



MORGAN AND MORECAMBE OFFSHORE WIND FARMS: TRANSMISSION ASSETS

Outline offshore operations and maintenance plan



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Glossary

Term	Meaning
Applicants	Morgan Offshore Wind Limited (Morgan OWL) and Morecambe Offshore Windfarm Ltd (Morecambe OWL).
Commitment	This term is used interchangeably with mitigation and enhancement measures. The purpose of commitments is to avoid, prevent, reduce or, if possible, offset significant adverse environmental effects. Primary and tertiary commitments are taken into account and embedded within the assessment set out in the ES.
Development Consent Order	An order made under the Planning Act 2008, as amended, granting development consent.
Environmental Statement	The document presenting the results of the Environmental Impact Assessment process.
Export cable corridor	The specific corridor of seabed (seaward of Mean High Water Springs and land (landward of Mean High Water Springs) from the Generation Assets to the National Grid Penwortham substation.
Marine licence	The Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities. Section 149A of the Planning Act 2008 allows an applicant for to apply for 'deemed marine licences' in English waters as part of the development consent process.
Mean High Water Springs	The height of mean high water during spring tides in a year.
Morecambe Offshore Windfarm: Transmission Assets	The offshore export cables, landfall and onshore infrastructure required to connect the Morecambe Offshore Windfarm to the National Grid.
Morgan and Morecambe Offshore Wind Farms: Transmission Assets	The offshore and onshore infrastructure connecting the Morgan Offshore Wind Project and the Morecambe Offshore Windfarm to the national grid. This includes the offshore export cables, landfall site, onshore export cables, onshore substations, 400 kV grid connection cables and associated grid connection infrastructure such as circuit breaker compounds. Also referred to in this report as the Transmission Assets, for ease of reading.
Morgan Offshore Wind Project: Transmission Assets	The offshore export cables, landfall and onshore infrastructure required to connect the Morgan Offshore Wind Project to the National Grid.
Offshore export cables	The cables which would bring electricity from the Generation Assets to the landfall.
Offshore export cable corridor	The corridor within which the offshore export cables will be located.
Planning Inspectorate	The agency responsible for operating the planning process for applications for development consent under the Planning Act 2008.

Acronyms

Acronym	Meaning
CTV	Crew Transfer Vessel
CLV	Cable Lay Vessel
DCO	Development Consent Order
ES	Environmental Statement
HNDR	Holistic Network Design Review
MCAA	Marine and Coastal Access Act
MHWS	Mean High Water Springs
OWL	Offshore Wind Limited
ROV	Remotely Operated Vehicle
SOV	Service Operation Vehicle

Units

Unit	Description
%	Percentage
km ²	Kilometres squared
km	Kilometres
kV	Kilovolt
m	Metre
mm	Millimetre
nm	Nautical mile

1 Outline offshore operations and maintenance plan

1.1 Background

1.1.1 Introduction

1.1.1.1 This document forms the Outline offshore operations and maintenance plan prepared for the Morgan and Morecambe Offshore Wind Farms: Transmission Assets (referred to hereafter as ‘the Transmission Assets’).

1.1.2 Project overview

1.1.2.1 Morgan Offshore Wind Limited (Morgan OWL), a joint venture between bp Alternative Energy Investments Ltd. (bp) and Energie Baden-Württemberg AG (EnBW), is developing the Morgan Offshore Wind Project. The Morgan Offshore Wind Project is a proposed wind farm in the east Irish Sea.

1.1.2.2 Morecambe Offshore Windfarm Ltd (Morecambe OWL), a joint venture between Zero-E Offshore Wind S.L.U. (Spain) (a Cobra group company) (Cobra) and Flotation Energy Ltd., is developing the Morecambe Offshore Windfarm, also located in the east Irish Sea.

1.1.2.3 Morgan OWL and Morecambe OWL (the Applicants) are jointly seeking a single consent for their electrically separate, with aligned offshore export cable corridors to landfall and aligned onshore export cable corridors to separate onshore substation(s), and onward connections to the National Grid, at Penwortham, Lancashire.

1.1.2.4 The purpose of the Transmission Assets is to connect the Morgan Offshore Wind Project: Generation Assets and Morecambe Offshore Windfarm: Generation Assets (referred to collectively as the ‘Generation Assets’) to the National Grid. The key components of the Transmission Assets include offshore elements, landfall and onshore elements. Details of the activities and infrastructure associated with the Transmission Assets are set out in Volume 1, Chapter 3: Project description of the Environmental Statement (ES) (document reference F1.3).

1.1.2.5 This Outline Offshore Operations and Maintenance Plan has been developed for the offshore elements of the Transmission Assets, seawards of Mean High Water Springs (MHWS). In summary, the offshore elements of Transmission Assets will comprise up to six offshore export cables: four for the Morgan Offshore Wind Project: Transmission Assets and two for the Morecambe Offshore Windfarm: Transmission Assets.

1.1.3 Purpose of the outline offshore operations and maintenance plan

- 1.1.3.1 This Outline Offshore Operations and Maintenance Plan has been produced to provides a description of the reasonably foreseeable maintenance activities associated with the Transmission Assets as detailed within Volume 1, Chapter 3: Project Description of the ES (document reference F1.3). For the offshore export cables, maintenance activities are generally corrective maintenance which covers repairs and reburial that may be required over the lifetime of the Transmission Assets.
- 1.1.3.2 A full definition of maintain is provided in the Draft Development Consent Order (DCO) including Draft Deemed Marine Licences (document reference C1). Maintain includes inspect, upkeep, repair, adjust, and alter and further includes remove, reconstruct and replace, to the extent assessed in Volume 2 of the ES (document reference F2), Information to Support Appropriate Assessment Part 1, Part 2 and Part 3 (document reference E2.1, E2.2 and E2.3) and Stage 1 Marine Conservation Zone Assessment (document reference E4).
- 1.1.3.3 This Outline Offshore Operations and Maintenance Plan references the following documents.
- Volume 2, Chapter 1: Physical processes of the ES (document reference: F2.1).
 - Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the ES (document reference: F2.2).
 - Volume 2, Chapter 3: Fish and shellfish ecology of the ES (document reference: F2.3).
 - Volume 2, Chapter 4: Marine Mammals of the ES (document reference: F2.4).
 - Volume 2, Chapter 5: Offshore ornithology of the ES (document reference: F2.5).
 - Volume 2, Chapter 7: Shipping and navigation of the ES (document reference: F2.7).
 - Volume 2, Chapter 9: Other sea users of the ES (document reference: F2.9).

1.1.4 Structure of this document

1.1.4.1 This document is set out as follows.

- **Section 1.1** presents an introduction and background to the Transmission Assets project and the purpose of the Outline Offshore Operations and Maintenance Plan.
- **Section 1.2** presents how the Detailed Offshore Operations and Maintenance Plans will be implemented.
- **Section 1.3** presents the scope of the Transmission Assets offshore operations and maintenance activities.

1.2 Implementation

1.2.1.1 Following the granting of consent for the Transmission Assets, detailed Operations and Maintenance Plans will be prepared on behalf of Morgan OWL and/or Morecambe OWL, prior to commencement of the relevant stage of works. The detailed Operations and Maintenance Plans will require approval by the Marine Management Organisation (MMO) following consultation with relevant stakeholders.

1.2.1.2 The Applicants have defined maintenance activities as part of the project design within Volume 1, Chapter 3: Project description of the ES (document reference F1.3) which is presented in **Table 1.1**.

1.2.1.3 The implementation of cable burial and cable repair is secured by inclusion of condition 11 of the draft Development Consent Order (DCO) Schedules 14 and 15 (document reference C1). Below sets out the condition wording for condition 11:

(11) – (1) The undertaker may at any time maintain the authorised scheme, except to the extent that this licence or an agreement made under this licence provides otherwise.

(2) Maintenance works include but are not limited to—

(a) Cable remedial burial; and

(b) Cable repairs and replacement.

(3) An operations and maintenance plan substantially in accordance with the outline offshore operations and maintenance plan must be submitted to the MMO for approval in writing at least four months prior to commencement of the operation of licensed activities and must provide for review and resubmission every three years during the operational phase.

1.2.1.4 The Transmission Assets may adopt a staged approach to the approval of DCO requirements. This will enable requirements to be approved in part or in whole, prior to the commencement of the relevant stage of works in accordance with whether staged approach is to be taken to the delivery of the each of the offshore wind farms.

1.2.1.5 For works within the Transmission Assets Order Limits seaward of Mean High Water Springs, this approach will be governed by the inclusion of condition 12 of Schedules 14 and 15 of the draft DCO, which requires a

written scheme detailing the stages of construction for Project A (Morgan OWL) or Project B (Morecambe OWL) to be submitted for approval by the MMO prior to the commencement of the licensed activities.

1.2.1.6 Pre-construction and/or site preparation activities may be undertaken prior to the commencement of construction. These activities would comprise the following, in accordance with the definition of offshore site preparation works' as defined by the draft DCO and deemed marine licenses (document reference C1) and Volume 1, Chapter 3: Project Description of the ES (document reference F1.3):

- Pre-construction surveys; and
- Site preparation activities:
 - Unexploded Ordnance (UXO) clearance;
 - Boulder removal/placement and out of service cable removal;
 - Sandwave clearance and removal;
 - Dredging and pre-clearance activities;
 - Seabed excavation; and
 - Pre-lay grapnel run (PLGR).

1.3 Offshore Operations and maintenance activities

1.3.1.1 **Table 1.1** sets out the reasonably foreseeable operations and maintenance activities associated with the Transmission Assets as detailed in Volume 1, Chapter 3: Project description of the ES. The name of the operation and maintenance activity, an overview of what is to be undertaken as part of the operations and maintenance activity, and the extent of the licensable activity are described in **Table 1.1**.

1.3.1.2 In the event of unexpected maintenance activities that are not included in **Table 1.1**, the Applicants would discuss the marine licence requirements and work with the MMO to determine if the works required are listed under the marine licence as submitted by the Applicant for the Transmission Assets Application, or if a new marine licence would be required.

1.3.1.3 It should be noted that the application does include typical unscheduled, emergency or reactive maintenance (i.e. the types of activities that the offshore export cables are known to have the potential to experience), as well as scheduled or routine maintenance.

Table 1.1: Transmission Assets operations/maintenance activities and extent of licensable activity

Activity	Rationale	Extent of Marine Licensable Activity	
		Morgan Offshore Wind Project	Morecambe Offshore Windfarm
Routine inspections	Visual inspection and performance test of cables and any cable protection, CTV/SOV; inspection of entry into J-tube via ROV. Typically, routine inspections are required once per year.	Up to 35 routine inspections over the lifetime of the Morgan Offshore Wind Project.	Up to 35 routine inspections over the lifetime of the Morecambe Offshore Windfarm.
Seabed surveys	Seabed surveys (e.g. ROV or SOV) will be required to ensure that cables remain buried, and that cable protection remains intact. Typically, seabed surveys are required annually during first 5 years, then approximately every 4 years thereafter.	Up to 13 seabed surveys over the lifetime of the Morgan Offshore Wind Project.	Up to 13 seabed surveys over the lifetime of the Morecambe Offshore Windfarm.
Export cable repair (subtidal)	Repair and replacement of export cable section via techniques such as / including plough, jetting, trencher, cutter, mass flow excavator deployed from an installation vessel, CLV/ROV/ excavator, crew transfer via SOV/CTV.	Up to 14 subtidal cable repair events totalling up to 56 km of subtidal cable repair over lifetime of the Morgan Offshore Wind Project.	Up to 7 subtidal cable repair events totalling up to 28 km subtidal repair over the lifetime of the Morecambe Offshore Windfarm.

Activity	Rationale	Extent of Marine Licensable Activity	
		Morgan Offshore Wind Project	Morecambe Offshore Windfarm
Export cable reburial including remedial cable protection (subtidal)	Reburial including protection of exposed export cable section, via techniques such as / including plough, jetting, trencher, cutter, mass flow excavator deployed from an installation vessel, CLV/ROV/SOV/CTV/ excavator.	Up to 7 subtidal cable reburial events (16 km per event) totalling up to 112 km over the lifetime of the Morgan Offshore Wind Project. Should remedial cable protection be required as part of cable reburial, then the total installed cable protection during the construction stage and maintenance stage would not exceed the cable protection for ground condition parameters presented in Table 3.7 Volume 1, Chapter 3: Project description and as per CoT47 in Volume 1, Annex 5.3: Commitment register.	Up to 7 subtidal cable reburial events (3.4 km per event) totalling up to 23.8 km over the lifetime of the Morecambe Offshore Windfarm. Should remedial cable protection be required as part of cable reburial, then the total installed cable protection during the construction stage and maintenance stage would not exceed the cable protection for ground condition parameters presented in Table 3.7 Volume 1, Chapter 3: Project description and as per CoT47 in Volume 1, Annex 5.3: Commitment register.
Export cable repair (intertidal)	Repair and replacement of export cable section via techniques such as / including plough, jetting, trencher, cutter, mass flow excavator deployed from an installation vessel (if replacement and reburial required) /excavator; barges, jack ups or multi-cats.	Up to 4 intertidal cable repair events totalling 4 km over the lifetime of the Morgan Offshore Wind Project.	Up to 4 intertidal cable repair events totalling 9.6 km over the Morecambe Offshore Windfarm.
Export cable reburial (intertidal)	Reburial of exposed export cable section, via techniques such as / including plough, jetting, trencher, cutter, mass flow excavator deployed from an installation vessel /excavator; barges, jack ups or multi-cats.	Up to 28 intertidal cable reburial events totalling up to 7 km over the lifetime of the Morgan Offshore Wind Project.	Up to 14 intertidal cable reburial events totalling up to 3.5 km over the Morecambe Offshore Windfarm.