

Neart na Gaoithe Offshore Wind Farm

Generating Station Operation and Maintenance Programme

December 2025

Revision 05

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Neart na Gaoithe Offshore Wind Farm

Generating Station Operation and Maintenance Programme

Pursuant to Section 36 Consent Condition 16 and the Wind Farm Marine Licence Condition 3.2.4.6

For the approval of the Scottish Ministers

DOCUMENT APPROVAL		
Name (Role)	Signature	Date
Helen Walker Head of Consents	[Redacted]	30/06/2026
Steven Rayner Offshore Environment Manager	[Redacted]	30/06/2026
Chris Woods O&M Manager	[Redacted]	30/06/2026

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Plan Overview

Purpose and Objectives of the Plan

This Generating Station Operation and Maintenance Programme (OMP) document has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 (S36) consent and Generating Station Marine Licence (collectively referred to as the Offshore Consents) issued to Neart na Gaoithe Offshore Windfarm Limited (NnGOWL).

The overall objective of the OMP is to safeguard environmental interests during operation and maintenance (O&M) of the Wind Farm, namely the wind turbines, wind turbine jacket foundations, inter-array cables and interconnector cable. The OMP confirms the procedures and good working practices for O&M of the Wind Farm in alignment with those considered in the Application for the Offshore Consents.

The offshore transmission infrastructure (OFTI), namely the two Offshore Substations Platforms (OSPs), OSP foundations and export cables, will be divested to the Offshore Transmission Operator (OFTO). To facilitate the divestment, a separate OFTI OMP has been prepared for the OFTI assets.

Scope of the Plan

The OMP confirms the following:

- Approach to communication and reporting during the O&M phase;
- A description and indicative timings of maintenance activities; and
- Environmental sensitivities and good working practices relevant to O&M activities.

Structure of the Plan

Section 1 sets out the scope and objectives of the OMP.

Section 2 presents statements of compliance relevant to O&M activities.

Section 3 provides a description of the Project and its infrastructure.

Section 4 details the key O&M phase roles and responsibilities, communication interfaces and reporting procedures.

Section 5 details both scheduled and anticipated unscheduled O&M activities, relevant environmental sensitivities, and good working practices.

Section 6 details NnGOWL O&M commitments as defined in Neart na Gaoithe (NnG) Consent Plans and confirms how these will be delivered.

Section 7 details NnGOWL O&M commitments as defined in the Application and confirms how these will be delivered.

Plan Audience

The OMP is intended to confirm to the Scottish Ministers that Wind Farm O&M activities will be undertaken in compliance with the Offshore Consents. The OMP will be referred to by the NnGOWL

O&M team. This document will be accessible by the NnG Control Room and any relevant contractors as required.

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Acronyms and Abbreviations

TERM	DESCRIPTION
AC	Alternating Current
AEZ	Archaeological Exclusion Zones
ANO	Air Navigation Order
AtoN	Aid to Navigation
CAA	Civil Aviation Authority
CBRA	Cable Burial Risk Assessment
CTV	Crew Transfer Vessel
DoL	Depth of Lowering
DTS	Distributed Temperature Sensing
ECoW	Environmental Clerk of Works
HSE	Health, Safety and Environment
HTV	Heavy Transport Vessel
IALA	International Association of Marine Aids to Navigation and Lighthouse Authority
IHO	International Hydrographic Organisation
MCA	Maritime and Coastguard Agency
MGN	Marine Guidance Note
MoD	Ministry of Defence
MPCP	Marine Pollution Contingency Plan
MD-LOT	Marine Directorate – Licensing Operations Team
NLB	Northern Lighthouse Board
NnGOWL	Neart na Gaoithe Offshore Wind Limited
NOTAM	Notice to Airmen
NtM	Notice to Mariners
O&M	Operation and Maintenance
OfCom	Office of Communications
OfTI	Offshore Transmission Infrastructure
OfTO	Offshore Transmission Owner
OSP	Offshore Substation Platform
RSPB	Royal Society for the Protection of Birds
SAR	Search and Rescue
SEPA	Scottish Environment Protection Agency

TERM	DESCRIPTION
SFF	Scottish Fishermen's Federation
UKAIS	UK Aeronautical Information Service
UKHO	UK Hydrographic Office
WTG	Wind Turbine Generator

Defined Terms

TERM	DESCRIPTION
Addendum	The Addendum of Additional Information submitted to the Scottish Ministers by NnGOWL on 26 July 2018.
Application	The Environmental Impact Assessment Report, Habitats Regulations Appraisal Report submitted to the Scottish Ministers by NnGOWL on 16 March 2018; the Addendum of Additional Information submitted to the Scottish Ministers by NnGOWL on 26 July 2018 and the Section 36 Consent Variation Report dated 08 January 2019.
Company	Neart na Gaoithe Offshore Wind Limited (NnGOWL) (Company Number SC356223). NnGOWL has been established to develop, finance, construct, operate, maintain and decommission the Project.
Consent Conditions	The terms that are imposed on the Company under the Offshore Consents that must be complied with.
Consent Plans	The plans, programmes or strategies required to be approved by the Scottish Ministers (in consultation with appropriate stakeholders) in order to discharge the Consent Conditions.
Contractors	Any Contractor/Supplier (individual or firm) working on the Project, hired by NnGOWL.
EIA Report	The Environmental Impact Assessment Report, dated March 2018, submitted to the Scottish Ministers by NnGOWL as part of the Application.
Inter-array Cables	The offshore cables connecting the wind turbines to one another and to the offshore substation platforms (OSPs).
Interconnector Cables	The offshore cables connecting the OSPs to one another.
Marine Licences	The written consents granted by the Scottish Ministers under the Marine (Scotland) Act 2010, for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Wind Farm (Licence Number 06677/19/0).
Offshore Consents	The Section 36 Consent and the Generating Station Marine Licence.
Offshore Export Cable Corridor	The area within which the offshore export cables are to be located.
Offshore Export Cables	The offshore export cables connecting the OSPs to the landfall site.
OfTI	The Offshore Transmission Infrastructure comprising the OSPs and offshore export cables required to connect the Wind Farm to the Onshore Transmission Works at the landfall.
OfTI Area	The area outlined in red and blue in Figure 1 attached to Part 4 of the OfTI Marine Licence.
OnTW	The onshore transmission works from landfall and above Mean High Water Springs, consisting of onshore export cables and the onshore substation.
Project	The Wind Farm and the OfTI.

TERM	DESCRIPTION
Section 36 Consent	The written consent granted on 3 December 2018 by the Scottish Ministers under Section 36 of The Electricity Act 1989 to construct and operate the Wind Farm, as varied by the Scottish Ministers under section 36C of the Electricity Act 1989 on 4 June 2019.
Section 36 Consent Variation Report	The Section 36 Consent Variation Report submitted to the Scottish Ministers by NnGOWL as part of the Application as defined above on 08 January 2019.
Subcontractors	Any Contractor/Supplier (individual or firm) providing services to the Project, hired by the Contractors (not NnGOWL).
Wind Farm	The offshore array as assessed in the Application including wind turbines, their foundations, inter-array cabling and interconnector cables.
Wind Farm Area	The area outlined in black in Figure 3-1 attached to the Section 36 Consent Annex 1, and the area outlined in red in Figure 3-1 attached to Part 4 of the Wind Farm Marine Licence.

Consent Plans

CONSENT PLAN	ABBREVIATION	DOCUMENT REFERENCE NUMBER
Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries	WSI and PAD	NNG-NNG-ECF-PLN-0005
Environmental Management Plan	EMP	NNG-NNG-ECF-PLN-0006
Cable Plan	CaP	NNG-NNG-ECF-PLN-0007
Fisheries Management and Mitigation Strategy	FMMS	NNG-NNG-ECF-PLN-0008
Lighting and Marking Plan	LMP	NNG-NNG-ECF-PLN-0009
Navigational Safety Plan and Vessel Management Plan	NSVMP	NNG-NNG-ECF-PLN-0010
Operation and Maintenance Programme	OMP	NNG-NNG-ECF-PLN-0012
Project Environmental Monitoring Programme	PEMP	NNG-NNG-ECF-PLN-0013
Emergency Response Cooperation Plan (Operational Phase)	ERCoP	NNG-NNG-ECF-PLN-0022
Decommissioning Programme	DP	NNG-NNG-ECF-PLN-0016

1 Introduction

1.1 Background

The Neart na Gaoithe (NnG) Offshore Wind Farm (Revised Design) received consent under Section 36 of the Electricity Act 1989 from the Scottish Ministers on 03 December 2018 and was granted a Generating Station Marine Licence by the Scottish Ministers, for the Wind Farm, on 03 December 2018 (the Marine Licences). The S36 consent and Wind Farm Marine Licences were revised by issue of a variation to the S36 Consent and Marine Licence 06677/19/0 on 04 June 2019. The Project is being developed by Neart na Gaoithe Offshore Wind Limited (NnGOWL) which is owned by EDF Power Solutions UK and Ireland (referred to as EDF throughout the remainder of this document).

1.2 Objectives of this Document

1. The Offshore Consents contain a variety of conditions that must be discharged at various key milestones throughout the Project lifecycle. Conditions require the submission of an Operation and Maintenance Programme (OMP) to the Scottish Ministers for approval, no later than six months prior to the Final Commissioning of the first of the Offshore Substation Platform (OSP) and no later than three months prior to the Commissioning of the first turbine; indicative dates for these milestones are provided in the Construction Method Statement and Construction Programme (CMS & CoP). The OMP is required to set out an intended programme of operation and maintenance (O&M) activities associated with the Project Wind Farm and OfTW assets.
2. The relevant conditions setting out the requirement for an OMP are set out in full in Table 1-1 below. This document is intended to fully satisfy the requirements of the Offshore Consents conditions by providing details of the proposed design and layout specification for the Project.
3. A separate OfTI OMP has been prepared for the Offshore Transmission Infrastructure assets, namely two Offshore Substations Platforms (OSSs) and export cables.

Table 1-1: Consent conditions to be discharged by this OMP

OFFSHORE CONSENTS REFERENCE	CONDITION TEXT	WHERE ADDRESSED
Section 36 Consent Condition 16	The Company must, no later than three months prior to the Commissioning of the first turbine, submit an Operation and Maintenance Programme ("OMP"), in writing, to the Scottish Ministers for their written approval.	This document sets out the OMP for approval by the Scottish Ministers
	Such approval may only be granted following consultation by the Scottish Ministers with the Nature Scot (formerly Scottish Natural Heritage (SNH)), Scottish Environment Protection Agency (SEPA), Maritime and Coastguard Agency (MCA), Northern Lighthouse Board (NLB), Royal Society for the Protection of Birds (RSPB) Scotland, Scottish Fishermen's Federation (SFF), Angus Council, Dundee City Council, East Lothian Council, Fife Council,	Consultation to be undertaken by the Scottish Ministers

OFFSHORE CONSENTS REFERENCE	CONDITION TEXT	WHERE ADDRESSED
	Scottish Borders Council, and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.	
	The OMP must include, but not be limited to the following:	Sections 5.2 and 5.4
	a) The procedures and good working practices for operations and the maintenance of the turbine and inter-array cable network for the Project.	
	b) Environmental sensitivities which may affect the timing of the operation and maintenance (O&M) activities must be considered in the OMP.	Section 5.3
	c) O&M of the Project must, at all times, proceed in accordance with the approved OMP (as updated and amended by the Company).	Section 2
	d) Any updates and 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 1.3
Wind Farm Marine Licence Condition 3.2.4.6	e) The OMP must, so far as is reasonably practicable, be consistent with the Environmental Management Plan (EMP), the Project Environmental Monitoring Programme (PEMP), the Navigational Safety and Vessel Management Plan (NSVMP), the Cable Plan (CaP) and the Lighting and Marking Plan (LMP).	Section 1.3
	The Licensee must operate and maintain the Works in accordance with an approved OMP.	Section 2
	The OMP and any subsequent amendments must be approved by the Licensing Authority.	
	The Licensing Authority must be notified at least three calendar months or such other period as agreed by the Licensing Authority in advance of any maintenance of the Works not included in the OMP and involving licensable marine activities not covered under this licence.	Section 5.2

1.3 Linkages with other Consent Plans

- This OMP document sets out the proposed programme of O&M activities in relation to the Wind Farm and OfTW. However, ultimately it will form part of a suite of approved documents that will provide additional details on the O&M activities and/or provide details on the control of O&M activities to mitigate or manage potential environmental impacts and impacts on other marine users - namely the other Consent Plans.
- The OMP is required to be consistent with a number of consent plans that have enduring commitments throughout the O&M phase of the Project. The linkage between this OMP and the enduring commitments of the relevant Consent Plans referenced within the OMP S36 Consent and ML condition are summarised in Table 1-2.

Table 1-2: OMP consistency and links to other Consent Plans

CONSENT REFERENCE	CONSENT PLAN	CONSISTENCY WITH AND LINKAGE TO OMP
Section 36 Consent, Condition 14 Generating Station Marine Licence, Condition 3.2.2.11	Environmental Management Plan (EMP)	Provides details on environmental procedures that will be implemented during O&M activities associated with the Project. This OMP will therefore be implemented in accordance with the approved EMP.
Section 36 Consent, Condition 15 Generating Station Marine Licence, Condition 3.2.2.12 (VMP) Section 36 Consent, Condition 17	Navigation Safety and Vessel Management Plan (NSVMP)	Provides detail on the management and coordination of vessels to mitigate the impact of vessels. The NSVMP will apply to all vessels involved in the O&M activities. This OMP will therefore be implemented in accordance with the approved NSVMP.
Section 36 Consent, Condition 19 Generating Station Marine Licence, Condition 3.2.2.9	Cable Plan (CaP)	Provides details on cable specifications and protection. The O&M activities outlined within this OMP will be consistent with the procedures described in the approved CaP.
Section 36 Consent, Condition 20 Generating Station Marine Licence, Condition 3.2.3.3	Lighting and Marking Plan (LMP)	Provides details of lighting and marking of the Project, as defined in this OMP, during operation. The OMP will incorporate requirements for monitoring and mitigating any lighting failures associated with the lighting and marking in the LMP.
Section 36 Consent, Condition 23	Project Environmental Monitoring Programme (PEMP)	Provides details on the strategy for post-construction monitoring.

6. In addition, a number of other consent plans not referenced within the relevant OMP conditions will also remain active throughout the O&M phase of the Project. O&M activities, where relevant and practicable to do so will be undertaken in accordance with the commitments set out in the following consent plans:

- Fisheries Management and Mitigation Strategy;
- Written Scheme of Investigation and Protocol for Archaeology Discovery;
- Emergency Response Cooperation Plan (Operational Phase); and,
- Decommissioning Programme.

The construction phase plans which will not be active during the O&M phase, and are not required to be subsumed into this OMP are as follows;

- Construction Method Statement and Construction Programme;
- Development Specification and Layout Plan;

- Construction Traffic Management Plan; and
- Piling Strategy.

1.4 OMP Document Structure

7. In response to the specific requirements of the conditions attached to the Offshore Consents, this OMP has been structured so as to be clear that each part of the specific requirements have been met and that the relevant information to allow the Scottish Ministers to approve the OMP has been provided. The document structure is set out in Table 1-3 below.

Table 1-3: OMP document structure

SECTION		SUMMARY OF CONTENT
1	Introduction	Provides an overview of the Project, identifies the requirement in the Offshore Consents for an OMP, confirms the scope and structure of this OMP and its relationship to other Consent Plans.
2	Statements of Compliance	Sets out the NnGOWL statements of compliance in relation to the OMP.
3	Project Overview	Provides an overview of the Wind Farm infrastructure that will operate and be subject to maintenance.
4	Communication and Reporting	Sets out the key communication interfaces, reporting procedures and key roles associated with O&M activities.
5	Programme of O&M Activities	Provides a description of routine O&M activities and associated programme of works. Sets out the potential unscheduled activities that are anticipated. Summarises environmental sensitivities and how they will be considered in planning O&M activities and details good working practices and procedures to be implemented.
7	Operation and Maintenance Consent Plan Commitments	Confirms that the details set out in this OMP are in accordance with relevant commitments made in NnGOWL Consent Plans.
8	Compliance with the Application	Confirms that the details set out in this OMP are in accordance with those presented in the Application.

2 NnGOWL Statements of Compliance

2.1 Introduction

8. The following section is intended to re-affirm the NnGOWL commitment to ensuring that the Wind Farm is operated and maintained in such a manner as to meet the relevant legislative requirements set out by the Offshore Consents.

2.2 Statements of Compliance

9. NnGOWL, in undertaking the O&M of the Wind Farm, will require compliance with this OMP as approved by the Scottish Ministers (and as updated or amended from time to time, as required).
10. NnGOWL, in undertaking the O&M of the Wind Farm, will require compliance with other relevant Consent Plans as approved by the Scottish Ministers, as set out in Section 1.3 above.

Where updates or amendments are required to this OMP, NnGOWL will ensure the Scottish Ministers are informed as soon as reasonably practicable and where necessary the OMP will be updated or amended and resubmitted for approval as required. NnGOWL will, in undertaking the O&M of the Wind Farm, require compliance with the approved OMP (and all other relevant, approved Consent Plans) by Contractors and Subcontractors through conditions of contract and by an appropriate auditing process.

3 Project Overview

11. The Wind Farm Area is located to the northeast of the Firth of Forth, 15.5 km directly east of Fife Ness on the east coast of Scotland (see Figure 3-1). The Wind Farm Area covers approximately 105 km². Offshore Export Cables are located within the Offshore Export Cable Corridor which runs in an approximately southwest direction from the Wind Farm Area, making landfall at Thorntonloch beach to the south of Torness Power Station in East Lothian. The Offshore Export Cable Corridor is generally 300 m in width from the Wind Farm Area boundary to the landfall location with a slightly wider area at approximately 9 km offshore from Thorntonloch beach to accommodate micro-siting of the export cable around difficult seabed features. Figure 3-1 shows the Wind Farm Area and Offshore Export Cable Corridor.
12. The Generating Station, covered by this OMP, is comprised of:
 - 54 wind turbines generating a maximum generating output of around 450 Megawatts (MW);
 - 54 jacket substructures installed on pre-piled foundations, to support the wind turbines;
 - A network of inter-array subsea cables, buried and/or mechanically protected, to connect strings of turbines together and to connect the turbines to the OSPs; and
 - One interconnector cable connecting the OSPs to each other.
13. The turbine locations and the arrangement of the inter-array cables and the connection to the OSPs are shown on **Error! Reference source not found.** below. The final position of all inter-array cables, interconnector, turbines and their sub-sea structures were confirmed upon the completion of Works as required by Condition 3.2.4.4 of the Marine Licence.
14. A separate OMP has been prepared for the OfTI assets.

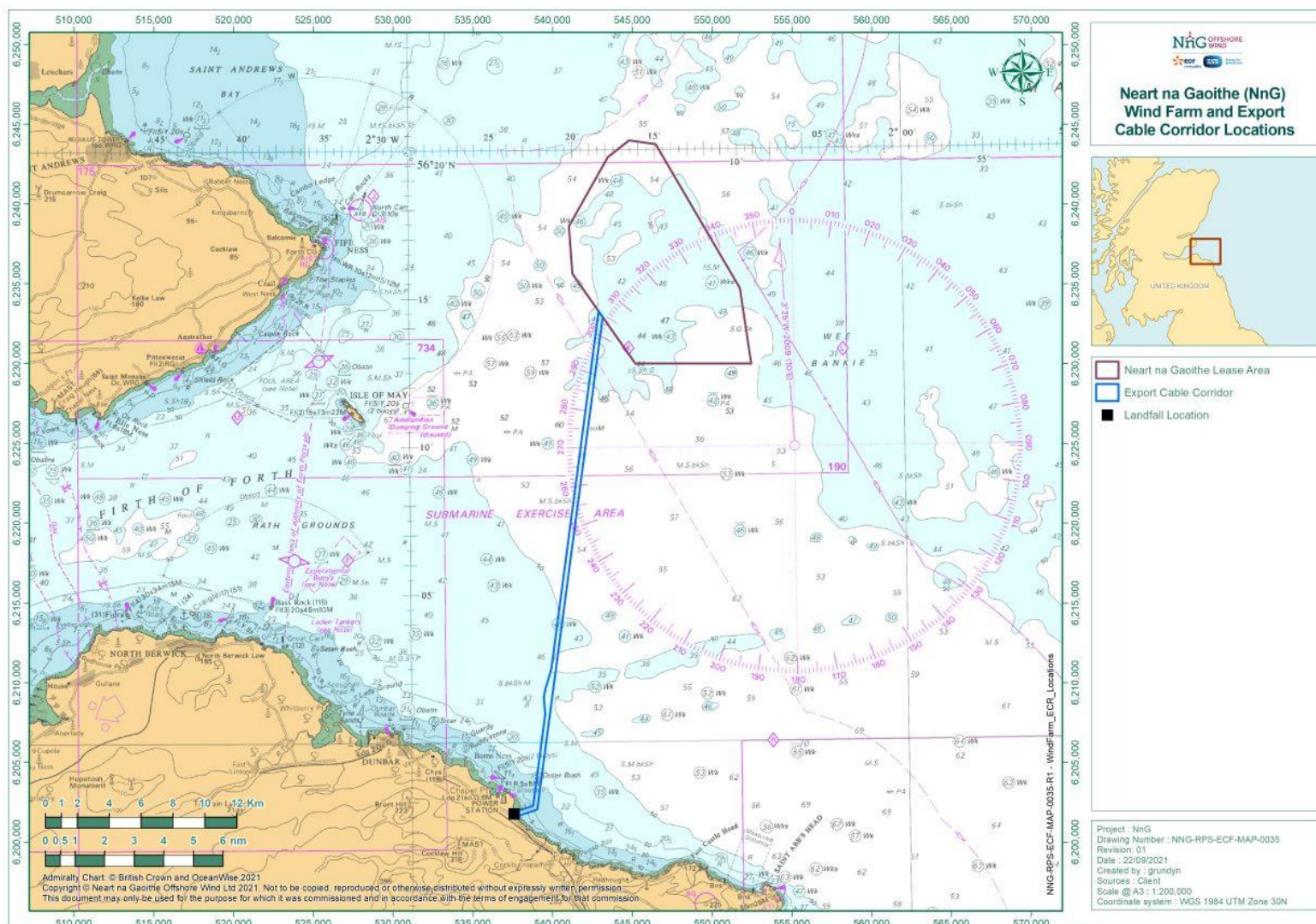


Figure 3-1: Wind Farm Area and Offshore Export Cable Corridor location.



4 Communication and Reporting

4.1 Roles and Responsibilities

4.1.1 NnGOWL

15. The Wind Farm will be operated and maintained by EDF Power Solutions on behalf of NnGOWL. An O&M team has been established to support the Project through its operational lifetime; the structure of the team is shown in Figure 4-1. The O&M Manager is ultimately responsible for the operation and maintenance of the Wind Farm.
16. Day-to-day O&M activity is the responsibility of the O&M Manager, who along with the operational controllers and logistics coordinator will be based at the NnG O&M base located in Eyemouth Harbour. Table 4-1 details the roles and responsibilities of the key O&M personnel. An H&S Advisor and Offshore Environment Manager is in place to advise the O&M Manager and team on aspects relating to health, safety and environmental considerations.

4.1.2 NnG Control Room

17. The marine co-ordination of O&M activities of the generating station will be controlled from a NnG Control Room in the Operational Control Centre within the NnG O&M base at Eyemouth Harbour by n Operational Coordinators, who will work in parallel to the O&M team. The NnG Control Room will be responsible for the management, coordination and monitoring of all O&M vessels transiting to and from the OfTI to ensure the safety of the OfTI. The NnG Control Room will obtain and provide localised weather information for vessels working on the Generating Station to plan O&M activities.

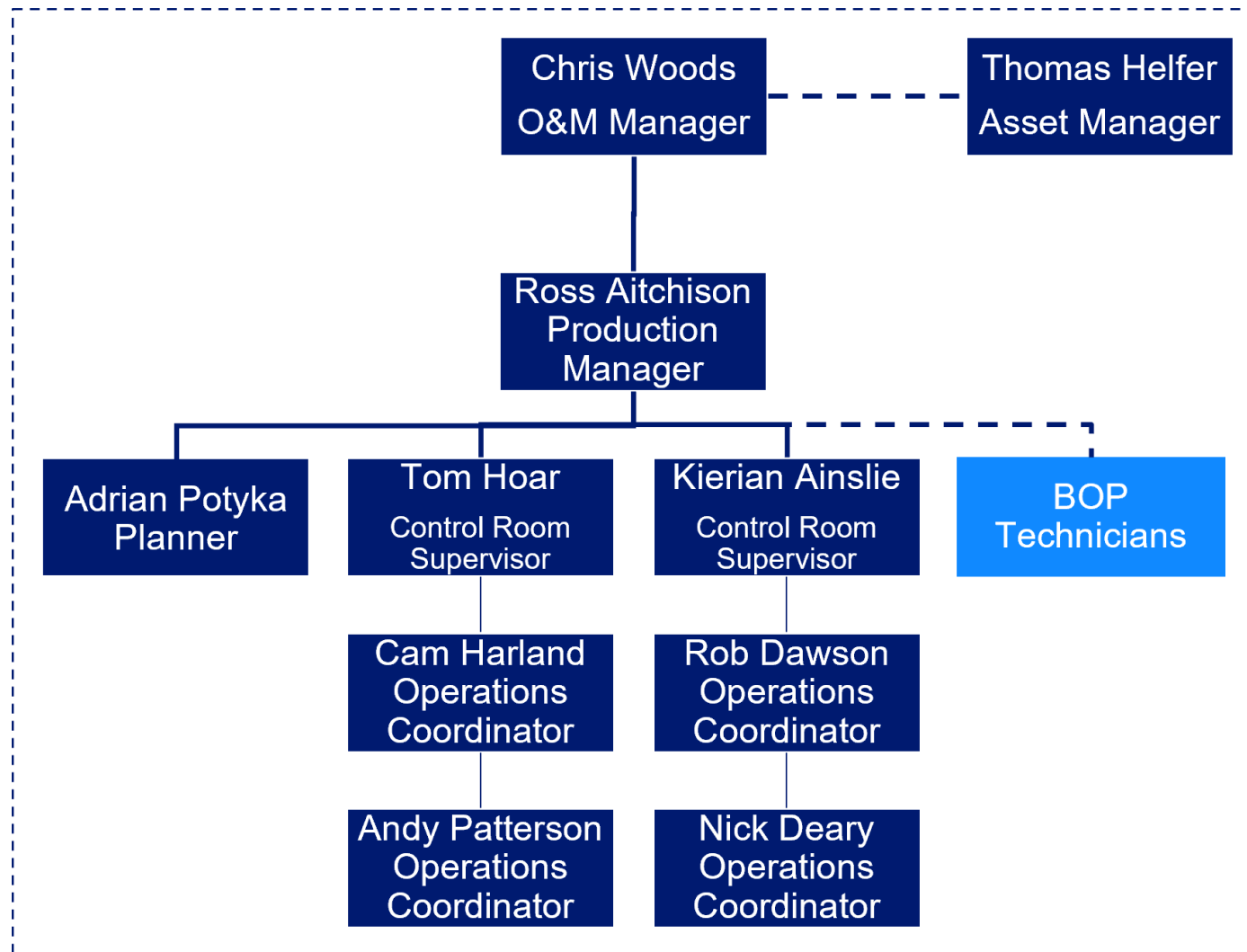


Figure 4-1: NnGOWL organisational chart responsible for operation and maintenance of the NnGOWL offshore generating station.

Table 4-1: Key NnGOWL Roles and Responsibilities.

ROLE	RESPONSIBILITY
O&M Manager	Oversees the effective delivery of the O&M phase of the Project, managing the O&M team.
O&M Production Manager	Responsible for overseeing the day-to-day operation of the wind farm and for the management of the Control Room Supervisors and Operations Coordinators on all day-to-day activities.
Asset Leads	Responsible for overseeing and managing all scheduled and unscheduled O&M activities associated with their respective technical packages.
Control Room Supervisor / Operational Coordinators	Responsible for the ongoing monitoring and control of all NnGOWL assets. Control Room Supervisors / Operations Coordinators will monitor and control the turbines and electrical infrastructure on a 24 / 7 basis.
Planner	The Planner will be responsible for managing the required O&M activities and coordinating servicing requirements with the Asset Leads.
Offshore Technicians	Responsible for executing both reactive and planned operations and maintenance tasks on the WTG and ensuring this is carried out in line with the manufacturer's requirements and in line with site procedures. Reporting into their respective O&M team.
Crew Transfer Vessel Master	Responsible for the safe operation and overall management of Crew Transfer Vessels and adherence to site procedures. Reporting into the NNG Control Room and the O&M team.
Crew transfer Vessel Crew	Responsible to perform safe, timely and efficient CTV operations including transport and transfer of personnel and equipment between NnGOWL assets under instruction of the Vessel Master and in line with site procedures.
H&S Adviser	Responsible for maintaining and communicating health and safety procedures and ensuring that O&M activity is undertaken in compliance with the health and safety legislation and project plans.
Offshore Environment Manager	Responsible for maintaining and communicating environmental management procedures and ensuring that O&M activity is undertaken in compliance with the Offshore Consents. Reporting to MD-LOT as required. Where necessary supported by a Consents Manager.
Fisheries Liaison Officer	Responsible for establishing and maintaining effective communications between NnGOWL, Contractors, fishermen and other users of the sea during major O&M activities.

4.1.3 O&M Contractors

18. NnGOWL will manage service contracts with Original Equipment Manufacturers (OEMs) and other O&M Contractors (as required) in order to perform O&M activities.

19. The wind turbines will be covered by a performance-based Service and Maintenance Agreement (held with Siemens Gamesa) with options to extend or reduce its scope during and following the warranty period. Siemens Gamesa will have an on-site presence at the NnG O&M base in Eyemouth. Agreements with OEMs will be established to ensure spares provision and availability of technical advice.
20. All Contractors and Subcontractors shall ensure that their own procedures comply with the requirements of this OMP and other relevant Consent Plans. Contractors and Subcontractors have the following responsibilities in relation to the OMP:
 - Ensuring that sufficient resources and processes are in place to comply with the OMP and other relevant Consent Plans; and
 - Liaising with the NnG O&M team and producing and maintaining records of activity on site and communicating those to the NnG O&M team.

4.2 Internal Communications

21. NnGOWL's approach to communications and reporting will require all NnGOWL personnel and Contractors to report regularly on HSE compliance during O&M activities.
22. Compliance reporting will include all returns required to satisfy the obligations set out within the Offshore Consents and will include information on environment management, such as details of environmental incidents (if any) and records of environmental checks and inspections conducted and such information as may be required to complete reporting responsibilities.
23. A number of monitoring systems will be in place to facilitate asset management and reporting including a supervisory control and data acquisition (SCADA) system capable of real time asset monitoring and data transfer. The SCADA will be capable of identifying any asset failures or problems that will be used to inform external communications and notifications where relevant and as detailed within Section 4.1.
24. All NnGOWL personnel and Contractors will be required to report any environmental concerns or issues. Further details on incident reporting can be found in the EMP.

4.3 External Communications

25. NnGOWL will liaise with MD-LOT on environmental matters including consent compliance and incident reporting. The consent documents / plans identified a number of returns or reporting requirements relevant to O&M. The relevant consent conditions and reporting requirements are set out in Table 4-2 below, along with the expected or required frequency for reporting to MD-LOT.

MD-LOT may also undertake monitoring of compliance with the consent conditions and approved Consent Plans through periodic site inspections. With appropriate notification, NnGOWL will facilitate access to the Generating Station assets for this purpose.

Table 4-2: Other reporting and notification requirements set out in the Consent conditions

TOPIC	CONDITION	SUMMARY OF REQUIREMENT	FREQUENCY
Redundant turbines	Section 36 Consent Condition 5	If one or more turbine fails to generate electricity for a continuous period of 12 months, then unless otherwise agreed in writing by the Scottish Ministers, the Company must: (i) by no later than the date of expiration of the 12-month period, submit a scheme to the Scottish Ministers setting out how the relevant turbine(s) and associated infrastructure will be removed from the site and the seabed restored; and (ii) implement the approved scheme within six months of the date of its approval, all to the satisfaction of the Scottish Ministers.	As required
Vessels, vehicles agents, contractors and sub-contractors	Generating Station Marine Licence Condition 3.1.3	The Licensee must ensure that at least five days prior to its engagement in the Licensed Activities, the name and function of any vessel, agent, contractor or subcontractor appointed to engage in the Licensed Activity 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. The Licensee must make the Vessel Reports and the Contractor Reports available on the Neart na Gaoithe Offshore Wind Limited webpage: https://nngoffshorewind.com/resources. Any changes to the supplied details must be uploaded to the Vessel Report and the Contractor Report and the Licensing Authority must be notified, in writing, prior to any vessel, agent, contractor or sub-	As required

TOPIC	CONDITION	SUMMARY OF REQUIREMENT	FREQUENCY
		contractor which has not yet been notified to the Licensing Authority engaging in the Licensed Activities.	
Material alterations to the licence application	Generating Station Marine Licence Condition 3.1.5	If, after the granting of the licence, any information upon which the granting of this licence was based has altered in any material respect, the Licensee must notify the Licensing Authority of this fact in writing as soon as is practicable.	As required
Operation and Maintenance of the Licensed Activity	Generating Station Marine Licence	The OMP and any subsequent amendments must be approved by the Licensing Authority.	As required
	Condition 3.2.4.6	The Licensing Authority must be notified at least three calendar months or such other period as agreed by the Licensing Authority in advance of any maintenance of the Licensed Activity not included in the OMP and involving licensable marine activities not covered under this licence.	3 months in advance of any O&M activity not covered by this OMP

26. The consent plans which will endure for the duration of the O&M phase also detail a number of external reporting requirements. These are set out in Table 4-3 below.

Table 4-3: External reporting requirements detailed within other consent plans

CONSENT PLAN	REPORTING REQUIREMENTS
Generating Station Environmental Management Plan	• Force majeure incidents • Incident reporting including pollution incidents, dropped objects or non-compliance reporting • Chemical usage notifications • Fluorinated gas emissions monitoring checks • Breaches in health and safety or environmental obligations
Navigational Safety and Vessel Management Plan	• Promulgation of information including Notice to Mariners, Kingfisher bulletins, notification to the UK Hydrographic Office • Notification of destruction or decay of any project assets • Marine incident reporting
Generating Station Lighting and Marking Plan	• Failures or outages in aviation lighting and subsequent issue of Notice to Airmen • Failures or outages in marine Aids to Navigation
Project Environmental Monitoring Programme	Sets out environmental monitoring requirements associated with: • Seabirds • Marine mammals • Commercial fisheries • Marine fish • Diadromous fish • Benthic communities • Seabed scour and local sediment deposition
Written Scheme of Investigation and Protocol for Archaeological Discovery	Offshore reporting procedures following discovery of archaeological assets.

5 Programme of Operation and Maintenance Activities

5.1 Introduction

27. This section sets out the O&M activities undertaken to ensure the continued safe and efficient operation of all installed infrastructure. O&M activities include regular maintenance and service activities associated with each Generating Station component and unscheduled maintenance requirements; the anticipated likelihood of unscheduled maintenance activities taking place has been based on experience at other offshore wind farms.

5.2 Operation and Maintenance Requirements

28. Table 5-1 to Table 5-5: Vessel Usage set out the scheduled and unscheduled O&M activities associated with the various turbine components, the turbine foundations and the inter-array, interconnector cables.

29. As set out under Condition 3.2.4.6 of the Generating Station Marine Licence, NnGOWL will notify MD-LOT of any maintenance works involving additional deposits or activities not covered by the Application and supporting documents, at least three months in advance of such works.

Table 5-1: Anticipated O&M activities: Turbine jacket foundations

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
SCHEDULED MAINTENANCE ACTIVITIES			
Jacket boat landing / access ladders	Visual inspection of access points prior to access. Removal of marine growth and/or guano from access points (e.g. boat landings and ladders) as required to provide safe access for personnel transferring to the structure.	Visual check undertaken on approach. If removal required, high-pressure jet-wash (sea water only) from Crew Transfer Vessel is used on targeted areas.	Full removal of marine growth and/or guano as required for safe access. Cleaning will be restricted to access points. Will be removed as required upon inspection during each visit to turbines. Estimated approximately to 20 visits per year per turbine.
Jacket foundation	Subsea surveys of the foundations and cable access systems to assess scour and integrity of the cable protection system. Removal of marine growth and/or guano from foundations and cable access systems may be required	Remotely Operated Vehicle (ROV) and / or geophysical surveys of the foundation.	At first, 20% of structures will be surveyed within the first year and the frequency of subsequent inspections will be based on findings. Additionally, ad-hoc inspection may be required after 1 in 50-year storm or other significant events.
Jacket foundation (corrosion protection)	Cathodic protection potential shall be measured to ensure fulfilment of minimum requirements on foundation jackets and piles. Removal of marine growth and/or guano from foundations and cable access systems may be required	Measurement of anode potential with a probe deployed from the external tower platform and/or ROV. Visual inspection of anodes and consumption verification of anodes (includes volume assessment).	The first measurement will be made after the first year of installation. Subsequent investigations will then be undertaken every five years depending on the initial findings. As per requirements, additional checks will also be done in years 24 and 25 of operation.
Jacket foundation (transition piece) (paint and coatings)	Application of primer and paint or other coatings to protect the foundations from corrosion. Includes surface repair and preparation work. Removal of marine	Technicians and equipment deployed from CTV or similar vessel. Surface preparation to break down existing surface coating and any associated rust using mechanical grinding or high-pressure blasting	As required; touch up painting potentially every five years, smaller touch up painting annually, or as required if damage occurs.

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
	growth and/or guano from foundations and cable access systems may be required	methodology to revert back to bare metal. Primer and paint repair applied using brush or spray technique.	
UNSCHEDULED MAINTENANCE ACTIVITIES			
Jacket and pile foundation (corrosion protection)	Adding anodes required for corrosion protection of the external foundation.	Divers or ROVs deployed via a dive support vessel, construction vessel or Jack up Vessel (JUV) or similar vessel. Mechanical connection or welding as required.	As required, although this is very unlikely since the anodes have been designed for the full lifetime of the asset (including installation and decommissioning).
Jacket boat landing / access ladders	Replacement of access ladders and boat landing due to collision damage or corrosion.	ROVs deployed via a support vessel, CTV or similar vessel. Small jack-up type vessel for replacement for boat landing.	As required; estimated at one complete replacement at three turbine locations over lifetime.
Jacket davit crane	Replacement of davit cranes on the turbine foundation due to failure.	Small JUV for lifting of davit cranes and CTV for transfer of personnel.	As required; estimated at one replacement at each turbine over lifetime.
Jacket scour protection	Deployment of rock protection around areas of excessive scour.	Scour will be installed from a fall pipe vessel or similar.	If required.
Jacket navigation aids	Repair of navigation aids.	Technicians and equipment deployed from CTV or similar vessel to enable repair or replacement.	If required.

Table 5-2: Anticipated O&M activities: Turbines

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
SCHEDULED MAINTENANCE ACTIVITIES			
Turbine	Annual service and maintenance activities to maintain turbine reliability and prevent unplanned break downs.	Service technicians access turbine via CTV transfer.	An initial service is undertaken after either 500 hours or three months. Subsequently, one annual service is completed per year per turbine, scope is carried out over two days.
Turbine Safety and Lifting Equipment	Statutory inspections and annual maintenance of the lifts, cranes, etc. to ensure safe operation of this equipment and meet legal standards.	Service technicians access turbine via CTV transfer.	Annual inspections and maintenance carried out over one day per turbine. An additional visit is required each year per turbine to complete six monthly lift inspections.
Turbine HV equipment	Annual maintenance of the HV equipment including 66KV switch gear and transformer to maintain turbine reliability and prevent unplanned breakdowns.	Service technicians access turbine via CTV transfer.	One annual HV service is completed per year per turbine, scope is carried out over one day.
Turbine blades	Drone inspection of blades to record blade condition and monitor integrity	Remote inspection typically undertaken by drone camera's operated by drone pilot from CTV in the Wind Farm Area. Alternative inspections by rope access technicians as required.	Seven turbines are inspected per day; eight days will be required to inspect full 54 turbines. All turbines inspected in year one. Estimated 18 turbines to be inspected each year from year two onwards requiring three visits.
Turbine seabird monitoring equipment	Six monthly service, inspection and maintenance. To maintain monitoring equipment reliability and prevent unplanned break downs.	Service technicians access turbine via CTV transfer.	Every six months per turbine with installed monitoring equipment, scope is carried out over two days per turbine.

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
Turbine navigation aids	Cleaning, bulb and battery replacement, and full functionality testing with results recorded.	Authorised technicians access turbine via CTV, replace batteries, check, clean and replace bulbs in external navigation aids.	To reflect the best practice detailed within the AtoN equipment manuals
UNSCHEDULED MAINTENANCE ACTIVITIES			
Turbines	Service technicians to access turbine for rectification of faults on defective turbines or if faults which will lead to down turbines.	Service technicians access turbine via CTV transfer.	Frequency of visits for unplanned repair works is determined by turbine reliability. It is anticipated that one turbine may need to be repaired every two to three days.
Turbine HV Equipment	Rectifications of faults on defective turbines or of faults which will lead to down turbines.	Service technicians access turbine via CTV transfer.	As required.
Turbine blades	Repair of damaged blades	Service technicians access turbine via CTV transfer. Rope access team to undertake repairs.	If required.
Turbine towers	Tower paint repairs	Service technicians access turbine via CTV transfer. Rope access team to undertake repairs.	As required.
Turbine navigation aids	Cleaning, bulb and battery replacement.	Service technicians access turbine via CTV transfer.	As required.
MAJOR COMPONENT REPLACEMENT			

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
Turbine blades	Jack up operations for craning of blades if blade repair requires blade removal. A CTV would act as a guard vessel to ensure adherence to safety exclusion zone.	Jacking vessel gains footing on the seabed in order to provide stable platform for heavy lift craning to remove blades either for repair significant damages or to replace blades.	The vast majority of blade defects will be repaired repair via rope access. The frequency of jack up blade repairs is seen to very low.
Whole nacelle exchange	Jack up operations for craning of direct drive generator major component or entire nacelle if failure occurs and needs to be exchanged. A CTV would act as a guard vessel to ensure adherence to safety exclusion zone.	Jacking vessel gains footing on the seabed in order to provide stable platform for heavy lift craning to exchange defective Generator.	If required; there is no way of forecasting the frequency of these failures. The components are designed and manufactured to operate for the life of the turbine.
Turbine Transformer/Switch gear	Jack up operations or special purpose vessel for craning of transformer major components if failure occurs and needs to be exchanged. Switch gear replacements using special purpose vessel. A CTV would act as a guard vessel to ensure adherence to safety exclusion zone.	Jacking vessel gains footing on the seabed in order to provide stable platform for heavy lift craning to exchange defective HV equipment.	If required; there is no way of forecasting the frequency of these failures. The components are designed and manufactured to operate for the life of the turbine.
Turbine main bearing	Jack up operations for craning of main bearing if failure occurs and needs to be exchanged. A CTV would act as a guard vessel to ensure adherence to safety exclusion zone.	Jacking vessel gains footing on the seabed in order to provide stable platform for heavy lift craning to remove blades and hub to gain access to and replace the defective main bearing.	If required; there is no way of forecasting the frequency of these failures. The components are designed and manufactured to operate for the life of the turbine.

Table 5-3: Anticipated O&M activities: Inter-array cables

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
SCHEDULED MAINTENANCE ACTIVITIES			
Inter-array cables and protection	Bathymetry cable route or depth of burial surveys to ascertain any cable exposure on the seabed. Where cable protection is deployed, surveys will check cable protection integrity.	Boat-based geophysical survey and/or ROV deployment from CTV or similar vessel.	Initially undertaken once per year to be reduced based on level of risk of exposure informed by initial surveys.
UNSCHEDULED MAINTENANCE ACTIVITIES			
Over trawl investigations	Over-trawl investigations.	Method to be agreed in advance with MD-LOT and fisheries stakeholders.	Following significant cable laying / repairs or installation of rock protection, subject to agreement with MD-LOT.
Connection to jacket (cable protection systems)	Repair or replacement of cable protection system attached to the J-tubes (cable entry protection system for turbine foundation) during cable repair/replacement works.	Divers or ROVs deployed via a diving support vessel, CTVs for transfer of personnel and small barge or similar vessel for products and equipment.	As required; cable protection systems and j-tubes designed for lifetime of the project. Repair/replacement of cable protection systems only required if damaged by external factors.
Inter-array cables	Recovery and repair of a cable section using cable joints; or Replacement of a complete new length of cable (turbine to turbine).	Method as detailed in the Cable Plan, summarised as follows; recovery and repair undertaken from cable lay vessel or jack-up vessel. Cable de-buried using jetting tool or equivalent, damaged cable cut using ROV, cable recovered and new cable section jointed in prior to cable being re-laid and re-buried and/or protected.	Recovery and repair/replacement of inter-array cables over the lifetime of the wind farm as required. Each event would be anticipated to take an average of eight weeks. Any seabed disturbance would be kept within the original defined cable corridor.

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
Inter-array cables and protection	Cable reburial or deployment of additional protection where exposure detected.	Vessel mobilised to enable reburial using jetting and trenching methods if seabed conditions allow, or deployment of additional cable protection, most likely in the form of rock placement/rock bags or a suitable alternative.	As required; in line with licensed deposits. Chosen materials and final location of the cable protection would be notified to Marine Directorate prior to implementation.

Table 5-4: Anticipated O&M activities: Ancillary activities

PROJECT COMPONENT	DESCRIPTION OF ACTIVITY	METHODOLOGY	FREQUENCY OF ACTIVITY
Metoccean monitoring equipment	Deploy required metoccean monitoring equipment. Undertake regular maintenance including battery / bulb changes, mooring checks (if relevant), etc.	Undertaken by authorised contractors with access to relevant project platforms or from vessels if moored.	As required by manufacturers specifications.

Table 5-5: Vessel Usage

TYPE	DESCRIPTION	USAGE
CTV	CTVs are used for the transport of technicians, equipment and consumables to and from the wind farm site on a daily basis. CTVs are generally between 15m and 25m in length, and can carry up to 12	Number of CTVs: Up to four CTVs for 12 months of year, operating primarily from Eyemouth. On average three CTVs transiting to and from site per day to facilitate standard operation and maintenance activities (non-licensable)

TYPE	DESCRIPTION	USAGE
	passengers. CTVs may also carry cargo which can be handled on the forward or after decks using davit cranes mounted on the turbine foundations or support vessels.	additional vessel may be required during intensive maintenance campaigns. Indicative transit routes outlined within the NSVMP will be adhered to where safe to do so.
JUV or Heavy Lift Vessels (HLV)	Jack-up Vessels would be required for large component replacements. A typical jack-up vessel would have between four or six legs and be around 50m to 140m in length. Actual vessel selection would be dependent upon the height and weight of the required lift.	Only required in the event of a major component failure.
Service Operations Vessel (SOV)	May be used for intensive maintenance campaigns.	Single vessel on site for duration of campaign.
Cable laying vessels	Large single purpose cable lay vessel, likely to be over 125 m in length to be used for cable repairs.	Only required in the event of cable damage or failure or where significant cable exposure has occurred.
Offshore Construction Vessel / Multipurpose vessel	General vessel likely to be approximately 100 m in length to be used for general O&M work where heavy lifting is not required.	Maintenance or repairs that don't require heavy lifting operations, including cleaning of marine growth, paint or coating repairs, deployment of ROV, deployment of cable burial / trenching tools.
Fall pipe vessel	Vessel with large aggregate hopper for deployment of rock protection.	Will be used as required to deploy rock placement around exposed cables where reburial is not possible.
Autonomous operated vehicles	Likely to be deployed from larger offshore construction / multi-purpose vessel.	To be used to undertake remote survey work
Dive Support Vessels	Small dive support vessel likely to be around 25 m in length.	NnGOWL will aim to minimise diving operations as far as possible. Diving may be required to undertake more detailed inspections or repair work.

5.3 Environmental Considerations

30. Environmental sensitivities within the Wind Farm Area and along the Offshore Export Cable Corridor were identified during baseline surveys and desk-based reviews to inform the EIA Report submitted as part of the Application for the Offshore Consents. Seasonal environmental sensitivities were considered as part of the EIA detailed in the Neart Na Gaoithe EIA Report (NnGOWL, 2018¹) in respect of all construction and O&M activities. No environmental receptors considered within the EIA for the Project were identified as being particularly sensitive to O&M activities during specific periods of the year. Table 5-6 summarises the findings of the EIA report in respect of the potential effects of O&M activities on the main biological receptors taking into account seasonal considerations.
31. The seasonal considerations set out in Table 5- 5-6 will be updated, where required, to take account of the output of site-specific monitoring, as described in the Project Environmental Monitoring Programme.

Table 5-6: Environmental Considerations Associated with Operations and Maintenance Activities.

RECEPTOR	ENVIRONMENTAL SENSITIVITIES	SEASONAL CONSIDERATIONS
Marine Mammals	A total of four species of cetacean: harbour porpoise, white-beaked dolphin, orca and minke whale were recorded during site specific surveys undertaken between 2010 and 2012. Two species of seal: harbour seal and grey seal were recorded during the site specific surveys. Although no bottlenose dolphins were recorded during site specific surveys, their potential proximity to the proposed Project meant they were included in the EIA. During site-specific surveys grey seals were noted to be more common during Spring and Autumn. No other marine mammal species show strong seasonal distributions relevant to the Project throughout the year. Whilst grey seals are likely to be more common at the site during autumn and spring, they are not considered to be particularly sensitive to O&M activities.	No seasonal restrictions to O&M activities required.
Ornithology	A total of 29 seabird species were identified during the site-specific surveys. The three most abundant species recorded during the surveys were gannet, puffin and guillemot. Thirteen species of seabird were considered to be key species and were assessed in greater detail in the EIA on account of the high numbers present at certain times of year, the likely high connectivity to Special Protection Areas (SPAs) (nine species), and their sensitivity to potential effects. The impact of O&M activities including vessel activities was not considered to be significant to any bird species at any time of the year.	No seasonal restrictions to O&M activities required.

¹ NnGOWL (2018) Neart Na Gaoithe environmental Impact Assessment Report.
<https://nngoffshorewind.com/resources-old/environmental-impact-assessment-report/>

RECEPTOR	ENVIRONMENTAL SENSITIVITIES	SEASONAL CONSIDERATIONS
Benthic and Intertidal Ecology	Site-specific surveys identified no seasonal sensitivities in respect of benthic species or habitats.	No seasonal restrictions to O&M activities required.
Fish and Shellfish Ecology	The Project area is not considered important spawning grounds for herring or sandeel species. The area overlaps with a number of other fish and shellfish spawning and nursery grounds, however, these areas are ubiquitous in nature across the North Sea. As such no high seasonal sensitivities for marine fish species have been identified across the Wind Farm Area or Offshore Export Cable Corridor. Atlantic salmon have the potential to migrate through the Wind Farm Area and across the Export Cable Corridor between the marine environment and natal rivers on inward and outward migrations at specific periods of the year. The exact migratory routes are not well known but there is potential that migrating salmon will pass through the wind farm when migrating between distant feeding grounds to the north of the UK and natal rivers on the east coast of Scotland. Due to the transitory nature when passing the Project areas and the low risk of impact from O&M activities there is no risk to Atlantic salmon during seasonal migrations.	No seasonal restrictions to O&M activities required.
Commercial Fisheries	Commercial fisheries operate out of a number of ports along the east coast of Scotland covering the Fife, East Lothian & Scottish Borders and Aberdeenshire & Angus council areas. Across the Project area, the most economically important species to be landed are <i>Nephrops</i> from demersal trawling and European lobster, landed from pots/creels, which also target other shellfish species including brown and velvet crabs. Scallop dredging also takes place across the region. Demersal trawls target squid, and hook and line gear is used to capture mackerel. Some hydraulic dredgers also operate in the region targeting razor shell and soft-shelled clam. Whilst there are seasonal patterns associated with a number of these fisheries, they are not considered to pose a restriction to O&M activities, and any relevant mitigation will be delivered via the FMMS.	No seasonal restrictions to O&M activities required, interactions to be managed in accordance with the approved FMMS.

5.4 Good Working Practices

32. NnGOWL will require that good working practice is applied by NnGOWL personnel and Contractors throughout O&M, seeking to minimise the risks to personnel, other marine users and the environment.

33. Condition 16 of Section 36 consent includes the following requirement:

The OMP must set out the procedures and good working practices for operations and the maintenance of the WTG's, substructures, and inter-array cable network.

34. Good working practice is not defined by the Offshore Consents. For the purposes of complying with this requirement NnGOWL have taken the requirement to imply the following:

The reasonable application of methods of working that have been shown to achieve the best outcomes or that reach or exceed relevant legislative standards.

35. In the context of the O&M phase of the Project, this has been taken to apply to those standards, guidance or examples of good practice working that will act to:

- Manage the O&M process, so as to avoid harm to personnel or third parties; and,
- Ensure effects on the environment and other users of the marine environment are minimised as far as reasonably practicable (and in line with the commitments made by NnGOWL or the requirements of the Offshore Consents).

36. Good working practices fall into the following specific areas:

- Offshore renewable industry good practice guidance (see Table 5-7 Offshore wind good working practice guidance).
- Health and safety procedures.
- O&M management procedures;
- Environmental management procedures; and
- Specific good working in relation to aspects of the O&M process (that, for example, act to avoid or reduce environmental impacts or impacts on other users).

37. In so far as is reasonably practicable, the good working practices outlined in this section are consistent with the following consent plans (detailed in Section 1.3, Table 1-2, and Section 6.2):

- Generating Station Environmental Management Plan (including Annex 3: Operational Marine Pollution Contingency Plan);
- Project Environmental Monitoring Programme;
- Navigational Safety and Vessel Management Plan;
- Generating Station Cable Plan; and
- Generating Station Lighting and Marking Plan.

38. In addition, the practices are consistent with the following consent plans which are not referenced within the relevant OMP conditions and which will remain active throughout the O&M phase of the Project:

- Fisheries Management and Mitigation Strategy;
- Written Scheme of Investigation and Protocol for Archaeology Discovery; and

- O&M Phase Emergency Response Cooperation Plan.
39. With regard to offshore renewable industry good working practices there are a number of guidance documents that have been produced in recent years. Where relevant, NnGOWL will require that such good practice is reflected in the detailed method statements produced by the Contractors. Relevant industry guidance documents are listed in Table 5-7 Offshore wind good working practice guidance. These include guidance developed by the National Grid in relation to grid connection and electrical safety rules.
 40. With regard to management procedures associated with O&M activities, NnGOWL will ensure a range of project management procedures are in place that will, alongside the relevant approved consent plans, act to ensure the safe, compliant maintenance of the major project components as set out in Section 5.2 above, including but not limited to:
 - A dedicated Operational Control Centre to coordinate all activities on site including all vessel and personnel movements;
 - Detailed maintenance method statements and risk assessments prepared by each maintenance Contractor;
 - Appropriate interface management procedures to facilitate effective communication between the NnGOWL O&M team, Contractors and the NnG Control Room;
 - Clear roles and responsibilities allocated to all parties (see also Section 4.1);
 - A clear process of reporting, recording and auditing of the maintenance process, Contractor performance and methods for managing shortfalls in performance.
 41. The environmental management measures that will be applied by NnGOWL and Contractors incorporate a variety of good working practice and legislative standards in relation to activities including; control of waste, dropped objects, pollution prevention, chemical usage and control of invasive non-native species. Environmental management measures are set out in full in the EMP which will be applied in undertaking O&M activities as set out in Section 5.2 above.
 42. In addition to the EMP, a number of other consent plans or requirements also incorporate matters related to environmental management and incorporate elements of good working practice. Section 6 sets out the relevant commitments and good working practices that will be implemented and adhered to for the duration of the O&M phase that are covered within the enduring consent plans.

Table 5-7 Offshore wind good working practice guidance

PRODUCED BY	TITLE	SCOPE
The G9 ² , published through the Energy Institute	Working at height in the offshore wind industry (2 nd Edition) (published July 2018)	Covering design, construction, commissioning, and operation; designed to reduce the need for work at height; topic guidance sheets, covering common hazards, personal protective equipment, training and competence, fitness requirements, and the responsibilities of those procuring, supervising and undertaking work; with supporting information, such as regulatory requirements in selected EU countries and technical standards.
	The safe management of small service vessels used in the offshore wind industry (2 nd Edition) (published January 2018)	Cover working with vessels that have a gross tonnage of less than 500, such as crew transfer vessels, guard vessels, survey vessels and offshore support vessels. The guidelines cover audit and inspection regimes for Wind Farm service vessels, operating procedures for routine marine operations, training and competence of crew and passengers, and safety equipment.
	Offshore wind farm transfer (published July 2020)	Provides a framework of how to execute a safe transfer in an offshore wind farm. The goal is to provide consistency and good practice regarding transfer across the wind industry and allow operators and vessel owners to produce or to verify their transfer procedure up against a set of industry standard guidelines.
The Crown Estate	Sharing lessons learned and good practice in offshore transmission (published June 2014)	Presents the findings from a study commissioned to understand experience and lessons learned in the development, construction and operation of offshore transmission infrastructure.

² Formed in 2010, the G9 comprises nine of the world's largest offshore wind developers and focuses on creating and delivering world class health and safety performance across all of its activities in the offshore wind industry. Membership comprises Centrica, Statoil (now Equinor), E.on, RWE, DONG Energy (now Ørsted), Scottish Power Renewables, SSE, Statkraft and Vattenfall.

PRODUCED BY	TITLE	SCOPE
National Grid	The Electricity Transmission Safety Rules (5 th Edition) (published 2021) and associated National Safety Instructions (various publication dates)	Rules provided to make sure work can be carried out safely on or near electrical and mechanical equipment.
	Grid Code (Revision 12) (published March 2022)	The Grid Code details the technical requirements for connecting to and using the National Electricity Transmission System (NETS). The Grid Code specifies day-to-day procedures for both planning and operational purposes and covers both normal and exceptional circumstances.
RenewableUK	Offshore Wind and Marine Energy Health and Safety (H&S) Guidelines (published March 2014)	H&S guidelines for the offshore wind sector covering all phases of development and identifying risks and significant safety hazards and activities.
	Integrated Offshore Emergency Response – Renewables (IOER-R) - Good Practice Guidelines for Offshore Renewable Energy Developments (Published 2016)	Sets out a recommended approach for managing and responding to emergencies taking account of existing and emerging industry good practice within the framework of UK health and safety legislation.
	Safety Circular: Notices to Mariners. Guidance for Offshore Wind & Marine Projects (Published 2013)	This Circular provides a short summary of the accepted scope and format for issuing Notice to Mariners (NtMs).
	FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (Published January 2014)	Sets out best practice guidance on liaison between the offshore wind industry and the fishing industry.
	Guidelines for Selection and Operation of Jack-ups in Marine Renewable Energy Industry (Published February 2013)	Industry guidance aimed at jack-up owners, operators, developers and contractors engaged in site-investigation, construction, operation and maintenance of offshore wind and marine energy installations.
	H&S First Aid Needs Assessment (Published August 2013)	Provide basic information on how duty holders can assess the provision of adequate and appropriate equipment, facilities and personnel to ensure employees receive proper attention if they are injured or taken ill at work.

PRODUCED BY	TITLE	SCOPE
	Vessel Safety Guide Guidance for Offshore Renewable Energy Developers (2015)	Provides guidance and insight on the selection of vessels through all phases of Wind Farm development.

6 Operation and Maintenance Consent Plan Commitments

43. The Offshore Consents requires approval of a number of Consent Plans setting out the O&M commitments in relation to the wind farm as detailed in Section 1.3. This section outlines the approach to implementing the commitments within these approved Consent Plans where they relate to O&M activities.

44.

6.1 Partially Enduring Consent Plans

45. A number of Consent Plans required to be submitted prior to the commencement of construction outline commitments that must be actioned throughout the O&M phase of the Project. Whilst the commitments relating to construction will no longer apply during the O&M phase these Consent Plans will remain active during the O&M phase. Table 6-1 identifies relevant Consent Plans and Offshore Consent conditions which contain commitments relevant to O&M. Full details of these commitments are set out within the respective Consent Plans.

Table 6-1: O&M commitments detailed within NnGOWL Consent Plans

CONSENT PLAN AND CONDITION REFERENCE	O&M REQUIREMENT
Lighting and Marking Plan Section 36 Consent Condition 20 Marine Licence (Generating Station) Condition 3.2.3.3	Notification of Aviation lighting outage Where there is an aviation lighting outage that endures beyond 36 hours, NnGOWL shall request a NOTAM to be issued by informing the NOTAM section of the UK Aeronautical Information Service (UKAIS) as soon as possible. Contact is the CAA's Airspace Utilisation Section (AROps@caa.co.uk / 0207 453 6599). The following information will be provided when requesting a NOTAM: • Name of the wind farm (as already recorded in the Aeronautical Information Publication (AIP)); • Identifiers of affected lights (as listed in the AIP) or region of wind farm if fault is extensive (e.g. north east quadrant / entire wind farm / 3 nautical miles (nm) centred on position X); • Expected date of reinstatement; and • Contact telephone number. Upon completion of the remedial works to fix aviation lighting faults exceeding 36 hours, the UKAIS will be notified as soon as possible to enable a cancellation to be issued. The party that originally requested the NOTAM will then issue such notification so that a NOTAM cancellation notice can be issued. Such notification will include the name of the wind farm and the reference of the original NOTAM. If an aviation lighting outage is expected to last longer than 14 days then the CAA will also be notified (at Windfarms@caa.co.uk) by NnGOWL directly to discuss any issues that may arise and longer term strategies. Navigation promulgation of information Details of the Project will be promulgated to relevant marine stakeholders during the O&M phase where appropriate through the use of local Notice to Mariners (NtMs).

CONSENT PLAN AND CONDITION REFERENCE	O&M REQUIREMENT
	Reporting on Aids to Navigation availability The availability of all AtoNs employed throughout the O&M phase shall be calculated over a rolling three-year period. NnGOWL will maintain records of AtoN availability and provide summaries of these to NLB. NnGOWL will facilitate access to site, if required for any inspections undertaken by NLB to monitor AtoN availability. NnGOWL, or an appointed contractor, will procure the relevant AIS licences via applications to Ofcom to operate AIS (from both substations) during the operational phase of the OfTI. All failure or loss of availability to any AtoN will be monitored and reported through the NLBs LATONS system. NnGOWL will provide records of failure or losses of availability to NLB.
Navigational Safety and Vessel Management Plan Section 36 Consent Conditions 17 and Marine Licence Conditions 3.2.2.12 in respect of the Navigational Safety Plan Section 36 Consent Conditions 15, Marine Licence (Generating Station) Condition 3.2.2.12 and Marine Licence) Condition 3.2.2.11 in respect of the Vessel Management Plan	Reporting of Safety Zone Infringements During Operations and Maintenance Phase - A 500m radius around all major maintenance works being undertaken, major maintenance works being defined in the 2007 Regulations, at Regulation 2, as 'works relating to any renewable energy installation which has become operational, requiring the attachment to, or anchoring next to, such an installation of a self-elevating platform, jack-up barge, crane barge or other maintenance vessel'. The safety zones will be active when a vessel involved in undertaking major maintenance works is attached to, or anchored next to the renewable energy installation; however, these safety zones will not include service operation vessels used during walk to work activities. Any incidents of a vessel repeatedly infringing the safety zones, or any isolated incidents considered as representing dangerous behaviour will be reported to Marine Directorate, with reporting copied to the MCA. Any such notification to Marine Directorate and the MCA would be accompanied by supporting evidence of the infringement. This evidence will be gathered using vessel radar and Automatic Identification System (AIS) monitoring, or other supporting evidence provided by on-site vessels. Permit to Work and vessel management The NnG Control Room will establish protocols for approaching and leaving the worksite as well as management systems to record the work being undertaken and the vessels and personnel undertaking that work.

CONSENT PLAN AND CONDITION REFERENCE	O&M REQUIREMENT
	AIS coverage of site The NnG Control Room, as part of the necessary O&M facilities, will have AIS coverage of the site.
	Vessel auditing All vessels used on site as part of the NnGOWL operational phase will be audited to ensure they comply with legislation appropriate for its class and area of operation.
	O&M RAM Vessels – AIS capability All O&M vessels will be equipped with AIS receivers and transmitters.
	Identification of navigational hazards In the event that any hazards to navigation are identified (e.g. exposed cables), NnGOWL will contact the MCA and the NLB to determine suitable mitigation (e.g. temporary buoys, guard vessel) until such a time as permanent measures were in place.
	NtMs NnGOWL will ensure that relevant stakeholders are informed via NtMs, or other appropriate means, of any planned or unplanned maintenance activities that are outside day to day maintenance activities carried out at the Project. NtMs will be issued in a timely fashion, at least two weeks prior to any significant maintenance activity commencing. Owing to the potential for jack-up vessel spud can depressions to pose a seabed hazard for mobile gear fishermen prior to natural backfill, NtMs will be issued post campaign, to include the coordinates of the footprint.
	Scottish Marine Wildlife Watching Code

CONSENT PLAN AND CONDITION REFERENCE	O&M REQUIREMENT
	As part of routine vessel operations vessel masters will be required to ensure that disturbance to marine wildlife is minimised as far as practicable. Where appropriate, and safe to do so, vessel masters will adhere to the following principles, in accordance with the Scottish Marine Wildlife Watching Code (SMWWC): • Consider adhering to existing shipping lanes or indicative transit routes in passage planning in accordance with the NSVMP; • Avoid sudden changes in speed or direction in transit to and from the Wind Farm Area or Offshore Export Cable Corridor as far as possible and unless required for health and safety reasons or other emergency purposes; • Keep a good look forward (this particularly applies to smaller vessels); • Do not intentionally pursue marine mammals or birds; and, • Do not instigate contact with marine mammals or birds. Training awareness in relation to the SMWWC will be delivered to O&M personnel as part of routine tool box talks delivered to all contractors engaged on the Project.
Cable Plan Section 36 Consent Condition 19 and the Wind Farm Marine Licence Condition 3.2.2.9	Cable Protection NnGOWL confirm that where it is identified that rock placement is required, NnGOWL will issue a Notice to Mariners containing the justification of the requirement for cable protection in that location. Any changes throughout the O&M phase will also be notified by a NtM. Over-trawl Investigations Where target Depth of Lowering (DoL) is not achieved and significant additional cable protection is deployed, over-trawl investigations will be undertaken by NnGOWL, in accordance with the Application (NnGOWL, 2018) commitment in agreement with MD-LOT and following engagement with stakeholders including fisheries organisations, in accordance with the Fisheries Liaison Strategy outlined in the FMMS.

CONSENT PLAN AND CONDITION REFERENCE	O&M REQUIREMENT
	Cable inspections Post-installation survey of the inter-array and interconnector cables was performed to meet IHO Standard 1a. Survey reports and datasets have been sent to the MCA, as per Hydrography guidelines in MGN654 Annex 4. During the operational phase, further cable or seabed surveys will be undertaken to confirm that cables remain buried. A survey has been undertaken approximately 1-year post-installation to confirm the cables remain buried. The frequency and scope of further monitoring will be proportionate to the risk of future cable exposure and determined based on comparisons with the initial post-installation survey results. The following surveys or inspections may be considered as part of ongoing O&M activities: • Geophysical surveys along all routes or those routes which are considered at risk of exposure based on initial post-installation survey findings; • Surveys at approaches to structure j-tubes where there may be greater risk of scour/ erosion; and • A Distributed Temperature Sensing (DTS) system will be installed to remotely and continuously monitor export cable health from the O&M base. Cable Exposure Identification of a cable exposure will be notified to local users, the MCA, the NLB, the UKHO and fishing organisations via NtMs and the Kingfisher Bulletin, ensuring timely notification to fishing organisations and other marine users. In the event of cable exposure, cable sections will be inspected to determine the full extent of exposure. An assessment will be undertaken to determine the risk posed by the exposed cables to other sea users and to the Wind Farm. Where the risk is

CONSENT PLAN AND CONDITION REFERENCE	O&M REQUIREMENT
	unacceptable, remedial action will be undertaken to ensure the cable is adequately protected. The following measures will be considered: • Reasonable endeavours will be made to re-bury the cable to a safe DoL taking into account the risk of exposure re-occurring; • Placement of rock bags or rock armour or suitable alternatives such as frond mats, tyre mats etc., at the cable ends to mitigate cable movement / migration; or • Placement of additional rock armouring along the length of exposed cable. This approach is considered a last resort and would be agreed in advance of deployment with MD-LOT. Cable failure Where damaged or faulty subsea cables are identified remedial action will be undertaken as soon as possible. Repairs will be conducted by a CLV or suitable alternative vessel such as a jack-up vessel. The cable repair options will depend on the location of the fault. The final repair method will be notified to MD-LOT in advance of the works. The method and amount of cable replaced will be dependent on the location and nature of the fault identified. More detail on the anticipated remedial action is set out in the Cable Plan.

6.2 Enduring Consent Plans

46. The following consent plans and commitments made therein, will remain active in their entirety, subject to any necessary updates, for the duration of the O&M phase:

- Environmental Management Plan (Including Annex 3: Operational Marine Pollution Contingency Plan (MPCP));
- Navigation Safety and Vessel Management Plan;
- Development Specification and Layout Plan;
- Lighting and Marking Plan;
- Cable Plan;
- Fisheries Management and Mitigation Strategy;
- Project Environmental Monitoring Programme;
- Written Scheme of Investigation and Protocol for Archaeology Discovery;
- Operation and Maintenance Phase Emergency Response Cooperation Plan; and
- Decommissioning Programme which will be replaced by the Wind Farm Decommissioning Programme following transfer of the Offshore Transmission Works Marine Licence to the OFTO.

7 Compliance with the Application

7.1 Introduction

47. In addition to the conditions presented in Table 1-1, Condition 16 of the S36 Consent states that:

Except as otherwise required by the terms of this consent, the Development must be operated in accordance with the Application (as supplemented by the additional environmental information (EIA Addendum), submitted by the Company on 26 July 2018) and any other documentation lodged in support of the Application.

48. And condition 3.2.4.6 of the Wind Farm Marine Licence states that:

The Licensee must operate and maintain the Works in accordance with an approved OMP. The OMP and any subsequent amendments must be approved by the Licensing Authority.

49. Section 7.2 sets out a number of commitments detailed within the documentation submitted as part of the Application that will require delivery as part of ongoing O&M operations.

50. Compliance with the Application and Supporting Information Table 7-1 sets out the commitments detailed within the EIA Report and other documentation submitted in support of the Application where they related to O&M activities.

Table 7-1: O&M commitments set out in the Application (NnGOWL, 2018)

DETAILS OF COMMITMENT	MECHANISM FOR DELIVERY
The turbines and associated support structures will be marked according to the requirements of the Northern Lighthouse Board (NLB). During the operational phase, the Wind Farm will be lit in line with CAP 393 (CAA, 2017) and CAP 437 (CAA, 2016a), and as agreed with the CAA. A Lighting and Marking Plan will be submitted for approval, to MD-LOT outlining the Wind Farm lighting, and marking strategy to mitigate the risk to aviation safety during operation of the Wind Farm.	Lighting provisions and monitoring are set out in the LMP.
Safety zones of 500 m around any wind farm structure (turbine or substation) and/or its substructures where major maintenance is being undertaken during the operational phase. Guard vessels, or another nominated vessel, will be used to monitor passing traffic and contact vessels, which could infringe the safety zones. Minimum safe passing distance may be requested by vessels where safety zones are not applicable.	Safety Zones as approved by MD-LOT under the Energy Act 2004 during the operational lifecycle of the Project.

DETAILS OF COMMITMENT	MECHANISM FOR DELIVERY
As all atmospheric emissions associated with the development are from vessel emissions, total emissions will be reduced by taking total vessel emissions / fuel use into account when designing the final installation, operation and maintenance, and decommissioning strategies to minimise as far as practicable the number of vessel movements and installation time required.	Built into vessel management provisions (Vessel Auditing) as described in the NSVMP.
The onshore operations base will also serve as a Marine Control Centre that will monitor vessel activity (AIS and non-AIS) and record the movements of vessels around the OfTI Area as well as infield (company) vessels working at the OfTI Area. Possible errant vessels identified in construction areas or safety zones will be identified and contacted.	Monitoring provisions are detailed in the NSVMP.
During Operation and Maintenance appropriate information will be circulated detailing any major maintenance of the wind farm via Notice to Mariners, Kingfisher Bulletin, Navigation Information Broadcasts and other appropriate media.	Promulgation of information provisions are detailed within the NSVMP.
Commercial Fisheries Mitigation and participation in the Commercial Fisheries Working Group (CFWG)	As set out in the approved Fisheries Management and Mitigation Scheme (FMMS).
The Project will be operated as required in MGN543. Annex 5 (Requirements, Guidance and Operational Considerations for Search and Rescue) specifies Standards and procedures for generator shutdown and other operational requirements in the event of a SAR (Search and Rescue), counter pollution or salvage incident in or around an OREI.	As confirmed in the SAR checklist agreed with the MCA. The SAR checklist will be reviewed as required throughout O&M in consultation with the MCA.
Other Marine Users Mitigation - The Project will be compliant with the MCA's Marine Guidance Note 71 - Muster, drill, onboard training, decision support system.	
Creation of an ERCoP based on the MCA template and Project Safety Management System, in consultation with the MCA. Procedures will be followed in the event of an emergency situation during the operational phase.	As set out in the approved Operation and Maintenance Phase ERCoP.
Periodic and planned monitoring of cables will be undertaken to monitor burial depths/protection and seabed mobility (cable movement).	Set out within the CaP.
Over trawl investigations will be carried out on the inter-array and inter-connector cables where significant additional cable protection is deployed to ensure that the protection scheme has been successful.	
The micro-siting allowance and exclusion zones will be detailed in a Written Scheme of Investigation in order to mitigate the risk of damage to any cultural heritage assets. A Protocol for Archaeological Discovery will detail procedures that should be followed in the event of an unexpected archaeological discovery.	Set out in the WSI&PAD.

