



MORAY EAST

OFFSHORE WINDFARM

Wind Farm Operation and Maintenance Programme

Moray East Offshore Wind Farm

June 2022

Moray Offshore Windfarm (East) Limited

Produced by Moray Offshore WindFarm (East) Limited	
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List of Abbreviations

AC	Alternating Current
AMS	Asset Management System
CaP	Cable Plan
CFMS	Commercial Fisheries Mitigation Strategy
CMMS	Computerised Maintenance Management System
CTV	Crew Transfer Vessel(s)
DSLP	Development Specification and Layout Plan
EDA	Eastern Development Area
EMP	Environmental Management Plan
EMS	Environmental Management System
ERCoP	Emergency Response and Cooperation Plan
ERP	Emergency Response Plan
ES	Environmental Statement
FLO	Fisheries Liaison Officer
HSE	Health and Safety Executive
HSEQ	Health, Safety, Environment and Quality
HV	High voltage
IAC	Inter-Array Cable
JNCC	Joint Nature Conservation Committee
LMP	Lighting and Marking Plan
LOLER	Lifting Operations and Lifting Equipment Regulations
MARP	Marine Archaeological Reporting Plan
MBES	Multibeam Echo Sounder
MCA	Maritime and Coastguard Agency
MCC	Marine Coordination Centre
MINNS	Marine Invasive Non-Native Species
Moray East	Moray East Offshore Windfarm (East) Limited
MPCP	Marine Pollution Contingency Plan

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MS-LOT	Marine Scotland Licensing Operations Team
NLB	Northern Lighthouse Board
NSP	Navigational Safety Plan
O&M	Operation and Maintenance
OfTI	Offshore Transmission Infrastructure
OMP	Operation and Maintenance Programme
OSP	Offshore Substation Platform
PEMP	Project Environmental Monitoring Programme
ROV	Remotely Operated Vehicle
RSPB	Royal Society for the Protection of Birds
SCADA	Supervisory Control and Data Acquisition
SEPA	Scottish Environment Protection Agency
SNH	Scottish Natural Heritage (now NatureScot)
SOV	Service Operation Vessel(s)
SRL	Safety Retracting Line
SSS	Side Scan Sonar
TEC	Transmission Entry Capacity
TI	Transmission Infrastructure
TRRMP	Television and Radio Reception Mitigation Plan
TTP	Traffic Transportation Plan
VMP	Vessel Management Plan
WMP	Waste Management Plan
WSI	Written Scheme of Investigation
WTG	Wind Turbine Generator

Definitions

The following definitions have been used throughout this document with respect to the company, the consented wind farms and how these definitions have changed since submission of the Moray East Environmental Statement (ES) in 2012, the Moray East Modified Transmission Infrastructure ES in 2014 and the Moray East Offshore Substation Platform (OSP) Environmental Report in 2017.

- **Moray Offshore Windfarm (East) Limited (formerly known as Moray Offshore Renewables Limited)**
– the legal entity submitting this document;
- **Moray East Offshore Wind Farm** - the wind farm that has been developed in the Moray East site (also referred to as the Wind Farm);
- **The Moray East site** - the area in which the Moray East Offshore Wind Farm is located. Section 36 Consents and associated Marine Licences to construct and operate up to three generating stations on the Moray East site were granted in March 2014. At that time the Moray East site was known as the “Eastern Development Area (EDA)” and was made up of three sites known as the Telford, Stevenson and MacColl offshore wind farm sites. The Section 36 Consents and Marine Licences were subsequently varied in March 2018, with the Marine Licences additionally varied in July 2019, April 2020, October (MacColl)/November (Telford & Stevenson) 2020, and January 2022;
- **Telford, Stevenson and MacColl wind farms** – these names refer to the three consented offshore wind farm sites located within the Moray East site;
- **Transmission Infrastructure (TI)** - includes both offshore and onshore electricity TI for the consented Telford, Stevenson and MacColl wind farms. Includes connection to the national electricity transmission system near New Deer in Aberdeenshire encompassing Alternating Current (AC) OSPs, AC export cables offshore to landfall point at Inverboydie continuing onshore to the AC collector station (onshore substation) and the additional regional Transmission Operator substation near New Deer. A Marine Licence for the offshore TI was granted in September 2014 (Modified Offshore Transmission Infrastructure (OfTI) Marine Licence). A further Marine Licence for two additional distributed OSPs was granted in September 2017. Both Licences were subsequently varied in July 2019 and the Licence for the offshore TI was additionally varied in December 2020, and January 2022. The onshore TI was granted Planning Permission in Principle in September 2014 by Aberdeenshire Council and a Planning Permission in Principle under Section 42 in June 2015. In June 2018 Aberdeenshire Council granted Approval of Matters Specified in Conditions for both the cable route and substation;
- **Offshore Transmission Infrastructure (OfTI)** – the offshore elements of the TI comprising AC OSPs and AC export cables offshore to landfall (for the avoidance of doubt some elements of the OfTI are installed in the Moray East site);
- **Moray East ES 2012** – the ES for the Telford, Stevenson and MacColl wind farms and associated TI, submitted August 2012;
- **Moray East Modified TI ES 2014** – the ES for the TI works in respect to the Telford, Stevenson and MacColl wind farms, submitted June 2014;
- **Moray East OSP Environmental Report 2017** – the environmental report comprising of the “Statement Regarding Implications for the Modified TI ES 2014 and HRA”. The report was produced in support of the application submitted in May 2017 for the Moray East OSP Marine Licence;
- **The Development** – the Moray East Offshore Wind Farm and OfTI;
- **Design Envelope** - the range of design parameters used to inform the assessment of impacts;
- **OfTI Corridor** – the export cable route corridor, i.e. the OfTI area as assessed in the Moray East Modified TI ES 2014 excluding the Moray East site;

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- **the Applications** – (1) the Application letters and ES submitted to the Scottish Ministers on behalf of Telford Offshore Windfarm Limited, Stevenson Offshore Windfarm Limited and MacColl Offshore Windfarm Limited, on 2 August 2012 and the Additional Ornithology Information submitted to the Scottish Ministers by Moray Offshore Renewables Limited on the 17 June 2013; (2) the Section 36 Consents Variation Application Report for Telford, Stevenson and MacColl Offshore Wind Farms dated December 2017 and (3) the Marine Licence Applications and associated documents submitted for the OfTI and OSP Licences in April 2014 and May 2017 respectively;
- **Moray East Offshore Wind Farm Section 36 Consents and Marine Licences**– are comprised of the following:

Section 36 Consents:

- Section 36 consent for the Telford Offshore Wind Farm (as varied) – consent under Section 36 of the Electricity Act 1989 for the construction and operation of the Telford Offshore Wind Farm assigned to Moray East on 19 June 2018.
- Section 36 consent for the Stevenson Offshore Wind Farm (as varied) – consent under Section 36 of the Electricity Act 1989 for the construction and operation of the Stevenson Offshore Wind Farm assigned to Moray East on 19 June 2018.
- Section 36 consent for the MacColl Offshore Wind Farm (as varied) – consent under Section 36 of the Electricity Act 1989 for the construction and operation of the MacColl Offshore Wind Farm assigned to Moray East on 19 June 2018.

Marine Licences

- Marine Licence for the Telford Offshore Wind Farm (as varied) – Licence Number: MS-00009426 (formerly MS-00009051 and 04629/20/0) – granted under the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009, Part 4 Marine Licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.
- Marine Licence for the Stevenson Offshore Wind Farm (as varied) – Licence Number: MS-00009425 (formerly MS-00008985 and 04627/20/0) – granted under the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009, Part 4 Marine Licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.
- Marine Licence for the MacColl Offshore Wind Farm (as varied) – Licence Number: MS-00009424 (formerly MS-00008972 and 04628/20/0) – granted under the Marine (Scotland) Act 2010 and Marine and Coastal Access Act 2009, Part 4 Marine Licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.

- **OfTI Licences** – are comprised of the following:

- Marine Licence for the Offshore Transmission infrastructure (as varied) – Licence Number MS-00009423 (formerly MS-00008919 and 05340/19/0) – granted under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 Marine Licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area (referred to as the “OfTI Marine Licence”).
- Marine Licence for two additional distributed OSPs (as varied) – Licence Number 06347/19/0 (formerly 06347/17/1) – granted under the Marine (Scotland) Act 2010 &

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Marine and Coastal Access Act 2009, Part 4 Marine Licensing for marine renewables construction, operation and maintenance works and the deposit of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area (referred to as the “OSP Marine Licence”).

Executive Summary

Moray East is a joint venture partnership between OceanWinds Offshore, Diamond Generating Europe and China Three Gorges and has been established to develop, finance, construct, operate, maintain and decommission the Moray East Offshore Wind Farm.

The Moray East Offshore Wind Farm is located on the Smith Bank in the outer Moray Firth. It is located 12 nautical miles (nm) (approx. 22 km) from the Caithness Coast, covers an area of 86 square nautical miles or 295 square km, and ranges from 37 - 57 m in water depth.

The Development consists of 100 Wind Turbine Generators (WTGs), three Offshore Substation Platforms (OSPs), inter-array and interconnector cable circuits within the Wind Farm, and three offshore export cable circuits. The three export cable circuits run from the Moray East Wind Farm to a landfall location in Boyndie Bay on the Aberdeenshire Coast.

This Wind Farm Operation and Maintenance Programme (OMP) has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 Consents and Wind Farm Marine Licences issued to Moray Offshore Windfarm (East) Limited (Moray East). The overall aim of this Wind Farm OMP is to set out a plan for the Operation and Maintenance (O&M) activities of the Wind Farm assets to be applied during the operations of the Moray East site.

A separate OMP was prepared for the Offshore Transmission Infrastructure (OfTI) assets.

Aside from the Section 36 Consents and wind farm and OfTI Marine Licences conditions, compliance of this Wind Farm OMP with the Application, and the Moray East ES 2012, has also been reviewed.

1 Introduction

1.1 Background

Moray East is a joint venture partnership between OceanWinds Offshore, Diamond Generating Europe and China Three Gorges and has been established to develop, finance, construct, operate, maintain and decommission the Moray East Offshore Wind Farm.

The Moray East site is located on the Smith Bank in the outer Moray Firth. It is located 12 nautical miles (nm) (approx. 22 km) from the Caithness Coast, covers an area of 86 square nautical miles or 295 square km, and ranges from 37 - 57 m in water depth.

The Development consists of 100 Wind Turbine Generators (WTGs), three Offshore Substation Platforms (OSPs), inter-array and interconnector cable circuits within the Wind Farm, and three offshore export cable circuits. The three export cable circuits run from the Moray East Wind Farm to a landfall location in Boyndie Bay on the Aberdeenshire Coast.

Section 36 Consents were granted in March 2014 for the construction and operation of three offshore wind farms (Telford, Stevenson and MacColl) within the Moray East site. Marine Licences for the three offshore wind farms were granted in September 2014 (together the Section 36 Consents and Marine Licences for the Wind Farm are referred to as the Moray East Offshore Wind Farm Consents). The Wind Farm Section 36 consents were varied in March 2018. The Marine Licences for Telford, Stevenson and MacColl were subsequently varied in July 2019, April, October (MacColl) and November (Telford & Stevenson) 2020, and January 2022.

A Marine Licence for the Modified Offshore Transmission Infrastructure (OfTI) was granted in September 2014, under the Marine (Scotland) Act 2010 & the Marine and Coastal Access Act 2009, Part 4 Marine Licensing, and subsequently varied in 2019, December 2020, and January 2022 (Modified OfTI Licence), a Marine Licence for two additional distributed offshore substation platforms (OSPs) was granted in September 2017 and subsequently varied in July 2019 (together these are referred to as the OfTI Marine Licences).

1.2 Objectives of this Document

The Section 36 Consents and Marine Licences contain a number of conditions that must be discharged through approval by the Scottish Ministers of specified plans and other matters throughout various stages pre-construction, construction, operation and maintainence of the wind farm. One such requirement of the Section 36 Consents is the approval and compliance with an Operation and Maintenance Programme (OMP), the purpose of which is to set out the procedures and good working practices for the Operation and Maintenance (O&M) activities of the Wind Farm (i.e. WTGs, substructure jackets, inter-array and interconnector cables).

The Wind Farm OMP was submitted to the Scottish Ministers three months prior to the commissioning of the first WTG, and is to be updated three months following the completion of construction works (this revision).

The relevant conditions setting out the requirement for OMP approval, and which are discharged by this OMP, are set out in full in Table 1-1 below. Table 1-1 also references where the requirements of the consent conditions have been addressed in this Wind Farm OMP.

Table 1-1: Consent Conditions

Consent Document	Condition Reference	Condition Text	Reference to relevant Section of the OMP
	7	The Development must be constructed and operated in accordance with the terms of the Application and related	This document is consistent with the

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Consent Document	Condition Reference	Condition Text	Reference to relevant Section of the OMP
Section 36 Consents	16	documents, including the accompanying ES, the Additional Ornithological Information, the Section 36 Consents Variation Application Report for Telford, Stevenson and MacColl Offshore Wind Farms dated December 2017 and Annex 1 of this letter, except in so far as amended by the terms of this section 36 consent.	terms of the Application and related documents
		The Company must, no later than 3 months prior to the Commissioning of the first WTG, submit an Operation and Maintenance Programme ("OMP"), in writing, to the Scottish Ministers for their written approval.	The Wind Farm OMP was approved by the Scottish Ministers on 30 September 2021
		Such approval may only be granted following consultation by the Scottish Ministers with the JNCC ¹ , SNH ² , SEPA, MCA, NLB, RSPB Scotland, the Planning Authority and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.	Consultation was undertaken by the Scottish Ministers, with updates incorporated to the OMP in June 2021 (Version 2), approved on 30 September. Future updates to the OMP may be subject to further consultation.
		The OMP must set out the procedures and good working practices for the operations and maintenance of the WTG's, substructures, inter-array cable network and interconnector cables of the Development.	Sections 5, 6, 7 and 8
		Environmental sensitivities which may affect the timing of the operation and maintenance activities must be considered in the OMP.	Section 6
		Operation and maintenance of the Development must, at all times, proceed in accordance with the approved OMP (as updated and amended from time to time by the Company). Any updates or amendments made to the OMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.	Section 3 and Section 8
		The OMP must, so far as is reasonably practicable, be consistent with the EMP, the PEMP, the VMP, the NSP, the CaP and the LMP.	This document is consistent with the other plans.
Wind Farm Marine Licence	3.2.3.6 of each Marine Licence	The Licensee must provide an Operation and Maintenance Programme to the Licencing Authority within 3 months of the Completion of the Works.	This document sets out the Wind Farm OMP for approval by the Scottish Ministers following the Completion of Works
		Notification must be provided at least 3 months in advance of any subsequent maintenance works where any additional deposits are required.	Section 7

¹ Although the Joint Nature Conservation Council (JNCC) are named as consultee within the relevant OMP conditions, Moray East has been advised that the Offshore Renewable Energy Casework responsibility has been delegated from JNCC to SNH from 1st April 2017

² Scottish Natural Heritage (SNH) is now operating under the name NatureScot.

Consent Document	Condition Reference	Condition Text	Reference to relevant Section of the OMP
		In the event that these works are not assessed in the Application and are considered by the Licencing Authority as being material they will require further Marine Licences.	Section 3 and Section 7

1.3 Scope of the OMP

The Wind Farm OMP provides an overview of the intended programme and timing of O&M activities undertaken on the Moray East Offshore Wind Farm assets. The assets comprise of WTGs, WTG jacket substructures, a network of subsea cables connecting the WTGs to the OSPs (inter-array cables and interconnectors, including the 66 kV switchgear at the OSPs).

1.4 Guidance and Methodology

The following key guidance documents have been considered in completing this OMP:

- UK Wind Turbine Safety Rules, Fourth edition (Energy Institute, 2021);
- Offshore Wind and Marine Energy H&S Guidelines (RenewableUK, 2014);
- Integrated Offshore Emergency Response – Renewables (RenewableUK, 2016)
- Safety Circular: Notices to Mariners. Guidance for Offshore Wind & Marine Projects (RenewablesUK, 2013a);
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (FLOWW, 2014);
- Guidelines for Selection and Operation of Jack-ups in Marine Renewable Energy Industry (RenewableUK, 2013b);
- First Aid Needs Assessment: Guidelines for Renewable Energy Projects (RenewableUK, 2013c);
- Vessel Safety Guide: Guidance for Offshore Renewable Energy Developers (RenewableUK, 2015); and
- MGN 654. Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response (MCA, 2021)

1.5 Links with Other Consent Plans and Procedures

This Wind Farm OMP forms part of a suite of approved documents (the Consent Plans) that will provide the framework to control and mitigate the effects of the operations of the Development, namely the other consent plans required under the Section 36 Consents and Wind Farm Marine Licences.

The Wind Farm OMP, in line with Condition 16 of the Section 36 Consents and Condition 3.2.3.6 of the Wind Farm Marine Licences, and in so far as is reasonably practicable, will be consistent with the Environmental Management Plan (EMP), the Project Environmental Monitoring Programme (PEMP), the Vessel Management Plan (VMP), the Navigational Safety Plan (NSP), the Wind Farm Cable Plan (CaP) and the Lighting and Marking Plan (LMP) offshore consent plans. These and other relevant plans and procedures are listed in Table 1-2 and Table 1-3 below.

Table 1-2 Lists the relevant consent plans with linkages to the Wind Farm P OMP

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Table 1-2: Plans and procedures linked with the OMP

Condition	Consent Plan/ Ref	Consistency with and linkage to OMP
Section 36 Consents: Condition 18	Wind Farm CaP 8460001-PCA0010-MWE-REP-006	The Wind Farm CaP provides detailed specifications of the cables, their installation, burial and/or protection, their interactions with the environment and safety considerations, adding to the information contained in this Wind Farm OMP. The inter-array and interconnectors cable layout is also presented in line with the cable arrangements provided within the OMP.
Section 36 Consents: Condition 14	EMP 8460001-PCA0010-MWE-REP-001	The EMP sets out the environmental management framework for the construction and operation of the Wind Farm and OfTI. This Wind Farm OMP must be consistent with the EMP as is reasonably practicable.
Section 36 Consents: Condition 15 and Condition 17	VMP & NSP 8460001-PCA0010-ANA-REP-002	The VMP considers the management and coordination of vessels, while the NSP sets out the navigational safety measures to be applied for the Development. As far as is reasonably practicable, the Wind Farm OMP must be consistent with the Wind Farm VMP and NSP.
Section 36 Consents: Condition 19	LMP 8460001-PCA0010-ANA-REP-001	The LMP provides details of lighting and marking of the Wind Farm structures (where applicable) during construction and operation of the Development. The Wind Farm OMP will as far as reasonably practicable be consistent with the LMP
Section 36 Consents: Condition 26	PEMP 8460001-PCA0010-MOR-REP-016	The PEMP provides an overview of environmental monitoring for the project including bird and marine mammal monitoring, seabed scour and local sediment deposition monitoring. The Wind Farm OMP will as far as reasonably practicable be consistent with the PEMP.

Review of the Consent Plans will take place after any significant changes in the Development details to ensure consistency. Any updates to these documents, or the Wind Farm OMP, will be reflected where required in the associated documents in accordance with the procedure set out in Section 3.

Table 1-3: Other plans and procedures relevant to the OMP

Reference	Consent Plan/ Procedure	Description
Consent Plans		
8460001-PCA0010-RHD-REP-002	Marine Pollution Contingency Plan (MPCP)	The MPCP provides the overarching framework for pollution prevention measures and contingency plans during the construction and operation of the Development.
8460001-PCA0010-MWE-REP-008	Commercial Fisheries Mitigation Strategy (CFMS)	The CFMS sets out the Company mitigation strategy for commercial fisheries that may be adversely affected by the Development.
8460001-PCA0010-RHD-REP-001	Marine Archeology Reporting Protocol (MARP) / Written Scheme of Investigation (WSI)	Provides procedures for reporting and investigating unexpected archaeological discoveries found during any project activities.

Reference	Consent Plan/ Procedure	Description
8460001-PCA0010-RHD-REP-003	Traffic and Transportation Plan (TTP)	Sets out a mitigation strategy for the impact of road based traffic and transportation associated with construction activities.
8460001-PCA0010-PAG-REP-001	Television and Radio Reception Mitigation Plan (TRRMP)	Presents the results of a desk-based study and baseline study to investigate the potential for interference to television and radio reception within the Moray Firth area as a result of constructing the Moray East Offshore Wind Farm and propose a mitigation plan.
Moray East Procedures		
8460001-OE1-MWE-PLN-000002	Emergency Response Cooperation Plan (ERCoP)	Ensures the cooperation with the Maritime and Coastguard Agency (MCA) by detailing the design parameters of the Development, emergency contact details, and processes to be followed.
846001-OE1-MWE-PLN-000001	Emergency Response Plan (ERP)	States the procedures to follow and identifies those who should be informed should an emergency occur.
8460001-DWB0060-MWE-PLN-001	Seabed Management Plan	Defines the constraints and procedures that are part of the seabed management that shall be followed by all contractors.
8460001-GHE0010-MWE-PLN-004	Waste Management Plan (WMP)	States an estimate of all waste that will be produced from the Development and ensures that all waste produced or held on a site is disposed of safely, efficiently and in accordance with the law.
8460001-PC0010-MWE-PRO-001	Procedure for approval for use of chemicals offshore	Defines the procedure for requesting the regulator's approval for use of chemicals offshore
8460001-PC0010-RHD-BRF-001	Protocol for Archaeological Discoveries – O&M briefing Note	Defines the procedure for reporting new marine archaeological discoveries
8460001-OEB-MWE-PRO-001	Project Procedure O&M Marine Coordination Procedure	Procedure to ensure that all vessels and crew and its contractors working within the MOWEL Development are appropriately certified, can meet project criteria and are maintained in such a way that they will be given operational permissions
8460001-GHH0020-MWE-POL-001	Moray East HSEQ Policy Statement	Defines the company commitment to the Health, Safety, Environment and Quality (HSEQ) of all those who can either directly or indirectly be affected by their business activities.

1.6 OMP Document Structure

In response to the specific requirements of the Section 36 Consents conditions, this Wind Farm OMP has been structured so as to be clear that each part of the specific requirements have been satisfied and that the relevant information to enable the Scottish Ministers to approve the Wind Farm OMP has been provided. The document structure is set out in Table 1-4 below as follows:

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Table 1-4: Document Structure

Section	Title	Overview
1	Introduction	Background to consent requirements and overview of the OMP scope, methodology, links to other consent plans and structure.
2	Moray East Statements of Compliance	Sets out the Moray East statements of compliance in relation to the OMP consent conditions and O&M activities.
3	Updates and Amendments to this OMP	Sets out the procedures for any required updating to or amending of the approved OMP and subsequent further approval by the Scottish Ministers.
4	Development Overview	Provides an overview of the Development.
5	Approach to Health, Safety, Environment and Quality (HSEQ)	Sets out approach to the HSEQ aspects of the Development.
6	Environmental Sensitivities and Good Working Practices	Provides an overview of the environmental sensitivities which may affect the O&M activities of the Wind Farm along with good working practices to be followed during the O&M phase of the Development.
7	Communications and Reporting	Provides an overview of the procedures and practices for internal communications and reporting and sets out the procedures and practices for liaising with relevant authorities for notification requirement purposes.
8	Wind Farm Operation and Maintenance Activities	Sets out the programme for O&M activities of the Wind Farm assets providing an overview of indicative timings.
9	Compliance with the Application and ES	A statement showing commitment from the Application and ES related to this OMP that will be followed.

2 Moray East Statement of Compliance

2.1 Introduction

The following section re-affirms the Moray East commitment to ensuring that the Wind Farm is operated in such a manner as to meet the relevant requirements set by the Section 36 Consents and Wind Farm Marine Licences and other legislative requirements.

2.2 Statement of Compliance

Moray East will, in undertaking the O&M of the Wind Farm, ensure compliance with this Wind Farm OMP as approved by the Scottish Ministers (and as updated or amended if required following the procedure set out in Section 3 of this Wind Farm OMP).

Where significant updates or amendments are required to this Wind Farm OMP, Moray East will ensure the Scottish Ministers are informed as soon as reasonably practicable and, where necessary, the Wind Farm OMP will be updated or amended (see Section 3).

Moray East in undertaking the O&M of the Wind Farm, will require compliance with other, relevant Consent Plans as approved by the Scottish Ministers including the documents set out in Section 1.5.

Moray East in undertaking the O&M of the Wind Farm will ensure compliance with the limits defined by the Applications, the project description defined in the Moray East Environmental Statement (ES) (Moray East, 2012), Moray East Modified TI ES (Moray East, 2014), and the Moray East Offshore Substation Platform (OSP) Environmental Report in 2017 and the Offshore Consents Variation Application Report 2017 referred to in Annex 1 of the Section 36 Consents (as varied in March 2018) in so far as they apply to works or activities covered by this Wind Farm OMP (unless otherwise approved in advance by the Scottish Ministers).

Moray East will, in undertaking the O&M of the Wind Farm, require compliance with the approved Wind Farm OMP (and all other relevant, approved Consent Plans as detailed in Section 1.5) by the key Contractors through condition of contract and by an appropriate auditing process.

Moray East, in undertaking the O&M of the Wind Farm, will ensure compliance with Moray East HSEQ systems and standards, the relevant Health and Safety legislation and such other relevant legislation and guidance so as to protect the safety of the Wind Farm O&M personnel and other third parties, as described in Section 5.

2.3 Legislative Requirements

Moray East will, in undertaking the O&M of the Wind Farm, require compliance with legislation relevant to this Wind Farm OMP and that all necessary licences and permissions are obtained by the key Contractors and Subcontractors, through conditions of contract and by an appropriate auditing process.

Moray East will comply with, and oblige Moray East Contractors to comply with through conditions of contract, the requirements of relevant environmental legislation as standard.

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2.4 Key Roles and Responsibilities under the Plan

Table 2-1: Key Roles and Responsibilities under the Plan

Role	Responsibility under the plan
Moray East	Moray East has overall responsibility for the Wind Farm OMP and compliance.
Asset Director	<ul style="list-style-type: none"> Overall responsibility for the ongoing safe operation of the Moray East Offshore Wind Farm; Final approval of the Wind Farm OMP; Responsible for ensuring that sufficient resources and processes are in place to deliver / comply with the Wind Farm OMP; and Responsible for ensuring the Wind Farm OMP is kept updated and is relevant to the project activities.
Operations & Maintenance Manager	<ul style="list-style-type: none"> Supervision of the drafting of the OMP Ensuring all requirements of Wind Farm OMP are adhered to and actioned; Ensuring all Moray East staff and Contractors are correctly inducted, managed and set to work in a safe and efficient manner; Addressing Moray East and Contractor non-compliance if they arise and ensuring corrective actions are implemented; and Ensuring all activities are planned, carried out correctly, in accordance with this OMP and in a safe and HSEQ compliant manner.
Moray East Health, Safety and Environment Manager	<ul style="list-style-type: none"> Coordinating, monitoring and implementing compliance through the HSEQ management plans which will be complementary to the Wind Farm OMP; Focal point in providing support advice and guidance on HSEQ matters to the project team and contractors; Actively participate in safety walkdowns and task toolbox talks; and Carry out routine audits and investigations.
Marine Coordinator	<ul style="list-style-type: none"> Day to day management of movement of vessels; Point of contact for all marine operations, communications and safety at sea; Focal point for emergency response and drill activities; and Issuing of work permits and monitoring of weather conditions.
Environmental and Consent Compliance Associate	<ul style="list-style-type: none"> Responsible for advising the Operations and Maintenance team on compliance with consent conditions; Support O&M Manager on drafting and updating the OMP; Manages post-construction monitoring and liaison with the Moray Firth Regional Advisory Group; and Maintains the Consent Plans Commitments Registers and trackers.
Fisheries Liaison Officer (FLO)	<ul style="list-style-type: none"> To act as an effective communication conduit between Moray East's activities and the fishing industry; Where safety zones are established, ensure these are appropriately communicated to the fishing vessels through NtM; and To be the first point of contact for fishermen at sea whilst O&M activities are taking place.

3 Updates and Amendments to this OMP

Condition 16 of the Section 36 Consents recognises that updates or amendments to this Wind Farm OMP may be required, stating that:

"Operation and maintenance of the Development must, at all times, proceed in accordance with the approved OMP (as updated and amended from time to time by the Company). Any updates or amendments made to the OMP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval."

Where it is necessary to update this Wind Farm OMP in light of any significant new information related to the O&M activities, Moray East propose to use the change management process set out in Figure 3-1 in identifying such information, communicating such proposed change to the Scottish Ministers, re-drafting the OMP, seeking further approval for the necessary amendments or updates and disseminating the approved changes / amendments to responsible parties.

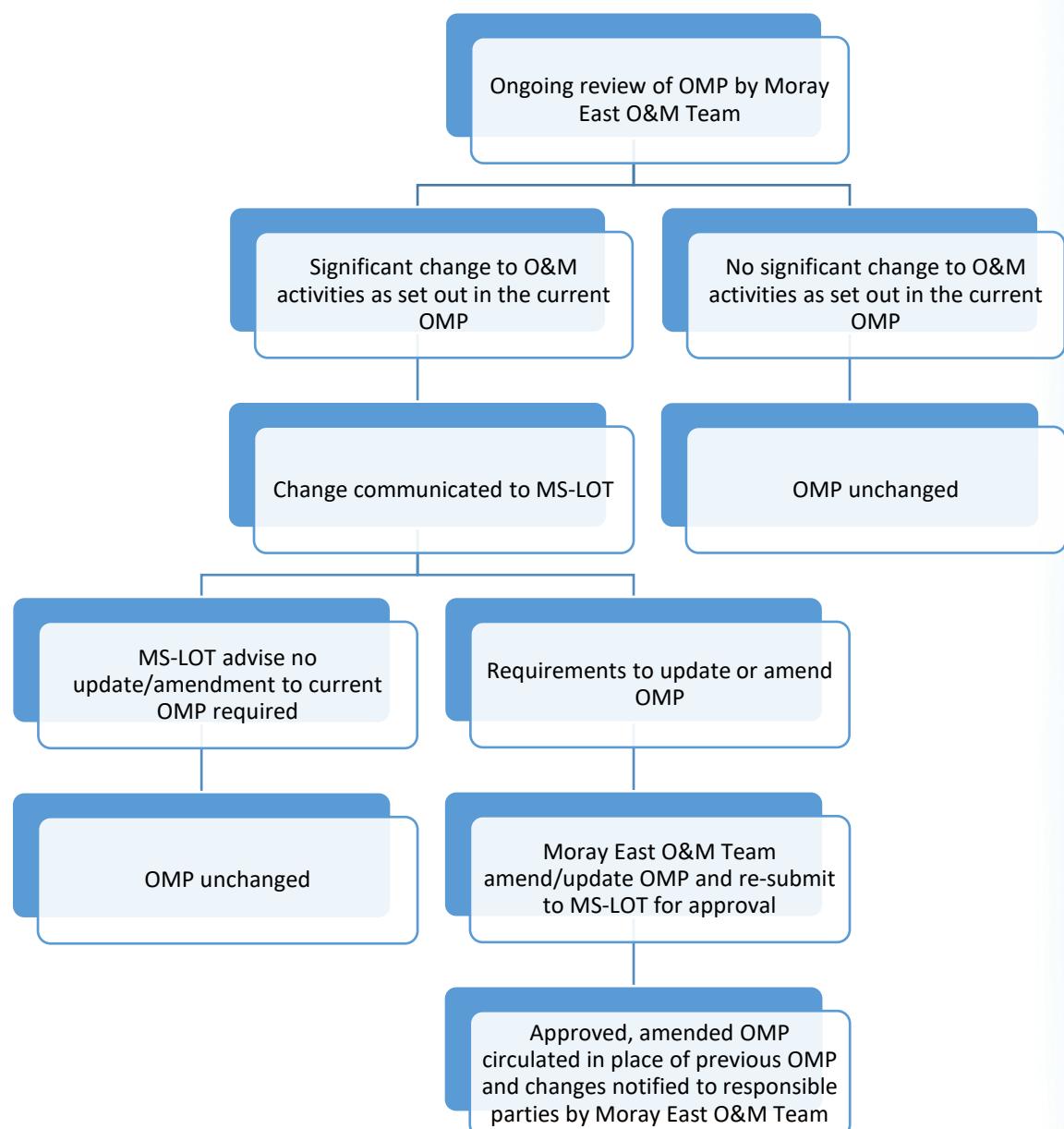


Figure 3-1 Change Management Procedure

4 Development Overview

This section provides a brief overview of the Development. The main components which constitute the Development are subdivided in two main categories, namely the Wind Farm and the OfTl assets. It should be noted that this Wind Farm OMP deals with the Wind Farm assets, as defined in Section 1.3.

The Development consists of the following main components:

- Wind Farm assets:
 - A total installed capacity of approximately 950 MW, however the total generation capacity is constrained by the Development's grid connection Transmission Entry Capacity (TEC) of 900 MW (further details provided within the Development Specification and Layout Plan (DSLP) (Moray East, 2020) 100 MHI Vestas V164 9.5 MW WTGs (further details provided in the DSLP);
 - WTG Jacket substructures, each installed on three pin pile foundations driven into the seabed;
 - A network of buried or mechanically protected subsea cables, including inter-array cables connecting strings of turbines together and interconnector cables linking the OSPs to one another. Mechanical protection was used where minimal burial depth could not be achieved.
 - The 66 kV switchgear on each of the three OSPs.
- OfTl assets:
 - Three AC OSPs to collect the generated electricity and transform the electricity from 66 kV to 220 kV for transmission to shore, including jacket substructure and foundations, and excluding the 66kV switchgear;
 - Three buried or, where minimal burial depth could not be achieved, mechanically protected, subsea export cables, each of approximately 60-65 km in length, to transmit the electricity from the three OSPs to the landfall at Inverboynie and connecting to the buried onshore export cables for transmission to the onshore substation and connection to the national electricity transmission system.

The Moray East site is located approximately 22 km offshore from its nearest point to the east Caithness coastline in the Moray Firth as shown on Figure 4-1.

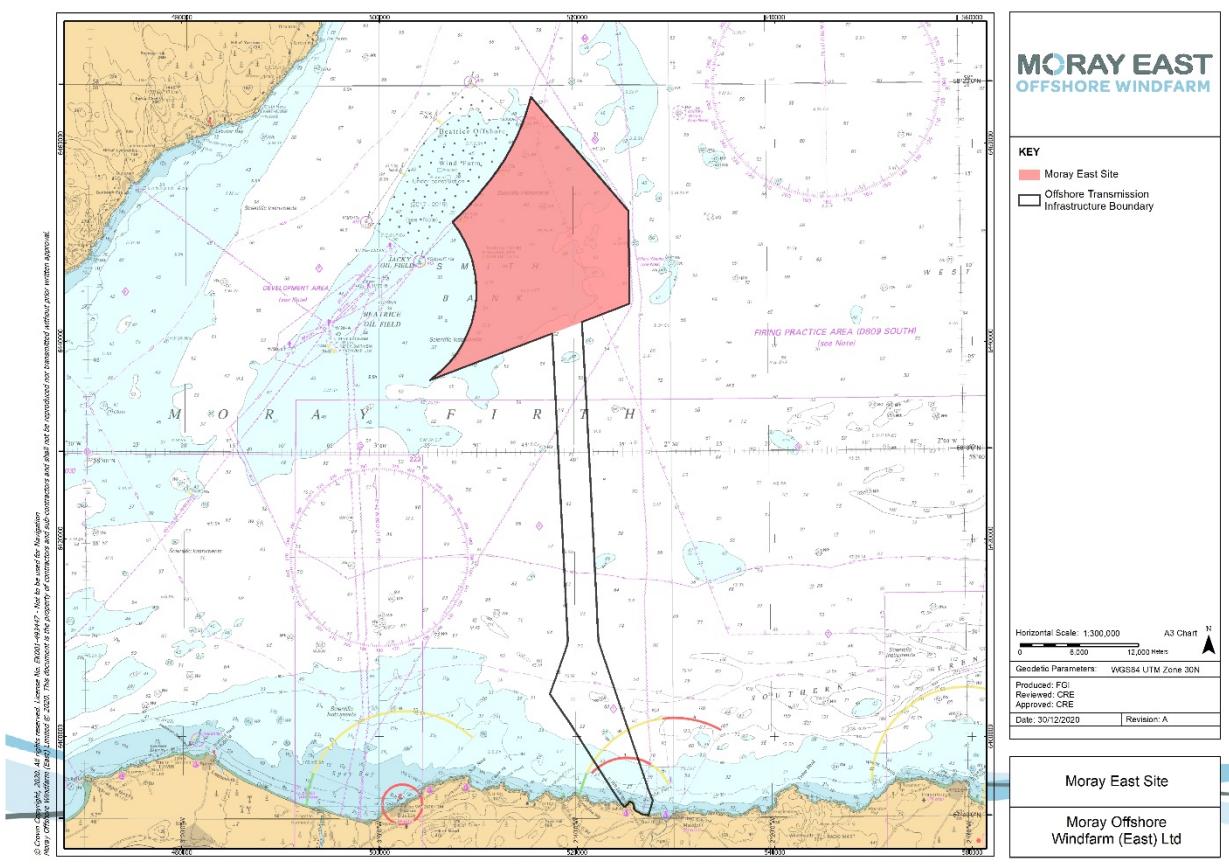


Figure 4-1 Moray East Offshore Wind Farm and OfTI (the Development) Location

4.1 Wind Farm Assets

A purpose built O&M shore base in Fraserburgh Harbour provides the following:

- office and welfare facilities for Moray East staff, visitors and contractors;
- incorporates the control room and Marine Coordination Centre (MCC);
- warehousing for spare parts storage and goods receipt area;
- workshop areas for part refurbishment and inspection;
- education office / facilities for training courses, meetings and events; and
- dedicated quayside facilities for safe access / egress to Crew Transfer Vessels (CTV) and Service Operation Vessels (SOV), waste handling and safe refuelling.

The Moray East control room and MCC shall provide the following key services:

- work permit activation/deactivation;
- marine surveillance - vessel and personnel tracking;
- emergency response coordination;
- monitoring of safety zones during major maintenance works; and
- monitoring of the Supervisory Control and Data Acquisition (SCADA) system and High Voltage (HV) switching (including alarm handling).

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The Wind Farm assets mainly comprise of the 100 WTGs and the network of Inter-Array Cable (IAC) and interconnector cables infrastructure. The WTGs are connected at a High Voltage (HV) of 66 kV by inter-array cabling. There is a total of 100 IACs arranged in fifteen circuits (also referred to as strings) and between 4 and 8 WTGs per string. The first WTG in a string is connected by an IAC to an OSP.

The WTG locations and the arrangement of the IACs and the interconnectors between the OSPs are shown on Figure 4-2.

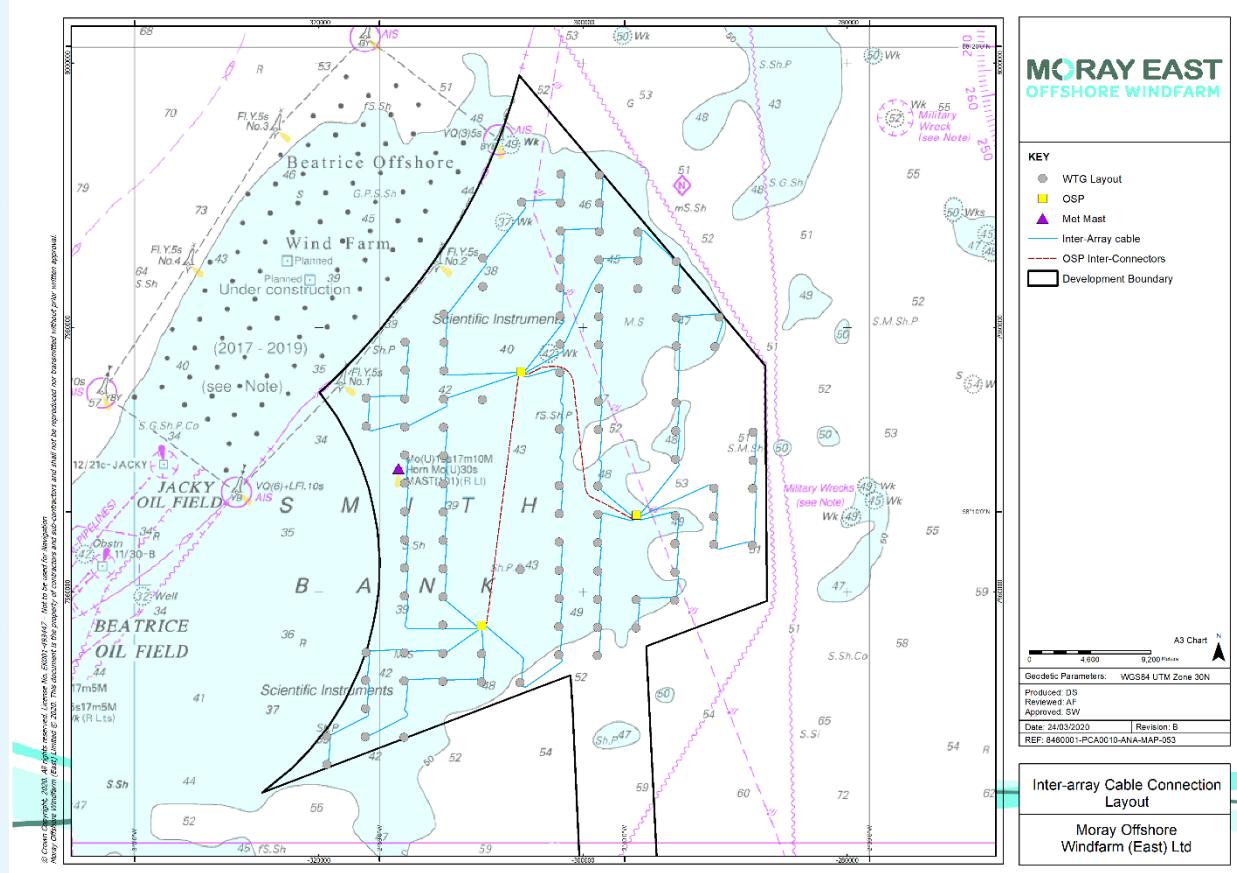


Figure 4-2 WTG and IAC connection layout, showing inter-array and interconnector cable connectivity between WTGs and OSPs

4.2 Supervisory Control and Data Acquisition System (SCADA)

Two separate SCADA systems have been implemented to provide an operator interface with the Wind Farm and OfTI Assets.

The Wind Farm SCADA system provides an interface to the WTG controllers, and provides high-level performance and system information. The system will allow authorised operatives to override automatic operation, take remote control, adjust control parameters, and provide operational and performance data in a searchable and comparable form.

The Wind Farm SCADA system will also provide remote monitoring and control of the High Voltage electricity networks giving the ability to either isolate or re energise part of or whole networks remotely.

Moray East will continuously monitor the SCADA system and react to any alarms and events that occur. The control team will have the necessary authorisation to shut down individual or multiple WTG's as deemed necessary and will escalate any issues to the O&M Manager. Remote access to this SCADA system is available through an internet connection if any issue arises.

5 Approach to Safety, Health, Environment and Quality

Moray East Health, Safety and Environment and Quality (HSEQ) Policy provides Moray East commitment to promote a culture of safety and integrate the protection of people, assets, and the environment, as well as the commitment to continually improve the company's management system. Moray East's HSEQ Policy Statement is available in 8460001-GHH0020-MWE-POL-001.

The following commitments are included in Moray East policy, among others:

- Provide safe and healthy working conditions for prevention of work-related injury and illness and as appropriate.
- Ensure that all identified OH&S risks are eliminated or, where elimination is not practicable, reduced so far as reasonably practicable.
- Carry out our activities within parameters of sustainable development, maintaining control and management of their environmental aspects that it produces.
- Apply the principle of mitigation hierarchy (avoid, minimise, restore, and compensate as a last resort) in all activities.
- Ensure the protection of the environment, preventing pollution, minimising the environmental effects produced because of our activities and improving performance from a life-cycle perspective.
- Manage processes efficiently by applying the principle of continuous improvement and focusing these processes on defect prevention.
- Ensure highest levels of quality of our services to achieve a leadership position in an increasingly competitive market and constantly evolving.

The Policy Statement is supported by the Moray Offshore Windfarm (East) Limited Integrated Management System and is endorsed by Senior Management.

5.1 Asset Management System

Moray East have implemented an all encompassing Computerised Maintenance Management System (CMMS).

This system will track and manage all components and assets of the Wind Farm and O&M shore base and provide the below:

- Incorporate all inspection, maintenance and replacement requirements and dates;
- Track key warranty dates and any attached conditions;
- Include all O&M manuals, supporting documents, safety documentation and work instructions; and
- Include all activity dates and ensure compliance with all project conditions and consents.

Further details on the emergency response during operations is given in separate plans, including the MPCP, ERP, and ERCoP developed in consultation with the MCA).

5.2 Environmental Management

Information concerning environmental management is set out in the Moray East EMP (Moray East, 2021). The Wind Farm O&M activities described in this Wind Farm OMP will be undertaken in line with the procedures and practices set out in the EMP. The EMP is part of Moray East's Environmental Management System (EMS).

The EMS includes processes designed to manage environmental impacts and secure environmental compliance and long-term sustainability. The EMS shall align with both the company Environmental Policy and the overarching Asset Management System (AMS) but shall also reflect the specific requirements of the consent conditions, environmental constraints, risks and opportunities specific to the Wind Farm Assets.

This Wind Farm OMP will form part of a suite of EMS management plans which will include other active consent plans as listed in Table 1-2.

6 Environmental Sensitivities and Good Working Practices

6.1 Waste Management

A Waste Management Plan (WMP) has been prepared by Moray East to outline waste management measures for the construction and O&M phases of the Development.

Moray East is committed to reducing and re-using the resources it uses through all stages of Development, including construction, O&M and decommissioning. The WMP is the key tool which will be used to plan, implement, monitor and review waste minimisation and management during the O&M phase of the Development in accordance with Moray East's commitments.

The WMP sets out measures to minimise, recycle, reuse and dispose of waste streams during the O&M phase of the Development, in compliance with relevant waste legislation. It sets out the general principles for waste management that all Moray East personnel and Contractors shall comply with.

6.2 Environmental Sensitivities

As part of the consideration of the consent application and supporting documents, such as the ES, Marine Scotland consulted with advisory and regulatory bodies for comment on the validity of the ES document and the conclusions of environmental impacts. The potential impacts from routine O&M activities, such as inspection and maintenance, are mainly associated with vessel movements and the presence of vessels within the Moray East area.

Service and inspection works will take place predominately on WTG structures and will have limited impact on marine species and habitats. No periods of increased sensitivity were identified in the ES relevant to O&M activities; therefore, no significant impacts were predicted.

During the O&M phase, it will be necessary to monitor the marine growth on the WTG jacket substructures. The monitoring campaign will be used to inform the marine growth removal strategy, dependent on the rate and nature of growth, and to identify potential impacts arising from the removal. This strategy will be based on best practice and developed in consultation with Marine Scotland- Licensing Operations Team (MS-LOT) and other relevant stakeholders.

Environmental sensitivities for Moray East were identified during baseline surveys and desk based reviews, supporting the ES impacts identified and discussed included:

- Birds
- Marine mammals
- Fish and shellfish
- Benthic and intertidal ecology / seabed habitats

Environmental considerations associated with the O&M activities, such as inspections and maintenance works, are outlined in Table 6-1 below.

Table 6-1: Environmental sensitivities associated with inspection and maintenance activities as assessed within the ES

Receptors	Environmental Sensitivities
Birds	Likely effects from inspections and maintenance activities assessed were predicted to be limited to the following:

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Receptors	Environmental Sensitivities
	<ul style="list-style-type: none"> Disturbance caused by maintenance vessels. <p>The assessment concluded no significant effect on birds and any protected sites designated for birds.</p>
Marine mammals	<p>Likely effects from inspections and maintenance activities assessed were predicted to be limited to the following:</p> <ul style="list-style-type: none"> Risk of direct impacts (collision) and disturbance from an increase in vessel movements; and Risk of toxic contamination from leaching of compounds on WTGs and maintenance vessels. <p>The assessment concluded no significant effect on marine mammals and any protected sites designated for marine mammals during the operation of the Wind Farm.</p>
Fish	<p>Likely effects from inspections and maintenance activities assessed were predicted to be limited to the following:</p> <ul style="list-style-type: none"> Potential changes to fish populations due to changes in fishing activity from the presence of maintenance vessels. <p>The assessment concluded no significant effect on fish and shellfish during the operation of the Wind Farm.</p>
Benthic and intertidal ecology / seabed habitats	<p>Likely effects from inspections and maintenance activities assessed were predicted to be limited to the following:</p> <ul style="list-style-type: none"> increase risk of introduction of Marine Non-Native Species (MINNS) from an increase in vessel use; <p>The assessment concluded no significant effect on benthic and intertidal ecology / seabed habitat during the operation of the Wind Farm.</p>

7 Communications and Reporting

7.1 Communications

Moray East will hold daily and weekly operations meetings involving the HSEQ and O&M Management team and also any contractors carrying out works. Regular HSEQ reports will be provided detailing (but not limited to) the work scope, progression to date, environmental management, and any incidents, environmental or otherwise. All Contractors and their Subcontractors will be made aware of and provided with copies of the relevant consents and licences and made aware of the consent obligations associated with the particular works they are involved in.

In addition, regular environmental and consents meetings will take place involving the HSEQcompliance and O&M Management team to plan emerging works happening in the near and distant future.

Moray East will ensure that it communicates with Marine Scotland on all relevant consent conditions and compliance matters.

All required returns or reports during the O&M phase will be provided to Marine Scotland by the O&M management team.

7.2 Incident Response and Reporting

In the event that an environmental or pollution incident occurs and following any required statutory notifications, the responsible personnel or contractor will notify Moray East as soon as possible, in line with the procedure established in the MPCP. Where an incident involves a Contractor (and/or their subcontractors), the contracting entity will have the prime responsibility for responding to any incident.

An incident response shall be executed in accordance with the procedures detailed in the MPCP and EMP where it relates to Moray East personnel or activities. Where the incident is a result of activities within a Contractor's (and/or their subcontractors) scope of works, the incident response will be executed in accordance with their own response procedures compliant with the relevant MPCP and EMP.

7.3 Other reporting and notification requirements

Table 7-1 Other reporting and notification requirements

Topic	Condition Reference	Condition Text	Frequency
Failure to generate electricity	Section 36 Consent, Condition 5	In the event that for a continuous period of 12 months or more any WTG installed and commissioned and forming part of the Development fails to produce electricity on a commercial basis to the National Grid then, unless otherwise agreed in writing by the Scottish Ministers and after consultation with any advisors as required at the discretion of the Scottish Ministers, any such WTG and all associated foundations and ancillary equipment may be deemed by the Scottish Ministers to cease to be required. If so deemed, the WTG and all its associated foundations and ancillary equipment must be dismantled and removed from the Site by the Company, following the procedures laid out within the Company's Decommissioning Programme, within the period of 24 months from the date of the deeming decision by the Scottish Ministers and the Site must be fully reinstated by the Company to the specification and satisfaction of the Scottish Ministers after consultation with	As required

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Topic	Condition Reference	Condition Text	Frequency
		any such advisors on decommissioning as may be required at the discretion of the Scottish Ministers.	
Vessels, agents, contractors and sub-contractors	Marine Licence, Condition 3.1.2	<p>The Licensee must ensure that prior to their engagement in the Licensable Marine Activity authorised under this licence, the name and function of any vessel, vehicle, agent, contractor or sub-contractor appointed to engage in the Works and, where applicable, the master's name, vessel type, vessel IMO number and vessel owner or operating company, are fully detailed in the Vessel Report and the Persons Acting on Behalf of the Licensee Reports available on the Moray East Offshore Wind Farm, Keeping Mariners Informed webpage, which can be found at:</p> <p>http://www.morayoffshore.com/moray-east/the-project/notices-tomariners/.</p> <p>Any changes to the supplied details must be uploaded to the Vessel Report and the Persons Acting on Behalf of the Licensee Report and the Licensing Authority must be notified, in writing, prior to any vessel, agent, contractor or sub-contractor which has not yet been notified to the Licensing Authority engaging in the Licensable Marine Activity.</p> <p>Only those vessels, agents, contractors or sub-contractors detailed in the Vessel Report and the Persons Acting on Behalf of the Licensee Report are permitted to carry out any part of the Works.</p>	As required, in advance of any works commencing
Force majeure	Marine Licence, Condition 3.1.3	Should the Licensee or any of their agents, contractors or Subcontractors, by any reason of force majeure deposit anywhere in the marine environment any substance or object, then the Licensee must notify the Licensing Authority of the full details of the circumstances of the deposit within 48 hours of the incident occurring (failing which as soon as reasonably practicable after that period of 48 hours has elapsed). Force majeure may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel or vehicle operator determines that it is necessary to deposit the substance or object other than at the Site because the safety of human life or, as the case may be, the vessel, vehicle or marine structure is threatened. Under Annex II, Article 7 of the Convention for the Protection of the Marine Environment of the North-east Atlantic, the Licensing Authority is obliged to immediately report force majeure incidents to the Convention Commission.	As required – within 48 hours of occurrence
Material alterations of the Licence applications	Marine Licence, Condition 3.1.4	The Licensee must, where any information upon which the granting of this license was based has after the granting of the licence altered in any material respect, notify the Licensing Authority of this fact, in writing, as soon as is practicable.	As required
Submission of plans and specification of studies and surveys to the	Marine Licence, Condition 3.1.5	The Licensee must submit the details and specifications of all studies, surveys and plans that are required to be undertaken under this licence in relation to the Works, in writing, to the Licensing Authority for their written approval. Commencement of the studies or surveys and	As required

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Topic	Condition Reference	Condition Text	Frequency
Licensing Authority		<p>implementation of plans must not occur until the Licensing Authority has given its written approval to the Licensee.</p> <p>Specification of studies, surveys and plans prepared pursuant to another consent or licence relating to the Works by the Licensee or by a third party may also be used to satisfy the requirements of this licence.</p>	
Submission of reports and notifications to the Licensing Authority	Marine Licence, Condition 3.1.6	<p>The Licensee must submit all reports and notifications to the Licensing Authority, in writing, as are required under this licence within the time periods specified in this licence. Where it would appear to the Licensee that there may be a delay in the submission of the reports to the Licensing Authority, then the Licensee must advise the Licensing Authority of this fact as soon as is practicable and no later than the time by which those reports or notifications ought to have been submitted to the Licensing Authority under the terms of this licence.</p> <p>The reports must include executive summaries, assessments and conclusions and any data must, subject to any rules permitting non-disclosure, be made publically available by the Licensing Authority or by any such party appointed at their discretion.</p> <p>Reports prepared pursuant to another consent or licence relating to the Works by the Licensee or by a third party may also be used to satisfy the requirements of this licence.</p> <p>Such reports will include, but not be limited to, Transportation Audit Reports.</p>	As required
Chemical usage	Marine Licence, Condition 3.1.7	The Licensee must ensure that all chemicals which are to be utilised in the Works have been approved in writing by the Licensing Authority prior to use. All chemicals utilised in the Works must be selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002, unless approved in writing by the Licensing Authority.	Prior to chemical use, in line with the EMP and Procedure for approval for use of chemicals offshore
Emergencies	Marine Licence, Condition 3.1.11	<p>If the assistance of a Government Department (to include departments of Devolved Administrations) is required to deal with any emergency arising from:</p> <ul style="list-style-type: none"> a) the failure to mark and light the Works as required by this licence; b) the maintenance of the Works; or c) the drifting or wreck of the Works, <p>to include the broadcast of navigational warnings, then the Licensee is liable for any expenses incurred in securing such assistance.</p>	In the event of an emergency, in line with the ERCoP
HSE	Section 36 Consent, Condition 6	If any serious health and safety incident occurs on the Site requiring the Company to report it to the Health and Safety Executive (HSE), then the Company must also notify the Scottish Ministers of the incident within 24 hours of the incident occurring.	In event of an incident

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Topic	Condition Reference	Condition Text	Frequency
Notification of maintenance work with additional deposits	Marine Licence, Condition 3.2.3.6	Notification must be provided at least 3 months in advance of any subsequent maintenance works where any additional deposits are required. In the event that these works are not assessed in the Application and are considered by the Licencing Authority as being material they will require further Marine Licences.	As required, prior to activities with additional deposits
Communication of new archaeological discoveries	Section 36 Consent, Condition 35 (MacColl and Telford) and Condition 36 (Stevenson)	(...) Reporting Protocol/ Marine Archaeological Reporting Protocol (MARP) which sets out what the Company must do on discovering any marine archaeology during the construction, operation, maintenance and monitoring of the Development.	As required, in line with the MARP

8 Wind Farm Operation and Maintenance Activities

Moray East will ensure that all wind farm assets are maintained and operated safely and in accordance with the O&M guidance and recommendations and also good industry practice. Scheduled works will be planned using a risk based inspection methodology approach, taking into account previous inspections and maintenance records. A description of the potential works and an indicative frequency can be found in Table 8-1 below, these might undergo variations in scope and timeline.

In addition, there will be occasions when the Wind Farm assets will require unscheduled inspections, maintenance and/or repairs. These are remedial works to be carried out to ensure the ongoing safe operation of all assets. Generally, unscheduled activities take place at any time of the year following failure or signs of underperformance. Works would be executed during suitable weather windows that arise.

Moray East will notify MS-LOT at least three months in advance of commencement of any maintenance/repair works which require any additional deposits. Additional marine licences will be sought where remedial activities are not covered by the existing Marine Licences and following agreement with MS-LOT.

8.1 Maintenance Activities

Table 8-1 Indicative scope and frequency of O&M activities

Component	Description of Works	Method of Access	Estimated Frequency of Works
Blind Flanges	Visual inspection of integrity of flange and signs of corrosion	This work will be carried out internally from the base of the topside structure, access can be from either CTV or SOV	As required
Bolted connections	Visual inspection of torquing marks and percentage test	Access will be gained via the jacket landings by either CTV or SOV	As required
Cable Hang-offs	Visually inspect for fatigue, damage or corrosion issues	This work will be carried out from the intermediate platform or if necessary Rope Access will be used, access can be from either CTV or SOV	Once per calendar year
Corrosion protection system: Coating	Visual Inspection of coatings, for signs of corrosion or degradation	Topside coatings will be accessed by walkways and landings, any out of reach areas will be by rope access, all works below the water line will be by hand launched mini Remotely Operated Vehice (ROV), the works can either be carried out from the CTV or SOV	As required, typically once a year
Corrosion protection system: Anodes/ cathodic protection	Inspection, measurements of electrochemical potential and routine maintenance checks for security of fixings and integrity of the Anodes, as required	Mini hand launched ROV will carry out inspection works on the Anodes, launched either from the CTV or SOV	Once per calendar year
Earthing Arrangements	Earthing inspection, visually and functionality testing, and maintenance, as required	Access will be gained via the jacket landings by either CTV or SOV	Once per calendar year
Fall Arrest System (Safety Retracting Line (SRL))/ fall restraint systems and associated anchors	Repair, inspect or replace SRL devices as necessary	All vessels will carry SRL spares and a trained and competent person, this will allow the unit to be repaired from either the CTV or SOV	As per Lifting Operations and Lifting Equipment Regulations (LOLER) requirements

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Component	Description of Works	Method of Access	Estimated Frequency of Works
Gates	Routine inspection and maintenance of landing gate structures and friction opening devices	Access to the Gates will be gained via the jacket landings by either CTV or SOV	Once a year, with general visual observations during O&M regular activities
Grout Pipe Caps	Following the initial installation of the grout pipe caps, routine surveys will be carried out to monitor its integrity and ongoing effectiveness	Mini hand launched ROV will carry out survey work around the grout pipe caps, launched either from the CTV or SOV	As required
GRP Gratings / Boat Landings / Rest platform / Railings / Access ladders / Access platform/ Steps / Staircases and other ancillary structures, as required	Include routine inspection, examination, non-destructive testing, maintenance, repair, torquing of fixings and replacing any damaged sections as necessary	Access will be gained via the jacket landings by either CTV or SOV	Once a year, with general visual observations during O&M regular activities.
Lifting eyes/pad eyes/anchorage points	Routine maintenance, repair and Statutory examination	Access will be gained via the jacket landings by either CTV or SOV	As per LOLER requirements
Marine Growth / Guano Cleaning	All areas in the splash zone and access ladder sections will be cleaned using high pressure hose	Access to perform the cleaning activities will be gained by either CTV or SOV	Periodic (as necessary to enable a safe means of access)
Navigation aids	All aids to be maintained in accordance with the manufacturers recommendations, all repairs will be carried out by trained persons	Access to the Navigation aids will be gained via the jacket landings by either CTV or SOV	As required
Scour protection	Following the initial installation of the scour protection, routine surveys will be carried out to monitor its integrity and ongoing effectiveness. Additional scour protection may be required, subject to communication and approval from MS-LOT.	ROV launched from CTV, support vessel or topside.	At least once a year (for first 3 years, the results of these work will determine any future frequencies required)
Primary and Secondary Steel Jacket (e.g. jacket, pile connections, J-tubes)	Visual Inspection, non-destructive testing of all components and fixings, as required	Access to above water inspections will be gained via the jacket landings by CTV or SOV . Subsea inspections to be undertaken with an ROV launched from jacket or CTV/ support vessel.	Once per calendar year
Primary and Secondary Steel Jacket marine growth	Measuring of marine growth at a sample of structures	Subsea inspections to be undertaken with an ROV launched from jacket or CTV/ support vessel.	Once per calendar month within first two years of operation. Then condition based.
Stainless steel items	Visual checks for integrity of items	Access will be gained via the jacket landings by either CTV or SOV	Once per calendar year

Component	Description of Works	Method of Access	Estimated Frequency of Works
Signage, Marker Boards and Stickers	Visual checks that all signage, marker boards and stickers are in place and clearly visible	Access will be gained via the jacket landings by either CTV or SOV	General visual observations during O&M regular activities
Davit Crane Assembly and lifting appliances/ accessories	Routine maintenance, servicing and Statutory Examination	Access will be gained via the jacket landings by either CTV or SOV	Once per calendar year
Subsea / cable Inspection, Free Spanning, Cable Routing, Rock Protection, General Coverage	Visual Sub Sea Inspection, sonar, and bathymetric surveys (Multibeam Echo Sounder (MBES) or Side Scan Sonar(SSS)) along cable route at selected sites, as required	ROV launched from vessel or topside, for visual inspection and sonar. Bathymetric surveys with MBES and SSS using survey vessel.	Visual surveys at the CPS every 12 months approximately, for the first three years, at selected sites. Bathymetric surveys to be defined, no more frequent than once a year.
Reburial of cables/ maintenance of cable protection	Should any cable become exposed rectification works will be required. Maintenance/ replacement of cable protection system.	Cable burial techniques / vessels will be similar in principle to those used in the construction phase, the area of exposure will be detected and a pre works survey carried out, burial activities will then be carried out then followed up by a post works survey	As deemed necessary
Cable joint repairs	Cable fault will be detected and repaired by specialist contractor	Access will be gained by a specialist cable repair vessel and ROV	As deemed necessary
WTG Maintenance and Inspection	Inspection and service of WTG components	Access will be gained via the jacket landings by either CTV or SOV, or aerial inspections using drones	Once per calendar year for each WTG/ component

As required under Condition 3.2.3.6 of the Marine Licence, Moray East will notify MS-LOT of any maintenance works involving additional deposits, at least three-months in advance of the works.

Moray East acknowledge that in the event that maintenance works of this nature are required, Moray East will need to either: satisfy the Licensing Authority that these works were assessed as part of the marine licence application, or submit a further marine licence application for the works.

The WTGs are serviced by Vestas under the Service and Maintenance Agreement and require only one annual service which is carried out during the summer months when the wind conditions are lower and the sea conditions are more favourable for crew transfer. The annual service can take between three to four days to complete per WTG and every main component of the WTG are inspected and serviced, working to approved written procedures.

8.2 Major Component Repairs

Major component repairs are considered to be unforeseen faults that could trigger emergency repairs requiring large component replacements and extensive remedial works. These may involve replacement of WTG components (e.g. generator, blades, gearbox, etc.) or entire WTGs or repairs to their substructures.

Major repairs may be undertaken using specialised vessels or jack up vessels, and require additional seabed preparation, including surveys (e.g. MBES, SSS, ROV, UXO investigations) to inform the seabed

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conditions for vessel positioning and reallocation of boulders within the selected footprint for the jack up vessel.

Timescales for repair works, would largely be driven by the availability of replacement parts and the specialist personnel, equipment and vessels.

9 Compliance with the Application and ES

Condition 7 of the Section 36 Consents states that:

"The Development must be constructed and operated in accordance with the terms of the Application and related documents, including the accompanying ES, the Additional Ornithological Information, the Section 36 Consents Variation Application Report for Telford, Stevenson and MacColl Offshore Wind Farms dated December 2017 and Annex 1 of this letter, except in so far as amended by the terms of this section 36 consent."

ES Commitments Registers have been developed that identify the environmental management, mitigation (and also monitoring) measures set out in the ES as developed by the requirements of the Section 36 consent and Marine Licence conditions, and any other commitments made by Moray East to environmental management and mitigation. The Commitments Register is set out under Appendix VII in the EMP.

10 References

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