) for the Triton Knoll Electrical System (the proposed development) under the Planning Act 2008. The Triton Knoll Electrical System (TKES) would connect the consented Triton Knoll Offshore Wind Farm (TKOWF) to the National Grid substation at Bicker Fen, Boston, and would comprise offshore and onshore export cable circuits, landfall infrastructure, an onshore electrical compound and an onshore substation.
- 1.2 The TKOWF is located approximately 33km (20.5 miles) east of the Lincolnshire coast. The Secretary of State granted a DCO for the TKOWF on 12th July 2013.
- 1.3 All terms, acronyms and abbreviations used within this document are explained on first use, and / or set out in full within the Glossary appearing in the Environmental Statement (Application Document 6.2).

The Applicant

- 1.4 TKOWFL is a joint venture between two leading international energy companies; RWE Innogy UK Limited and Statkraft UK Limited. RWE Innogy UK is the UK subsidiary of the German renewable energy company RWE Innogy (part of RWE AG), a company with a strong and diversified position in renewable energy development. Statkraft UK Limited is the UK subsidiary of Statkraft Group, Europe's largest generator of renewable energy and the leading power company in Norway.

Project Overview

- 1.5 The components of the TKES, which are needed to connect TKOWF to the National Grid, comprise:
- Up to six offshore export cable circuits – to transmit the high voltage alternating current (HVAC) electricity from the offshore substations to the transition joint bays at the landfall;

- Landfall infrastructure just north of Anderby Creek, Lincolnshire – including transition joint bays which house the connection between the offshore cables and the onshore cables;
 - Up to six onshore export cable circuits (up to 220 kV) – to transmit the HVAC electricity from the transition joint bays at the landfall to the proposed Triton Knoll Substation via the Intermediate Electrical Compound;
 - An Intermediate Electrical Compound near to Orby Marsh – to provide compensation for reactive power to allow more efficient transmission to minimise losses;
 - A substation near the existing Bicker Fen National Grid Substation – to step-up the voltage to the voltage used by the National Grid and provide additional compensation for reactive power built up over the export transmission;
 - Up to four onshore export cable circuits (400 kV) – to transmit the electricity from the proposed Triton Knoll Substation to the existing National Grid substation at Bicker Fen, Boston; and
 - Unlicensed Works within the existing National Grid substation comprising up to two bays each accommodating electrical equipment.
- 1.6 The Order Limits for the Triton Knoll Electrical System are shown on the Order Limits Plans.
- 1.7 Any works at the National Grid substation near Bicker Fen required to connect the power produced by TKOWF will be consented, constructed and operated by National Grid (the ‘Enabling Works’). National Grid has not yet completed the engineering studies necessary to define the Enabling Works required at their existing Bicker Fen substation.

Purpose of this Outline CEMP

- 1.8 This Outline Construction Environmental Management Plan (CEMP) is provided as an Appendix to the Outline Code of Construction Practice (CoCP) which forms part of the application to PINS for a DCO for the TKES.
- 1.9 This Outline CEMP is being provided in an indicative form to provide the Examining Authority and parties to the examination with an outline of the matters which will be addressed within the final CEMP submitted as part of

the final CoCP for any part of the TKES in accordance with Requirement 14 of the draft DCO. This Outline CEMP sets out the environmental management techniques which will be implemented by TKOWFL and its contractors during the construction of the TKES, and should be read in conjunction with the Outline CoCP and all of its supporting appendices.

- 1.10 Requirement 14 of the draft DCO requires the CoCP and its supporting appendices to be submitted for each stage of the works permitted by the Order. This Outline CEMP will therefore be adapted and submitted separately for each stage of works as part of the CoCP for that stage. For certain stages of works it may be the case that a particular environmental plan is not required for that specific stage of works, and in those cases the undertaker will agree with the relevant planning authority which of the appendices to the CoCP are (not) required for such works. It may therefore be that this Outline CEMP is not provided for a particular stage of works.

Scope of this Outline CEMP

- 1.11 As with the Outline CoCP, this Outline CEMP relates to the onshore elements of the TKES for the proposed TKOWF, landward of Mean Low Water (MLW). This document does not relate to offshore works seaward of MLW, or any works above MLW that are principally marine activities.

2 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

- 2.1 This Outline CEMP identifies the objectives and some of the management measures for the TKES to minimise environmental impacts during construction. Many of those detailed management measures appear within the detailed environmental management plans which are provided with this Outline CEMP as Appendices to the Outline CoCP. Where that is the case, appropriate cross references are made to those detailed environmental management plans within this Outline CEMP. Where no detailed management plan is required for a specific environmental topic, full details of the management measures to be implemented are included within this Outline CEMP.
- 2.2 These will be developed and expanded on should development consent be granted, and submitted as part of the final CoCP for each stage of the TKES works once a Principal Contractor is assigned and in accordance with Requirement 14 of the draft DCO.

Landscape and Visual

Objective

- 2.3 To minimise the effects of the construction on landscape resources, including the loss of or damage to, features such as trees and hedgerows and to minimise the visual effects of the construction phase.

Management Measures

- 2.4 Under Requirement 6 the draft DCO, a landscaping scheme is to be submitted to the relevant planning authority for approval prior to the commencement of the onshore works relating to the Triton Knoll Substation and the Intermediate Electricity Compound. That scheme is to accord with the Outline Landscape Strategy and Ecological Management Plan. The Outline LSEMP has been incorporated into the design for both the Intermediate Electrical Compound (IEC) and Substation. This has taken into account key landscape features and qualities found within the surrounding landscape and including woodland, hedgerows and shrub.
- 2.5 The final Construction Method Statement (CMS) to be submitted for each stage of the TKES works will include provisions designed to ensure that all and any hedgerows, trees, fences and / or gates which are affected by the

onshore works are reinstated or replaced in accordance with that strategy. Those final CMSs will accord with the Outline CMS, and further explanation of the matters to be addressed concerning the management of landscape impacts arising from the TKES works is provided within the Outline LSEMP.

- 2.6 Appropriate lighting will be used during construction to reduce any visual disturbance impacts on sensitive receptors. For further detail of such lighting please refer to the Outline Artificial Light Emissions Plan (ALEP) which forms Appendix Six to the Outline CoCP. A final ALEP will be submitted for each stage of the TKES works as appropriate.

Socio-economics

Objective

- 2.7 To minimise the impacts of construction works and socio-economic receptors such as public rights of way and other local recreational facilities.

Management Measures

- 2.8 As part of the Outline CoCP and in accordance with Requirement 14 of the proposed DCO, a Communications Plan is to be submitted and complied with during the construction of each stage of the TKES works. An Outline Communications Plan has been submitted as part of the application which contains measures aimed at minimising the impacts of the construction works on socio-economic receptors.
- 2.9 The Outline CMS addresses how impacts on Public Rights of Way (PRoW) will be minimised during the construction works. The final CMS submitted for each stage of the TKES works will include those provisions where appropriate.

Ecology and Nature Conservation

Objective

- 2.10 To minimise the impact of construction works on protected species and designated sites and to minimise the loss of nature conservation features such as hedgerows and mature trees.

Management Measures

- 2.11 The Outline CMS contains a description of how works will be carried out to minimise the impacts of the construction works on certain ecological

receptors, including measures to minimise the impacts on the intertidal and coastal habitats, other habitats along the cable route, and protected species. The final CMS submitted for each stage of the TKES works will implement those measures during the construction of the project.

Land Use, Agriculture and Recreation

Objective

- 2.12 To protect the integrity of the topsoil and subsoil during stripping, storage and replacement and to ensure successful reinstatement of the land affected by temporary works to its former condition, such as Lincolnshire Coastal Grazing Marshes (LCGM) target areas that the TKES will cross through.
- 2.13 To maintain farm access routes and PRow where possible.

Management Measures

- 2.14 An Outline Soil Management Plan (SMP) forms part of the Outline CoCP.
- 2.15 Under the Outline SMP, construction processes will take into account the principles of good soil handling and restoration set out in the relevant guidelines and the important principles will be adopted by the Principal Contractor for each stage of the TKES works.
- 2.16 The Outline CMS addresses how impacts on PRow will be minimised during the construction works, and other access rights relevant to landowners and farmers along the route of the proposed works. It also sets out a series of measures which may be implemented to minimise any impacts of the TKES works on LCGM target areas.
- 2.17 The communication of measures taken, and where relevant closures or restrictions on such PRow, to the public and relevant local authorities shall be carried out in accordance with the Outline Communications Plan. A final Communications Plan will be submitted and approved for each stage of the TKES works.

Geology and Ground Conditions

Objective

- 2.18 To minimise the effects of construction works on both soil conditions and water resources.

Management Measures – pre-construction



- 2.19 Ground investigation for geotechnical and or environmental purposes would be undertaken pre-construction at key locations including the Intermediate Electrical Compound, Substation and where surface water, road and rail crossings occur. Investigations may also be required if the proposed development passes in close proximity to a landfill or other as yet unidentified contaminant source.
- 2.20 Site-specific intrusive ground investigation would be undertaken to inform geotechnical, ground stability and civil engineering assessments. A review of the results of these investigations would be undertaken to identify areas that require further detailed assessment, as required. The results of the investigations would be used to inform foundation design, design of temporary works and horizontal directional drill/microbore/pipe-jacking to ensure the stability of the proposed construction techniques.

Management Measures – construction

- 2.21 The following legislation will be adhered to on site to reduce the risk of contamination during construction:
- Environmental Protection (Duty of Care) Regulations 1991;
 - Water Resources Act 1991;
 - Hazardous Waste Regulations 2005;
 - The Control of Pollution (Oil Storage) Regulations 2001;
 - Groundwater Regulations 1998; and
 - Water Framework Directive 2000.
- 2.22 The following EA Pollution Prevention Guidance (PPGs) will be followed on site to prevent pollution during construction.
- Guidance for storing and handling materials and products:
 - PPG2: Above ground oil storage tanks;
 - PPG 6: Working at construction and demolition sites;
 - PPG 7: Refuelling facilities; and
 - PPG 26: Drums and intermediate bulk containers;
 - Guidance for site drainage, dealing with sewage and trade effluents:

- PPG 3: Use and design of oil separators in surface water drainage systems;
 - PPG 4: Disposal of sewage where no mains drainage is available; and
 - PPG 13: Vehicle washing and cleaning;
 - Guidance on general good environmental practice:
 - PPG 1: General guide to the prevention of pollution;
 - PPG 5: Works in, near or liable to affect watercourses; and
 - PPG 21: Pollution incident response planning.
- 2.23 Potential risks to construction and maintenance workers arising from contamination within soil and groundwater during the construction phase(s) of the proposed development would be controlled through:
- the Construction Design and Management (CDM) Regulations 2015;
 - the requirement to work in accordance with best practice and statutory guidance; and
 - the requirement for PPE as standard working practice.
- 2.24 Monitoring would be undertaken of:
- Ground and surface water conditions to check for spills or uncontrolled tipped surface spoil;
 - Oil tanks and associated bunds for leaks; and
 - Plant containing oils and fuel would be inspected daily and maintained to both prevent and identify leaks.
- 2.25 Further investigations would be required if contamination not previously identified (through the pre-construction ground investigations) is found to be present during construction of the onshore works .

Management Measures for Identifying Contamination

- 2.26 Should a contaminant source be identified through pre-construction ground investigations, or during construction, EA guidance on the assessment of risks from potentially contaminated land will be followed on a site-specific basis in line with Contaminated Land Report 11 (CLR11).

- 2.27 The following actions shall be undertaken, in consultation with the EA, on a site-specific basis in line with Contaminated Land Report 11 (CLR11):
- Complete preliminary risk assessments to identify areas that require further detailed assessment;
 - Design and undertake appropriate site-specific intrusive ground investigation;
 - Undertake laboratory chemical and geotechnical/civil engineering soil and groundwater analysis;
 - Undertake human health and controlled water generic quantitative risk assessment;
 - Detailed quantitative risk assessment would be undertaken where identified through site specific ground investigation;
 - Undertake remedial action, options appraisal and/or design where identified through ground investigation;
 - Implement the detailed mitigation measures or remedial works; and
 - Verify the implemented mitigation measures or remedial works.
- 2.28 An Outline SMP (SMP) forms part of the Outline CoCP.
- 2.29 Under the Outline SMP, construction processes will take into account the principles of good soil handling and restoration set out in the relevant guidelines and the important principles will be adopted by the Principal Contractor.
- 2.30 The details of further measures taken to avoid adverse impacts on geology and ground conditions can also be found within the Outline CMS and the Outline Pollution Prevention and Emergency Incident Response Plan (PPEIRP).

Hydrology and Flood Risk

Objective

- 2.31 To minimise the risk of surface water flooding during the construction phase, to prevent pollution of surface watercourses and to minimise the impact on local surface water features.

Management Measures

- 2.32 A Surface Water Drainage Scheme will be agreed with, and submitted to, the relevant local statutory bodies prior to the commencement of construction works under the DCO in accordance with Requirement 10.
- 2.33 These will include any agreed mitigation measures, including those to ensure the requirements of the Water Framework Directive (WFD) are achieved, and will be implemented.
- 2.34 Appropriate industry best practice and published guidelines will be followed to reduce pollutant and sediment movement during all aspects of construction through a construction environmental management plan or similar document. Guidelines include, but are not limited to:
- Environment Agency, Pollution Prevention Guidance Note 6 (PPG6): Pollution Prevention Guidelines – Working at Construction and Demolition Sites
 - Environment Agency, Pollution Prevention Guidance Note 5 (PPG5):– Working in, near or liable to affect watercourses;
 - Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors CIRIA (C650);
 - CIRIA – SuDS Manual
- 2.35 Construction materials and spoil materials will be positioned in a manner that does not constrain potential flood waters unduly or direct flood waters towards population or industrial centres of high sensitivity.
- 2.36 Construction will not be undertaken during very extreme wet weather where erosion of sediments and risk from flooding may increase.
- 2.37 Crossing methods of drainage ditches and water courses will be carried out in accordance with the Crossing Schedule unless otherwise agreed with the relevant authorities. This is explained in further detail within the Outline CMS. The Outline CMS also contains further measures relevant to the control of water and limiting the impacts of the construction on hydrological receptors.
- 2.38 An Outline PPEIRP is included as an Appendix to the Outline CoCP. A final PPEIRP will be prepared by the Principal Contractor for each stage of the TKES works and all staff trained on its implementation. These will include further details on measures taken to avoid impacts on hydrology in accordance with the Outline PPEIRP.

Historic Environment

Objective

- 2.39 To minimise the effects of construction works on both designated and undesignated archaeological and heritage assets and their setting.

Management Measures

- 2.40 Requirement 12 of the draft DCO requires that a detailed Written Scheme of Investigation (WSI), to accord with the Outline Onshore WSI, is to be submitted for approval by the relevant planning authority prior to the commencement of works (save for highway improvements) associated with the TKES. The Onshore WSI will be implemented as approved.

Traffic and Access

Objective

- 2.41 To carry out construction works in such a way as that maintains highway safety and avoids adverse effects on local communities and highway users and maintains access to properties and businesses throughout the construction period.

Management Measures

- 2.42 A Construction Traffic Management Plan (CTMP) is to be approved pursuant to Requirement 19 of the DCO for each stage of the TKES works (and should accord with the Outline Traffic Management Plan submitted as part of the application.
- 2.43 Each CTMP will include;
- agreed routes and mitigation measures
 - abnormal loads management measures
 - site management and monitoring measures
- 2.44 The CTMP will also include a Contractor Travel Plan.
- 2.45 All access roads used to move vehicles between the local highways and the construction compounds will be re-instated once construction is complete.

Air Quality and Health

Objective

- 2.46 To minimise the generation of nuisance dusts and air pollutants from exhaust emissions during construction and to facilitate community engagement and a proactive approach to complaints regarding nuisance dusts.

Management Measures

- 2.47 A Construction Traffic Management Plan (CTMP) is to be approved pursuant to Requirement 19 of the DCO for each stage of the TKES works (and should accord with the Outline Traffic Management Plan submitted as part of the application).
- 2.48 An Air Quality Management Plan (AQMP) is to be approved as part of the final CoCP pursuant to Requirement 14 of the DCO. The AQMP approved for each stage of the TKES works should accord with the Outline AQMP. The Outline AQMP includes measures to reduce or eliminate any potential air quality impacts; these include measures regarding dust management, communications, and measures specific to earthworks, construction and trackout. The final AQMP for each stage may include monitoring of dust deposition, dust flux, real-time PM10 continuous monitoring and/ or visual inspections.

Noise and Vibration

Objective

- 2.49 To control and limit noise and vibration levels, so far as is reasonably practicable and to minimise disturbance to sensitive receptors.

Management Measures

- 2.50 All contractors would carry out the works in a manner which minimises noise and vibration wherever feasible, taking account of statutory requirements and legislation. These measures would form part of the Noise and Vibration Management Plan (NVMP) which will be approved as part of the final CoCP for each stage of works. The final NVMP shall accord with the Outline NVMP included as Appendix Three to the Outline CoCP.
- 2.51 The Outline CoCP, together with the draft DCO itself, would control the construction working hours associated with the proposed development, which will assist in reducing the noise and vibration impacts associated with such construction works.