

# 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.
<a href="#">Morecambe OWL</a>	<a href="#">Morecambe Offshore Windfarm Limited is owned by Copenhagen Infrastructure Partners' (CIP) fifth flagship fund, Copenhagen Infrastructure V (CI V).</a>
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.
<a href="#">Morgan OWL</a>	<a href="#">Morgan Offshore Wind Limited is a joint venture between JERA Nex bp (JNbp) and Energie Baden-Württemberg AG (EnBW).</a>
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 <sup>2</sup>	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 JERA Nex bp (JNbp))~~ 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.,~~ owned by Copenhagen Infrastructure Partners' (CIP) fifth flagship fund, Copenhagen Infrastructure V (CI V), 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~~[provide](#) 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 1.4** 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) [in](#) Schedules 14 and 15 (document reference C1). Below sets out the condition wording for condition 11 [as updated at Deadline 4](#):

*(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~~[six](#) months prior to commencement of the operation of licensed activities and must provide for review and resubmission every three years during the operational phase.*

*[\(4\) The MMO must determine an application for approval made under this condition within a period of six months commencing on the date the application is received by the MMO, unless otherwise agreed in writing with the undertaker. All operation and maintenance activities must be carried out in accordance with the approved plan.](#)*

*[\(5\) An annual maintenance report must be submitted to the MMO within one month following the first anniversary of the date of first operation of the authorised development \(notified in accordance with Condition 28](#)*



(Completion of construction)) and every year thereafter until the permanent cessation of operation.

(6) The annual maintenance report in sub-paragraph (5) must provide a record of the licensed activities during the preceding year, the timing of activities and methodologies used.

(7) Every fifth year, the undertaker must submit to the MMO, within one month of the anniversary of the date of first operation of authorised development (notified in accordance with Condition 28 (Completion of construction)), a consolidated maintenance report which will—

(a) include a review of licensed activities undertaken during the preceding five years with reference to the reports submitted in accordance with sub-paragraph (5) of this licence; and

(b) reconfirm the applicability of the methodologies and frequencies of the licensed activities permitted by this licence for the duration of this licence.

- 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 Commitments

1.3.1.1 Commitments secured within the Commitments Register (document reference F1.5.3) relevant to the offshore operations and maintenance activities are set out below:

- CoT47: The Outline Offshore Cable Specification and Installation Plan (CSIP) includes measures to limit the extent of cable protection to 3% of the offshore export cable route within the Fylde (Marine Conservation Zone) MCZ (excluding cable crossings). Within the Fylde MCZ, external cable protection will only be used where deemed to be essential, e.g. for cable crossings or in the instance that adequate burial / reburial is not possible for any section of the route through the Fylde MCZ. The Outline CSIP also includes measures to limit sandwave clearance to up to 5% of the offshore export cable corridor route within the Fylde MCZ. Material arising from sandwave clearance in the Fylde MCZ will be deposited within the Fylde MCZ. The requirements for cable protection and sandwave clearance will be informed through the undertaking of survey works pre-construction. Detailed CSIP(s) will be developed in accordance with the Outline CSIP.
- CoT71: An Outline Offshore Operation and Maintenance Plan has been prepared and submitted as part of the application for development consent [this document]. Detailed Offshore Operation and Maintenance Plan(s) will be produced prior to entering the operation and maintenance phase.
- CoT133: No cable/scour protection shall be permanently deployed in the intertidal area between Mean Low Water Springs (MLWS) and Mean High Water Springs (MHWS).
- CoT135: The Applicants will not plan routine O&M activities in the original Liverpool Bay SPA (as designated in 2010), or within a 2 km buffer between November and March (inclusive) unless in urgent circumstances.

## 1.3.1.4 Offshore Operations and maintenance activities

~~1.3.1.1~~ 1.4.1.1 **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~~ 1.4.1.2 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~~[Applicants](#) for the Transmission Assets Application, or if a new marine licence would be required.

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), such as cable repair or the reburial of cables that have become exposed and which could present a risk to navigation, which are included in Table 1.1, as well as scheduled or routine maintenance.

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

Activity	Rationale	<a href="#">Where the activity is assessed within the ES</a>	<a href="#">Marine Licence Required</a>	<a href="#">Consultation required</a>	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.	<p><del>Up to 35 routine inspections over the lifetime of the Morgan Offshore Wind Project.</del> <a href="#">Up to 35 routine inspections over the lifetime of the Morgan Offshore Wind Project.</a></p> <ul style="list-style-type: none"> <li>Section 7.11 of Volume 2, Chapter 7: Shipping and navigation of the <del>lifetime</del> ES (document reference F2.7)</li> </ul> <p><a href="#">Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:</a></p> <ul style="list-style-type: none"> <li>Section 3.11 of Volume 2, Chapter 3: Fish and shellfish ecology of the <del>Morgan</del> ES (document reference F2.3)</li> <li>Section 4.11 of Volume 2, Chapter 4: Marine mammals of the ES (document reference F2.4)</li> <li>Section 5.11 of Volume 2, Chapter 5: Offshore <del>Wind</del> <a href="#">Project ornithology of</a></li> </ul>	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)	No consultation is to be undertaken regarding routine inspections.	<a href="#">Up to 35 routine inspections over the lifetime of the Morgan Offshore Wind Project.</a>	Up to 35 routine inspections over the lifetime of the Morecambe Offshore Windfarm.

Activity	Rationale	<a href="#">Where the activity is assessed within the ES</a>	<a href="#">Marine Licence Required</a>	<a href="#">Consultation required</a>	Extent of Marine Licensable Activity	
					Morgan Offshore Wind Project	Morecambe Offshore Windfarm
		<a href="#">the ES (document reference F2.5).</a> <a href="#">Increased risk of introduction and spread of invasive non-native species (INNS):</a> <ul style="list-style-type: none"> <li><a href="#">Section 2.11 of Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the ES (document reference F2.2).</a></li> </ul>				
Seabed surveys	<a href="#">Seabed Geophysical surveys (e.g. of the seabed surveys (with ROV or SOV) where required))</a> 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. <a href="#">And there are no</a>	<a href="#">Hazard to navigation – see:</a> <ul style="list-style-type: none"> <li><a href="#">Section 7.11 Volume 2, Chapter 7: Shipping and navigation of the ES (document reference F2.7)</a></li> </ul> <a href="#">Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:</a> <ul style="list-style-type: none"> <li><a href="#">Section 3.11 Volume 2, Chapter 3: Fish and shellfish ecology of the</a> </li> </ul>	<a href="#">Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)</a>	<a href="#">Notification to MMO.</a>	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.

Activity	Rationale	<u>Where the activity is assessed within the ES</u>	<u>Marine Licence Required</u>	<u>Consultation required</u>	Extent of Marine Licensable Activity	
					Morgan Offshore Wind Project	Morecambe Offshore Windfarm
	<a href="#">removal/deposit of material.</a>	<a href="#">ES (document reference F2.3)</a> <ul style="list-style-type: none"> <li><a href="#">Section 4.11 Volume 2, Chapter 4: Marine mammals of the ES (document reference F2.4)</a></li> <li><a href="#">Section 5.11 Volume 2, Chapter 5: Offshore ornithology of the ES (document reference F2.5)</a></li> </ul> <a href="#">Increased risk of introduction and spread of invasive non-native species (INNS):</a> <ul style="list-style-type: none"> <li><a href="#">Section 2.11 of Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the ES (document reference F2.2).</a></li> </ul>				
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	<a href="#">Seabed disturbance, increased suspended sediment, concentration and associated deposition, disturbance and injury from vessel, and temporary habitat loss – see:</a>	<a href="#">Licensable and included in this application</a>	<a href="#">Consultation with the MMO and relevant stakeholders to be undertaken regarding subtidal export cable repair.</a>	Up to 14 subtidal cable repair events totalling up to 56 km of subtidal cable repair over lifetime of the Morgan Offshore Wind Project.  <a href="#">Up to 14 repair events (one repair event for</a>	Up to 7 subtidal cable repair events totalling up to 28 km subtidal repair over the lifetime of the Morecambe Offshore Windfarm.  <a href="#">Up to seven repair events (one repair for</a>



Activity	Rationale	<a href="#">Where the activity is assessed within the ES</a>	<a href="#">Marine Licence Required</a>	<a href="#">Consultation required</a>	Extent of Marine Licensable Activity	
					Morgan Offshore Wind Project	Morecambe Offshore Windfarm
	installation vessel, CLV/ROV/ excavator, crew transfer via SOV/CTV.	<ul style="list-style-type: none"> <li><a href="#">Section 1.10 of Volume 2, Chapter 1: Physical processes of the ES (document reference F2.1)</a></li> <li><a href="#">Section 2.11 of Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the ES (document reference F2.2)</a></li> <li><a href="#">Section 3.11 of Volume 2, Chapter 3: Fish and shellfish ecology of the ES (document reference F2.3)</a></li> <li><a href="#">Section 5.11 of Volume 2, Chapter 5: Offshore ornithology of the ES (document reference F2.5)</a></li> </ul> <p><a href="#">Hazard to navigation – see:</a></p> <ul style="list-style-type: none"> <li><a href="#">Section 7.11 of Volume 2, Chapter 7: Shipping and navigation of the ES (document reference F2.7)</a></li> <li><a href="#">Section 10.11 of Volume 2, Chapter 10:</a></li> </ul>			<a href="#">each of the four export cables every 10 years) affecting up to 4 km per repair event with a 20 m width of disturbance;</a>	<a href="#">each of the two export cables every 10 years) affecting up to 4 km per repair event with a 20 m width of disturbance</a>

Activity	Rationale	<a href="#">Where the activity is assessed within the ES</a>	<a href="#">Marine Licence Required</a>	<a href="#">Consultation required</a>	Extent of Marine Licensable Activity	
					Morgan Offshore Wind Project	Morecambe Offshore Windfarm
		<a href="#">Other sea users of the ES (document reference F2.9).</a>				
Export cable reburial including <a href="#">deployment of remedial cable protection</a> (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.	<a href="#">Seabed disturbance – see:</a> <ul style="list-style-type: none"> <li><a href="#">Section 1.10 of Volume 2, Chapter 1: Physical processes of the ES (document reference F2.1)</a></li> <li><a href="#">Section 2.11 of Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the ES (document reference F2.2)</a></li> <li><a href="#">Section 3.11 of Volume 2, Chapter 3: Fish and shellfish ecology of the ES (document reference F2.3)</a></li> </ul> <a href="#">Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:</a>	<a href="#">Licensable and included in this application</a> <a href="#">Deployment of remedial cable protection is licensable and included in this application with the following limitations:</a> <ul style="list-style-type: none"> <li><a href="#">Outside the Fylde MCZ: deployment of cable protection is limited to the first 10 years of the O&amp;M phase / extent of the marine licensable activity (whichever is first)</a></li> </ul>	<a href="#">Consultation with the MMO and relevant stakeholders to be undertaken regarding subtidal export cable reburial and remedial cable protection.</a>	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 <a href="#">deployment of remedial cable protection</a> 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 <del>for</del> <a href="#">ground condition</a> parameters presented in Table 3.7 <a href="#">and Table 3.8 of the</a> Volume 1, Chapter 3: Project description ( <a href="#">document reference: F1.3</a> ) 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 <del>for</del> <a href="#">ground condition</a> parameters presented in Table 3.7 <a href="#">and Table 3.8 of the</a> Volume 1, Chapter 3: Project description ( <a href="#">document reference: F1.3</a> ) and as per CoT47 in Volume 1, Annex 5.3: Commitment register.

Activity	Rationale	<u>Where the activity is assessed within the ES</u>	<u>Marine Licence Required</u>	<u>Consultation required</u>	<u>Extent of Marine Licensable Activity</u>	
					<u>Morgan Offshore Wind Project</u>	<u>Morecambe Offshore Windfarm</u>
		<ul style="list-style-type: none"> <li>Section 3.11 of Volume 2, Chapter 3: Fish and shellfish ecology of the ES (document reference F2.3)</li> <li>Section 4.11 of Volume 2, Chapter 4: Marine mammals of the ES (document reference F2.4)</li> <li>Section 5.11 of Volume 2, Chapter 5: Offshore ornithology of the ES (document reference F2.5)</li> </ul>	<ul style="list-style-type: none"> <li>Inside the Fylde MCZ: deployment of cable protection is limited to the first 2 years of the O&amp;M phase / extent of the marine licensable activity (whichever is first)</li> </ul>		<p>(document reference: F1.5.3). That footprint and volume is:</p> <ul style="list-style-type: none"> <li>Outside Fylde MCZ: 442,300 m<sup>2</sup> / 466,900 m<sup>3</sup></li> <li>Inside Fylde MCZ: 23,200 m<sup>2</sup> / 23,200 m<sup>3</sup></li> </ul>	<p>(document reference: F1.5.3). That footprint and volume is:</p> <ul style="list-style-type: none"> <li>Outside Fylde MCZ: 103,800 m<sup>2</sup> / 114,600 m<sup>3</sup></li> <li>Inside Fylde: 7,200 m<sup>2</sup> / 7,200 m<sup>3</sup></li> </ul>
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.	<p><u>Seabed disturbance, increased suspended sediment, concentration and associated deposition, disturbance and injury from vessel, and temporary habitat loss – see:</u></p> <ul style="list-style-type: none"> <li>Section 1.10 of Volume 2, Chapter 1: Physical processes of the ES (document reference F2.1)</li> <li>Section 2.11 of Volume 2, Chapter 2: Benthic</li> </ul>	<u>Licensable and included in this application</u>	<u>Consultation with the MMO and relevant stakeholders to be undertaken regarding intertidal export cable repair.</u>	<p>Up to 4 intertidal cable repair events totalling 4 km over the lifetime of the Morgan Offshore Wind Project.</p> <p><u>Up to four repair events (one repair event every ten years) affecting up to 1 km of intertidal cables per event with a 20 m width of disturbance.</u></p> <p><u>The indicative maximum seabed footprint per jack-up vessel is 16m<sup>2</sup> and</u></p>	<p>Up to 4 intertidal cable repair events totalling 9.6 km over the Morecambe Offshore Windfarm.</p> <p><u>Up to four repair events (one repair event every 10 years) affecting up to 2.4 km of intertidal cables per repair event with a 20 m width of disturbance.</u></p> <p><u>The indicative maximum seabed footprint per jack-up vessel in 16m<sup>2</sup> and</u></p>

Activity	Rationale	<a href="#">Where the activity is assessed within the ES</a>	<a href="#">Marine Licence Required</a>	<a href="#">Consultation required</a>	Extent of Marine Licensable Activity	
					Morgan Offshore Wind Project	Morecambe Offshore Windfarm
		<a href="#">subtidal and intertidal ecology of the ES (document reference F2.2)</a> <ul style="list-style-type: none"> <li>Section 3.11 of Volume 2, Chapter 3: Fish and shellfish ecology of the ES (document reference F2.3)</li> <li>Section 5.11 of Volume 2, Chapter 5: Offshore ornithology of the ES (document reference F2.5)</li> </ul> <a href="#">Hazard to navigation – see:</a> <ul style="list-style-type: none"> <li>Section 7.11 of Volume 2, Chapter 7: Shipping and navigation of the ES (document reference F2.7)</li> <li>Section 10.11 of Volume 2, Chapter 10: Other sea users of the ES (document reference F2.9).</li> </ul>			<a href="#">64m<sup>2</sup> for the indicative total maximum seabed footprint for jack up vessels for the Morgan Offshore Wind Project.</a>	<a href="#">64m<sup>2</sup> for the indicative total maximum seabed footprint for jack up vessels for the Morecambe Offshore Windfarm.</a>
Export cable reburial (intertidal)	Reburial of exposed export cable section, via techniques such as / including	<a href="#">Seabed disturbance – see:</a> <ul style="list-style-type: none"> <li>Section 1.10 of Volume 2, Chapter 1: Physical</li> </ul>	<a href="#">Licensable and included in this application</a>	<a href="#">Consultation with the MMO and relevant stakeholders to</a>	Up to 28 intertidal cable reburial events totalling up to 7 km over the	Up to 14 intertidal cable reburial events totalling up to 3.5 km over the

Activity	Rationale	<u>Where the activity is assessed within the ES</u>	<u>Marine Licence Required</u>	<u>Consultation required</u>	Extent of Marine Licensable Activity	
					Morgan Offshore Wind Project	Morecambe Offshore Windfarm
	plough, jetting, trencher, cutter, mass flow excavator deployed from an installation vessel /excavator; barges, jack ups or multi-cats.	<p><a href="#">processes of the ES (document reference F2.1)</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Section 2.11 of Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the ES (document reference F2.2)</a></li> <li>• <a href="#">Section 3.11 of Volume 2, Chapter 3: Fish and shellfish ecology of the ES (document reference F2.3)</a></li> </ul> <p><a href="#">Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:</a></p> <ul style="list-style-type: none"> <li>• <a href="#">Section 3.11 of Volume 2, Chapter 3: Fish and shellfish ecology of the ES (document reference F2.3)</a></li> <li>• <a href="#">Section 4.11 of Volume 2, Chapter 4: Marine mammals of the ES (document reference F2.4)</a></li> </ul>		<a href="#">be undertaken regarding intertidal export cable re-burial.</a>	lifetime of the Morgan Offshore Wind Project.	Morecambe Offshore Windfarm.

Activity	Rationale	<a href="#">Where the activity is assessed within the ES</a>	<a href="#">Marine Licence Required</a>	<a href="#">Consultation required</a>	Extent of Marine Licensable Activity	
					Morgan Offshore Wind Project	Morecambe Offshore Windfarm
		<ul style="list-style-type: none"> <li><a href="#">Section 5.11 of Volume 2, Chapter 5: Offshore ornithology of the ES (document reference F2.5)</a></li> </ul>				
<a href="#">UXO clearance</a>	<a href="#">UXO clearance via high order or low order clearance methods</a>	<a href="#">No UXO clearance events assessed during the operation and maintenance period, as UXO clearance is only considered under site-preparation activities.</a>	<a href="#">Should UXO Clearance be required during O&amp;M phase (via high or low order methods), authorisation would be sought through a separate marine licence.</a>	<a href="#">Consultation with the MMO and relevant stakeholders to be undertaken</a>	<a href="#">N/A</a>	<a href="#">N/A</a>