Environmental Management Plan (EMP)

KINCARDINE OFFSHORE WINDFARM PROJECT

Prepared	Checked	Reviewed	Approved	ECoW Approved
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Detailed Change Log

Date	Rev. Status	References	Description of changes	Initials
12/03/2018	A1	CRS-001	See Comments Review Sheet	[redacted]
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19/04/2019	C2	Section 4	Aspects and Impacts table inserted, and body of text tabulated	[redacted]
01/05/2019	C3	-	Table 6.1 MS LOT information change	[redacted]
09/10/2019	C4	Appendix A	Updated Field Layout	[redacted]
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ACRONYMS, ABBREVIATIONS and DEFINITIONS

ACoW	Archaeological Clerk of Works
ADD	Acoustic Deterrent Devices
ALARP	As Low As Reasonably Practicable
CaP	Cable Plan
CD	Chart Datum
CMID	Common Marine Inspection Document
ECoW	Environmental Clerk of Works
EMP	Environmental Management Plan
ES	Environmental Statement
FMMS	Fisheries Mitigation and Management Strategy document
HES	Historic Environment Scotland
IMO	International Maritime Organisation
INNS	Invasive non-native species
IPIECA	International Petroleum Industry Environmental Conservation Association
IS	Implementation Service
ISM	International Safety Management Code
KOWL	Kincardine Offshore Windfarm Limited
MARPOL	MARPOL is short for MARine POLlution and was originally signed at the International Convention for the Prevention of Pollution from Ships in 1973. The current convention is a combination of the 1973Convention and the 1978 Protocol. MARPOL 73/78 and came into effect in 1983.
MGO	Marine Gas Oil
MMO	Marine Mammal Observers
MS	Marine Scotland
MSA	Marine Safety Agency
MSN	Merchant Shipping Notice
OPPC	Oil Pollution Prevention Certificate
OPRC Regulations	Oil Pollution Preparedness, Response and Cooperation Convention) Regulations
PAD	Protocol for Archaeological Discoveries
PAM	Passive Acoustic Monitoring

PC	Principal Contractor
PEMP	Project Environmental Monitoring Plan
QHSEMS	Quality Health Safety and Environmental Management System
RAMS	Risk Assessment Method Statement
ROV	Remotely Operated Vehicle
SEMP	Site Environmental Management Plan
SEPA	Scottish Environment Protection Agency
SLT	Safety Leadership Team
SOLAS	International Convention for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SWMP	Site Waste Management Plan
TBT	Toolbox Talk
UXO	Unexploded Ordnance
VMP	Vessel Management Plan
WT	Wind Turbine
WTG	Wind Turbine Generator
WTN	Waste Transfer Note

1. Introduction

1.1. Purpose of the Document

This document satisfies Condition 13 of the Section 36 Consent issued by the Marine Scotland Licensing Operations Team (MS-LOT) to Kincardine Offshore Wind Limited (KOWL)for the Kincardine Offshore Windfarm (the Project).

The EMP provides the overarching environmental management plan for the Development. It provides a framework to :-

- Ensure all environmental commitments, and conditions associated with the licences and consents, are met.
- Achieve the requirements of all applicable statutory legislation, standards and guidance.

The EMP is further strengthened by the KOWL Environmental Management System which is certified by LRQA to ISO 14001:2015.

The Project Environmental Monitoring Plan (PEMP) (KOWL-PL-0004-005) provides more detailed information on the monitoring of potential environmental impacts associated with the project.

1.2. Scope of the Document

This revision summarises how the project complied with construction phase licence conditions and describes how the conditions will be met during the operational phase.

1.3. Amending and Updating this Document

Where the need for an update is identified, KOWL will communicate the suggested amendments to MS-LOT for consideration beforehand.

1.4. Compliance

Compliance with the various consent conditions are documented in the KOWL Commitments Register and where applicable throughout the EMP.

2. Project Overview

2.1. Summary

The Project is one of the world's first array of floating wind turbines.

The Project is located south-east of Aberdeen approximately 8nm (15km) from the Scottish coastline, in a water depth of approximately 60-80m.

The project is split into the following areas:

- The Development Area – the wind farm area including the Wind Turbine Generators (WTG) and inter-array cables.
- The Offshore Export Cable Corridor – the area within which the export cables are laid, from the perimeter of the Development Area to the onshore area at Mean High Water Spring (MHWS).
- The Onshore Area – the onshore area above MHWS including the underground cables connecting to the onshore substation at Redmoss.

This EMP focuses on the offshore elements only as per Section 36 Consent and Marine Licences granted. The onshore area is subject to a separate planning permission granted by Aberdeen City Council.

2.2. Turbine Locations

The project currently consists of 5 locations:

	WGS84		UTM30	
Turbine	Latitude	Longitude	Easting	Northing
KIN-01	1°52'51.98"W	57°00'19.28"N	567958.90	6318538.50
KIN-02	1°52'25.54"W	56°59'50.29"N	568419.80	6317649.50
KIN-03	1°51'58.99"W	56°59'21.38"N	568882.58	6316763.16
KIN-04	1°51'18.09"W	57°01'07.00"N	569518.21	6320040,23
KIN-05	1°50.51.55"W	57°00'38.05"N	569980.83	6319152.74

2.3. Principal Components

The Project consists of the following offshore components:

- 5 x 9.5MW WTG
- 5 x 33kv inter-array cables
- 2 x export cables
- All turbine substructures are the semi-submersible Windfloat™ design.

2.4. Project Design Life

The design life for the windfarm is 25 years.

3. Consent Conditions

Condition Number	Condition Wording	Where addressed in this document
Condition 13 of the S36 Consent	The Company must, no later than 6 months prior to the Commencement of the Development or at such a time as agreed with the Scottish Ministers, submit an Environmental Management Plan ("EMP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with SNH, SEPA and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers	This document sets out the EMP for approval by the Scottish Ministers. Consultation to be undertaken by the Scottish Ministers.
Condition 13 of the S36 Consent	The EMP must provide the over-arching framework for on- site environmental management during the phases of development as follows: i) all construction as required to be undertaken before the Final Commissioning of the Development; and	Section 4 and 5
	ii) the operational lifespan of the Development from the Final Commissioning of the Development until the cessation of electricity generation. (Environmental management during decommissioning is addressed by the Decommissioning Programme provided by condition 3).	Section 4 and 5

Condition 13 of the S36 Consent	The EMP must set out the roles, responsibilities and chain of command for the Company personnel, any contractors or sub-contractors in respect of environmental management for the protection of environmental interests during the construction and operation of the Development	Section 6
Condition 13 of the S36 Consent	It must address, but not be limited to, the following over- arching requirements for environmental management during construction: a) mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the ES and ES Addendum, preconsent and pre-construction monitoring or data collection, and include the relevant parts of the CMS;	Section 4
	b) a pollution prevention and control method statement, including contingency plans;	Sections 4 and 7
	c) management measures to prevent the introduction of invasive non-native marine species;	Section 4
	d) a site waste management plan (dealing with all aspects of waste produced during the construction period), including details of contingency planning in the event of accidental release of materials which could cause harm to the environment. Wherever possible the waste hierarchy of reduce, re-use and recycle should be encouraged;	Section 4

	e) the reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders (including, but not limited to, SNH, SEPA, MCA and NLB) with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.	Section 8
Condition 13 of the S36 Consent	The Company must, no later than 3 months prior to the Final Commissioning of the Development or at such a time as agreed with the Scottish Ministers, submit an updated EMP to cover the operation and maintenance activities for the Development, in writing, to the Scottish Ministers for their written approval. Such approval may be given only following consultation with SNH, SEPA and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers	Section 1.3
Condition 13 of the S36 Consent	The EMP must be regularly reviewed by the Company and the Scottish Ministers, at intervals agreed by the Scottish Ministers. Reviews must include, but not be limited to, the reviews of updated information on construction methods and operations of the Development and updated working practices.	Section 1.3
Condition 13 of the S36 Consent	The EMP must be informed, so far as is reasonably practicable, by the baseline monitoring or data collection undertaken as part of the Application and the PEMP.	The EMP has been produced in accordance with this condition

3.1. Objectives and Targets

The project's environmental objectives are to ensure that:

- Risk of adverse environmental impacts are minimised or mitigated appropriately;
- All environmental commitments and conditions are met.

Project specific targets include but are not limited to those specified below.

Target	Performance January 2021 to January 2022
Minimise pollution events	Zero pollution events
Consistently high level of environmental awareness for all project personnel	All vessels in field during construction activities were provided with environmental awareness briefings and subject to environmental audit by the ECOW
Minimise nuisance complaints	Zero nuisance complaints

4. Offshore Environmental Aspects and Impacts

Aspects and Impacts	Primary Control Measure	Additional Control Measures	Comments
Vessel operations during construction and operational activities and the impact of oil/chemical spillsarising from them	An inventory of all oils and chemical sonboard vessels will be developed by the sub-contractors. All vessels will have their own spill plans.	The KOWL ECoW will receive a copy of all inventories and spill plans for approval. The ECoW will audit the inventory and spill plan during pre-mobilisation visits. Pre-mobilisation environmental briefing to vessel crews by ECoW. All vessels will have a Common Marine Inspection Document (CMID) and will produce a current and valid CMID Report.	KOWL as owner of the wind farm has overall accountability for any spill associated with the Project over its lifecycle and is responsible for: Approving all spill response plans submitted by sub-contractors; Coordinating an ongoing spill response following the initial incident; Communication with statutory bodies following any pollution incident.
Underwater noise during operation of the wind farm and the impact on marine mammals	Noise monitoring	Pre-construction Drifting Ear noise survey completed in 2018 and submitted to MS-LOT. Post construction monitoring was conducted in 2019 whilst the 2MW turbine was operational. A full report has been submitted to MS-LOT	No further noise monitoring is planned. Data will be published as part of an European level marine impact assessment of floating offshore windfarms.

Construction and Operation activities and potential disturbance or injury to Marine Mammals	Presence of trained marine mammal observers (MMO) on relevant vessels	MMOs will conduct searches for the presence of marine mammals prior to construction or survey activites commencing. Use of Passive Acoustic Monitoring devices (PAM) when required due to meteorological conditions. If marine mammals are present then mitigation measures in line with the JNCC guidelines for minimising the risk of injury to marine mammals will be implemented to reduce the risk of harm to a negligible level. Defined navigational routes will be utilised by vessels to reduce the risk of collision with marine mammals.	Construction activities anticipated to result in potential impacts to marine mammals (cable laying / burial, rock placement) were programmed outside of the peak periods for marine mammals' presence within the vicinity of the Development Area (August and September).
Vessel operations during construction leading to possible damage from UXO and risk to marine mammals.	A UXO threat assessment was undertaken prior to construction. One UXO was identified for safe removal	UXO detonated safely. MMOs on board vessel. All activities conducted in compliance with EPS licence and reports submitted to MS-LOT	No further UXO operations envisaged during the operational phase.
Waste arising from operations and construction and the potential impact from inappropriate disposal	All waste will be disposed of in accordance with current waste regulations.	KOWL will assess the operational maintenance schedule and conduct waste management audit at appropriate maintenance intervals.	
Introduction of invasive non-native species during construction / operations	Legal compliance and audit	Vessels of 400 gross tonnage (gt) and above to be in possession of a current International Anti-Fouling System (AFS) certificate. Vessels of 24m or more in length (but less than 400 gt) to carry a declaration on AFS signed by the owner or authorised agent accompanied by appropriate documentation such as a paint receipt	Requirements are included in the ECOW pre mobilisation audit

		or contractor's invoice. Ship hull inspections and biofouling management measures will be documented, and recorded in the contractor's Planned Maintenance System or Common Marine Inspection Document (CMID). Submersible equipment and ROVs will be subject to marine growth checks which must be removed prior to the deployment of equipment. Where applicable, all vessels will comply with the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (BWM/CONF/36) convention, developed and adopted by the International Maritime Organisation (IMO)). Where applicable, the management of ballast water will be undertaken in accordance with an approved Ballast Water and Sediments Management Plan and records of such management in a Ballast Water Record Book in accordance with the provisions of the Convention (Regulation B4	

Disturbance to Fish and Shellfish during construction and decomissioning of theproject	See Fisheries Management and Mitigation document KOWL-PL-0004-004		
Construction and operation activities leading to unexpected or incidental Marine Archaeological Discoveries	See Marine Archaeological Reporting Plan document KOWL-PL- 0004-003		

5. Onshore Environmental Aspects

5.1. Potential Impact on the Intertidal Zone

During the directional drill operation for phase 1 of the cable installation works a phased approach was adopted in order to minimise any potential impacts on breeding birds.

5.2. Noise Management

All construction activities were undertaken in line with BS 5228 recommendations to minimise noise levels.

5.3. Dust Management

Dust emitting activities were undertaken in line with mitigation measures recommended by PAN 50: Controlling the Environmental Effects of Surface Mineral Workings and the Institute of Air Quality Management's Guidance on the assessment of dust from demolition and construction Version 1.1.

6. Project Team Environmental Roles and Responsibilities

Role	Responsibilities / Accountabilities

Environmental Clerk of Works	As per role defined in Section 25 of the Consent granted by the Scottish Ministers under Section 36 of the Electricity Act 1989 for the construction and operation of an offshore generating station, the Kincardine Floating Offshore Windfarm, approximately 15 km South East of Aberdeen (7th March 2017) • Quality assurance of all plans and programmes required under this consent; • Responsibility for the monitoring and compliance of the consent conditions and the environmental mitigation measures; provision of on- going advice and guidance to the Company in relation to achieving compliance with consent conditions, including but not limited to the conditions relating to the CMS, the EMP, the PEMP, the PS, the CaP and the VMP; • Provision of reports to the Scottish Ministers at timescales to be determined by them; • Induction and toolbox talks to all relevant operational personnel on environmental policy and procedures and keeping a record of these; • Monitoring that the Development is being constructed/ operated according to the plans and this consent, the Application and ES Addendum and compliance with all relevant legislation; • Auditing to ensure compliance with environmental requirements including licences and consents. • Reviewing and reporting incidents/near misses and reporting any changes in procedures as a result; and • Agreement of a communication strategy with the Scottish Ministers.
Project Manager	• Accountable for the implementation of the Environmental Management Plan. • Accountable for environmental training and competency • Accountable for the effective mitigation of environmental risk.

7. Environmental Training

Relevant personnel receive a Project Environmental Briefing tailored to their roles and responsibilities and to the project phase. The briefing, delivered by the KOWL ECOW, includes ;

- Summary of applicable key legislation
- Summary of key environmental sensitivities
- Overview of relevant key KOWL commitments
- Spill prevention and management measures
- Waste segregation and disposal measures

8. Communications

8.1 Internal Communications

In addition to briefings, environmental information is discussed and reviewed at a monthly QHSEMS Management Review Meeting attended by the KOWL Management Team. Topics include:

- Compliance
- HSE performance
- Stakeholder Register
- Planned audits and audit actions

8.2 External Communications

The KOWL Project Manager (PM) is accountable for all communication with MS and Scottish Ministers.

The KOWL ECoW is responsible for communication with MS-LOT

8.3 Interested Parties

Interested parties (stakeholders) are recorded in the KOWL Stakeholder Register. The register identifies the primary focal point within the stakeholder organisation and the primary KOWL contact. Interested parties' needs and expectations and the company communication strategy are reviewed quarterly by the KOWL management team.

9. Emergency Preparedness and Response with respect to pollution events

9.1 General Response Hierarchy

The general spill response hierarchy follows the International Petroleum Industry Environmental Conservation Association (IPIECA) Good practice guidelines for using the tiered preparedness and response framework[2].

Table 9-1 IPIECA Spill Response Hierarchy

Spill Level	Resources	Non-persistent Oil(MGO and Diesel)	Persistent Oil (Hydraulic and Lube Oils)

Tier 1	On site	Natural dispersion and monitoring (using support vessel). If safe to do so, agitate using standby vessel propeller ('prop-wash'), by steaming through the slick at speed. Some locallyavailable dispersant capability may exist, through vessel mounted spray systems.	Natural dispersion and monitoring. Mechanical recovery where possible.
Tier 2	Spill Response Contractor	Natural dispersion and monitoring (aerial surveillance).Chemical dispersiononly if safety or environmental sensitivities are threatened, in consultation with the relevant authorities. Possible additional dispersant is provided through a mutual aid agreement.	Consult specialist services from a spill response contractor. Continue to monitor andevaluate strategy using aerial surveillance. Boat-based dispersant application likely to bethe primary response strategy – liaise with a Tier 2 contractor. Consider mechanical recovery where possible. Mobilise shoreline containment and recovery equipment if shoreline is threatened – spill response contractor to engage additional support if necessary.
Tier 3	Spill Response Contractor	Natural dispersion and monitoring (aerial surveillance). Chemical dispersion only after consultation with relevant authorities.	Consult specialist services through the ad-hoc appointment of a Tier 2/3 spill response contractor. Continue to monitor and evaluate strategy using aerial surveillance. Aerial dispersant application likely to be the primary response strategy through the appointment of a Tier 2/3 response contractor. Consider mechanical recovery where possible. Mobilise shoreline containment and recovery equipment if shoreline threatened.

The Principal Contractor (PC) and sub-contractor are responsible for pollution prevention strategy planning and for any pollution incident response. Sub-contractors will submit their own pollution prevention plans for approval to the PC which are required to be compliant with the standards set within the EMP.

Sub-contractors are encouraged to retain the services of specialist spill response contractors who will be responsible for Level 2 and 3 spills.

Due to the close proximity of Aberdeen Harbour and the strong,tested oil spill response capabilities there, this Project will be served by local Tier 3 capabilities.

9.2 Environmental Incident and Near Miss Reporting

All environmental incidents and near misses arising from work activities shall be reported to the KOWL Project Manager and the ECoW.

In addition, potential and actual environmental hazards that arise on site can be raised using specificsite recording cards.

9.3 Contractor Response Procedures

Where a serious environmental or pollution incident occurs the contractor or responsible person must immediately initiate their own response procedure to control and minimise any adverse environmentaleffect.

KOWL must be notified within 30 minutes to allow the incident to be escalated, where required, within the business and to liaise with the relevant authorities. The KOWL team shall inform MS-LOT of all serious environmental or pollution incidents within 24 hours.

For less serious or significant environmental incidents (including wildlife incidents such as observed fish or bird mortality), the contractor must record details of the incident and complete an incident report as soon as practicable. In addition, KOWL must also be notified as soon as reasonably practicable, but ideally within 24 hours, in order to allow KOWL to report internally and to manage liaison with relevant authorities. KOWL shall provide an incident report where available andliaise with MS-LOT on any further actions to be taken.

10. Environmental Audit and Monitoring Arrangements

10.1 General Monitoring Requirements

Auditing and monitoring activities will be carried out by KOWL.

Audit status and actions are tracked via the monthly QHSEMS Management Review meetings,

KOWL AUDIT	2022 Schedule
Compliance audit of CWIL to address Health Safety and Environmental compliance and compliance with license conditions	**3Q2022**

10.2 Cable Route Monitoring

A Cable Plan has been produced and is available in document KOWL-PL-0004-009.

10.3 Mooring Line Monitoring

Monitoring of mooring lines is further discussed in the PEMP document KOWL-PL-0004-005.

10.4 Bird and Marine Mammal Monitoring

Both a Bird and Marine Mammal monitoring plan have been developed and are available in the PEMP,Document KOWL-PL-0004-005.