

Triton Knoll Offshore Wind Farm Limited Triton Knoll Electrical System

Outline Artificial Light Emissions Plan

April 2015

Document Reference: 8.7.6

Appendix Six to the Outline Code of Construction
Practice

APFP Regulation 5(2)(q)

Triton Knoll Offshore Wind Farm
Limited

Triton Knoll Electrical System

Outline Artificial Light Emissions Plan

Document Reference: 8.7.6

April 2015

Drafted By:	TKOWFL
Approved By:	Kim Gauld-Clark and Paul Carter
Date of Approval	April 2015
Revision	A

Triton Knoll Offshore Wind Farm Ltd
Trigonos
Windmill Hill Business Park
Whitehill Way
Swindon
SN5 6PB

T +44 (0)845 720 090

Email: tritonknoll@rwe.com

I www.rweinnogy.com

www.rweinnogy.com/tritonknoll

LIABILITY

In preparation of this document Triton Knoll Offshore Wind Farm Limited (TKOWFL) and their subconsultants have made reasonable efforts to ensure that the content is accurate, up to date and complete for the purpose for which it was prepared. Neither TKOWFL nor their subcontractors make any warranty as to the accuracy or completeness of material supplied. Other than any liability on TKOWFL or their subcontractors detailed in the contracts between the parties for this work neither TKOWFL or their subcontractors shall have any liability for any loss, damage, injury, claim, expense, cost or other consequence arising as a result of use or reliance upon any information contained in or omitted from this document.

Copyright © 2015 Triton Knoll Offshore
Wind Farm Limited

All pre-existing rights reserved.

Table of Contents

1	INTRODUCTION	1
	Overview	1
	The Applicant	1
	Project Overview	1
	Purpose of this Outline ALEP.....	2
	Scope of this Outline ALEP	3
2	LIGHTING.....	4
	Lighting requirements and mitigation measures.....	4

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, an onshore substation and works at the Bicker Fen 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 Plan 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 compound 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 (Application Document 2.1).
- 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. However, it is anticipated that these works will only involve modifications to the existing infrastructure within the existing site boundary.

Purpose of this Outline ALEP

- 1.8 This Outline Artificial Light and Emissions Plan 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 ALEMP 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 ALEP submitted as part of the

final CoCP for any part of the TKES in accordance with Requirement 14 of the draft DCO. This ALEP sets out techniques aimed at minimising the emission of artificial light which may 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 ALEP 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 ALEP is not provided for a particular stage of works.

Scope of this Outline ALEP

- 1.11 This Outline ALEP 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 LIGHTING

Lighting requirements and mitigation measures

- 2.1 The following paragraphs describe the light requirements of the TKES works, and the mitigation measures will be applied during those construction works.
- 2.2 External lighting of the construction site will be designed and positioned to:
- Provide the necessary levels for safe working
 - Minimise light spillage or pollution
 - Avoid disturbance to adjoining residents and occupiers
- 2.3 No fixed lighting will be required along the Onshore Cable Corridor during construction.
- 2.4 At construction compounds and on the Onshore Cable Corridor, temporary lighting may be required during working hours in the winter months.
- 2.5 During the approximate months from September to March, it is likely that lighting will be required at the beginning and end of the working 12 hour day for a short duration.
- 2.6 Construction works at the Intermediate Electrical Compound and Substation sites will typically not require night time working. However, in winter, some illuminations may be required in the early evening. Illuminations may also be needed for occasional activities which require continuous working during night time (refer to Volume 3 Chapter 1 for the full project description). This may occur where continuous working is necessary for matters such as concrete pours. Low level security lighting may also be required at night throughout the construction period.
- 2.7 Lighting may be required for 24 hour working at the construction compounds associated with the use of trenchless techniques. As far as is reasonable, appropriate task lighting will be used for specific works to direct light towards the working areas during the night time. Such task lighting would be positioned at low level on posts around the trenchless techniques site and directed to most frequently used areas of work to provide the necessary levels for safe working and avoid causing glare or annoyance to road users. Lighting would be designed to balance the requirements for safe access and specific tasks against minimising light pollution and impact on amenity.
- 2.8 However, some flood lighting will be required for accesses and walking routes.

- 2.9 Site lighting shall be positioned and directed to minimise nuisance to footpath users, residents, to minimise distractions to passing drivers on adjoining public highways and to minimise skyglow, so far as is reasonably practicable.
- 2.10 Lighting will be placed as far from linear features (potentially suitable for foraging and community bats) as is conducive with security and engineering requirements. Those lights closest to features will take into account the following:
- Light intensity will be as low as is permissible;
 - Light spills towards any retained linear features will be reduced to a minimum (using cowls as necessary);
 - Lighting spillage will avoid or minimise impacts on ecological resources, including nocturnal species; and
 - Construction lighting will be low intensity and appropriately located/directed in order to minimise lighting disturbance for bats and birds.
- 2.11 Temporary construction buildings, equipment and lighting shall be sited so as to minimise visual intrusion and light spillage, in so far as is consistent with the safe and efficient operation of each worksite.
- 2.12 In all cases, main construction compounds will be screened with solid fencing to limit light spillage.
- 2.13 As for all construction compounds, solid fencing will be used at trenchless technique compounds.
- 2.14 So far as practicable, all power to temporary lighting shall be taken from mains supplies rather than from portable generators. Where portable generators are used, industry best practice will be followed to minimise noise and pollution from generators.
- 2.15 Details of the location, height, design and luminance of all floodlighting to be used during the construction of the project, together with measures to limit obtrusive glare to nearby residential properties, will be set out in the final ALEMP for any section of the works.