Partners in UK offshore wind

MONA OFFSHORE WIND PROJECT

Outline Offshore Operations and Maintenance Plan

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Image of an offshore wind farm

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Prepared for:

Mona Offshore Wind Ltd.

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Glossary

Term	Meaning
Applicant	Mona Offshore Wind Limited.
Development Consent Order (DCO)	An order made under the Planning Act 2008 granting development consent for one or more Nationally Significant Infrastructure Project (NSIP).
Environmental Statement	The document presenting the results of the Environmental Impact Assessment (EIA) process for the Mona Offshore Wind Project.
Inter-array cables	Cables which connect the wind turbines to each other and to the offshore substation platforms. Inter-array cables will carry the electrical current produced by the wind turbines to the offshore substation platforms.
Interconnector cables	Cables that may be required to interconnect the Offshore Substation Platforms in order to provide redundancy in the case of cable failure elsewhere.
Landfall	The area in which the offshore export cables make contact with land and the transitional area where the offshore cabling connects to the onshore cabling.
Marine licence	The Marine and Coastal Access Act 2009 requires a marine licence to be obtained for licensable marine activities. Section 149A of the Planning Act 2008 allows an applicant for a DCO to apply for 'deemed marine licences' as part of the DCO process. In addition, licensable activities within 12 nm of the Welsh coast require a separate marine licence from Natural Resource Wales (NRW).
Mona Array Area	The area within which the wind turbines, foundations, inter-array cables, interconnector cables, offshore export cables and offshore substation platforms (OSPs) forming part of the Mona Offshore Wind Project will be located.
Mona Offshore Cable Corridor and Access Area	The corridor located between the Mona Array Area and the landfall up to Mean High Water Springs (MHWS), in which the offshore export cables will be located.
Mona Offshore Wind Project	The Mona Offshore Wind Project is comprised of both the generation assets and offshore and onshore transmission assets and associated activities.
Offshore Substation Platform (OSP)	The offshore substation platforms located within the Mona Array Area will transform the electricity generated by the wind turbines to a higher voltage allowing the power to be efficiently transmitted to shore.
Wind turbines	The wind turbine generators, including the tower, nacelle and rotor.

Acronyms

Acronym	Description
AUV	Autonomous Underwater Vehicle
CLV	Cable Lay Vessel
CTV	Crew Transfer Vessel
DCO	Development Consent Order
DML	Deemed Marine Licence
JUV	Jack-up Vessel

Acronym	Description
MBES	Multibeam-echo sounder
MCAA	Marine and Coastal Access Act
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
NRW	Natural Resources Wales
NSIP	Nationally Significant Infrastructure Project
OOOMP	Offshore Operations and Maintenance Plan
OSP	Offshore Substation Platform
ROV	Remotely Operated Vehicle
SOV	Service Operation Vessel
SSS	Side Sonar Scan

Units

Unit	Description
%	Percentage
km^2	Square kilometres
MW	Megawatt
nm	Nautical mile

1 Outline offshore operations and maintenance plan

1.1 Introduction

1.1.1 Purpose of this plan

1.1.1.1 Mona Offshore Wind Ltd. (the Applicant), a joint venture of bp Alternative Energy investments Ltd (hereafter referred to as bp) and Energie Baden-Württemberg AG (hereafter referred to as EnBW) is developing the Mona Offshore Wind Project. The Mona Offshore Wind Project is a proposed offshore wind farm located in the east Irish Sea, in Welsh waters.

1.1.1.2 As the Mona Offshore Wind Project is an offshore generating station with a capacity of greater than 350 MW located in Welsh waters, it is a Nationally Significant Infrastructure Project (NSIP) as defined by Section 15(3) of the Planning Act 2008 (as amended) (the 2008 Act). As such, there is a requirement to submit an application for a Development Consent Order (DCO) to the Planning Inspectorate to be decided by the Secretary of State for Energy Security and net zero.

1.1.1.3 A marine licence is required before carrying out any licensable marine activity under the Marine and Coastal Access Act 2009. Marine licences can be deemed under the DCO for licensable activities in Welsh offshore waters. As agreed with Natural Resources Wales (NRW), the marine licence for all licensable activities related to the offshore wind farm generation infrastructure (wind turbines, Offshore Substation Platforms (OSPs), inter-array cables and interconnector cables) located within the Mona Array Area will be deemed under the DCO. However, licensable activities within 12 nm of the Welsh coast require a separate marine licence. A separate application will therefore be made to NRW for a marine licence for the offshore export cables and related works located within and between the Mona Array Area and the landfall at Mean High Water Springs (MHWS).

1.1.1.4 This outline offshore operations and maintenance plan (OOOMP) has been drafted with reference to the following definition of “maintain”: “maintain” includes inspect, upkeep, repair, adjust, alter, remove, reconstruct and replace, to the extent assessed in the environmental statement; and “maintenance” must be construed accordingly.

1.1.1.5 The purpose of this OOMP is to provide an overview of the reasonably foreseeable offshore operations and maintenance activities that the Applicant may need to undertake, and for each activity to outline:

- A description of the activity
- The potential environmental impact(s)
- Measures adopted as part of the Mona Offshore Wind Project to mitigate those environmental impact(s)
- How the activity is to be licensed.

1.1.1.6 The final OOMP will be prepared post-consent following detailed design as required under the deemed marine licence in Schedule 14 of the draft DCO and as expected to be required within the standalone NRW marine licence.

1.2 Background

1.2.1.1 The Mona Array Area will cover an area approximately 300 km^2. The Mona Array Area is 28.8 km (15.6 nm) from the north coast of Wales, 46.9 km (25.3 nm) from the northwest coast of England, and 46.6 km (25.2 nm) from the Isle of Man (when measured from Mean High Water Springs).

1.2.1.2 The Mona Offshore Cable Corridor and Access Area is the corridor between the Mona Array Area and the landfall up to MHWS, in which most of the length of the offshore export cables will be located (the export cables are linked to the Offshore Substation Platforms (OSPs) and therefore are partially within the Mona Array Area also).

1.2.1.3 Once built, the key offshore components of the Mona Offshore Wind Project will include:

- Wind turbines and their associated foundations
- OSPs and their associated foundations
- Inter-array cables
- Interconnector cables
- Offshore export cables
- Scour and cable protection.

1.2.1.4 The detailed design of the Mona Offshore Wind Project (e.g. numbers of wind turbines, layout configuration, foundation type and requirement for scour protection) will be determined post-consent. Volume 1, Chapter 3: Project description of the Environmental Statement (Document Reference F1.3) provides a description of the key components of the Mona Offshore Wind Project, as well as details of how it will be constructed, operated, maintained and decommissioned.

1.3 Defining the scope of licensable activities

1.3.1 Approach to defining scope of application

1.3.1.1 A screening exercise to identify the activities to be included in relation to the offshore operations and maintenance activities has been used to inform the DCO application for the Mona Offshore Wind Project. This screening exercise identified typical operations and maintenance activities carried out for other offshore wind farms and using them to develop a generic schedule of operations and maintenance activities that will and could occur for the Mona Offshore Wind Project. The screening exercise gathered data from operations and maintenance work on existing offshore wind farms, and research of publicly available operations and maintenance Marine Licence applications and DCO applications. Following the creation of this generic schedule, it was edited and reviewed for the Mona Offshore Wind Project.

1.3.1.2 All identified offshore operations and maintenance activities were then assigned to one of the categories presented in Table 1.1 and divided between Table 1.2 for those covered by the NRW marine licence, and Table 1.3 for those covered by the deemed marine licence.

1.3.1.3 A full description of the foreseeable planned offshore maintenance activities for the Mona Offshore Wind Project is provided in Volume 1, Chapter 3: Project description of the Environmental Statement (Document Reference F1.3). Maintenance activities due to unexpected occurrences are not described and have not been included within the

application for Development Consent. The application does include routine unscheduled, emergency or reactive maintenance (i.e. the types of faults that the Mona Offshore Wind Project has the potential to experience) as well as scheduled or routine maintenance. Maintenance due to unexpected occurrences cannot be anticipated and therefore cannot be included within the application for Development Consent or within this plan.

1.3.1.4 Note that all activities listed below are contained within the Project Description (Volume 1, Chapter 3: Project description of the Environmental Statement (Document Reference F1.3)), and have therefore been assessed in the Environmental Statement.

Table 1.1: Categorising offshore operations and maintenance activities.

Category	Description	Examples
Grey	An activity that does not require an additional marine licence (i.e. not licensable), or is not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009.	Personnel transfer, generator refuelling, moving scour protection, wind turbine inspection. These activities' environmental effects are covered by standard procedures and/or wider legislation.
Green	An activity that requires a licence which is included in this application (i.e. licensable).	Painting wind turbines, cable repair and replacement.
Yellow	An activity that requires a separate marine licence or another form of approval, including activities which are listed in the application but are outside of the declared parameters. The application for such an activity would be made at the point of the activity being required. Therefore, it is not included in the operations and maintenance licence application. This includes all activities which are currently unforeseeable.	Placement of additional cable rock protection or scour protection outside the parameters considered in this Application.

1.4 Scope of offshore operations and maintenance activities

Table 1.2: Mona Offshore Wind Project offshore operations and maintenance activities covered by the marine licence from NRW.

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
Foundations (wind turbines and OSPs)				
Routine inspections	Inspections of foundations, including transition pieces and ancillary structures (e.g. J-tubes), above and below sea level. Inspections above the sea level will occur up to once every year and will consist of visual inspections and tests with access via service operation vessels (SOV) or crew transfer vessels (CTV). Inspections below the sea level will occur up to once every four years and will be conducted by subsea remote operated vehicles (ROV) from an SOV.	Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	None	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)
Geophysical surveys	Geophysical survey of the seabed and assets will be carried out from vessels with Side Sonar Scan (SSS), Multibeam-echo sounder (MBES) and/or magnetometer equipment. Geophysical surveys will be deployed to check scour protection and cable protection coverage of subsea cables. The surveys will have no interaction with the seabed. Geophysical surveys	Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3)	Voluntary notification for geophysical and acoustic surveys	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
	will be conducted up to once every three years.	• Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Repairs and replacements of navigational equipment	Repairs and replacements of electrical equipment such as lighting, fog horns, navigation lights and transponders. Navigational equipment maintenance will be conducted from a SOV or CTV. Transponder maintenance will be conducted from an ROV. Repairs and replacements will be carried out in line with manufacturer's requirements and as necessary to meet regulatory requirements on navigational aids.	Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	See Trinity House and Civil Aviation Authority guidance	Repairs and replacements will be carried out as necessary to meet regulatory requirements on navigational aids. Licensable and included in this application
Removal of marine growth and guano	Removal of marine growth and guano from foundations, transition pieces, or access ladders. Removal of marine growth and guano will be conducted	Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:	None	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
	using seawater only, with ROVs, Autonomous Underwater Vehicle (AUVs) or divers. Technicians and equipment will be deployed from a SOV, CTV or helicopter. Removal of marine growth and guano will occur up to four times per foundation per year.	• Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Replacement of corrosion protection anodes	Remove and replace anodes required for corrosion protection. This activity will be carried out with a SOV, CTV or diver from a dive support vessel. This activity will occur up to once every 10 years per foundation.	Dropped objects to seabed and minor seabed disturbance, see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3)	Dropped object reporting form MMO guidance on scuba activities	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		• Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Painting or other coating	Application of paint or other coatings to protect the foundations from corrosion (internal/external), including surface preparation. This activity will be carried out with access via SOV. Small paint events will be conducted at each foundation up to once every three years. A full paint event will be conducted at each foundation up to once every 12 years.	Spill event to marine environment. Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	Marine Pollution Contingency Plan	Licensable and included in this application
Replacement of access ladders and boat landings	Removal and replacement of ancillary structures (e.g. access ladders and boat landings). This activity, if	Dropped objects to seabed and jack-up footprint, see:	Dropped object reporting form	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
	required, may occur at up to one wind turbine foundation every 10 years, and one OSP foundation every 10 years, with access via a jack-up vessel (JUV) or floating crane vessel.	• Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Safety of navigation to other sea users, see: • Volume 2, Chapter 10: Other sea users of the Environmental Statement (Document Reference F2.10). Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	Notice to Mariners Start/end of works notices	
Modifications to or replacement of J-tubes	Modifications to/replacement of J-tubes (e.g. during cable repair works).	Dropped objects to seabed and jack-up footprint, see:	Dropped object reporting form;	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
	This activity, if required, may occur at up to one wind turbine foundation every 10 years and one OSP foundation every 10 years, with access via a JUV.	• Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Safety of navigation to other sea users, see: • Volume 2, Chapter 10: Other sea users of the Environmental Statement (Document Reference F2.10). Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	Notice to Mariners; Start/end of works notices	

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
Wind Turbines				
Routine inspections	Inspections of the interior or exterior of the wind turbines (e.g. blade inspections). This activity will be conducted up to once per year per wind turbine, with SOVs, CTVs or drones.	As per 'Foundations (wind turbines and OSPs): routine inspections' above.	None	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)
Replacement of consumables	Replacement of consumables within the wind turbines (e.g. filters, oils, lubricants). This activity will be conducted up to once per year per wind turbine, with SOVs, CTVs or drones.	Dropped objects to seabed Spill event to marine environments. Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	Dropped object reporting form; Marine Pollution Contingency Plan	Not considered to be licensable but included in this application for completeness
Minor repairs and replacements within the wind turbines	Minor repairs and like for like replacements within the wind turbines (e.g. motors, pumps, small electric equipment, circuit breakers, fuses). This activity will be conducted up to eight times per wind turbine per year,	Dropped objects to seabed. Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:	Dropped object reporting form	Not considered to be licensable but included in this application for completeness.

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
	with access via SOVs, CTVs or helicopters.	• Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Major component replacement	Replacement of major components e.g. blades, gearboxes, transformers or generators. This activity will be undertaken from a JUV or floating crane vessel. This activity will be undertaken up to once every four years per wind turbine.	Dropped objects to seabed, jack-up footprint and minor seabed disturbance, see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Safety of navigation to other sea users, see: • Volume 2, Chapter 10: Other sea users of the Environmental Statement. Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:	Dropped object reporting form Notice to Mariners Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		• Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Painting or other coatings	Application of paint or other coatings to protect the wind turbine blades, tower and nacelle from corrosion (internal/external), including surface preparation. Technicians deployed via rope access or mobile working platform from SOV or CTV. This activity will occur up to once every seven years per wind turbine.	Spill event to marine environment. Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	Marine Pollution Contingency Plan	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
Offshore Substation Platform(s)				
Routine inspections	Inspections of the interior and exterior of the OSP(s). This activity will be carried out with access via SOV or CTV. This activity will occur up to twice per week per OSP.	As per 'Foundations (wind turbines and OSPs): routine inspections' above.	None	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)
Replacement of consumables	Replacement of consumables within the OSP(s) (e.g. oils, lubricants). This activity will be conducted with access via SOV or CTV. This activity will occur up to twice per week per OSP.	As per 'Wind turbines): replacement of consumables' above.	Dropped object reporting form; Marine Pollution Contingency Plan	Not considered to be licensable but included in this application for completeness
Minor repairs and replacements within the OSP(s)	Minor repairs and like for like replacements within the OSP(s) e.g. motors, pumps, small electric equipment, circuit breakers, fuses. This activity will be conducted up to once per week per OSP with access via SOV, CTV or helicopter.	As per 'Wind turbines): Minor repairs and replacements within the wind turbines' above.	Dropped object reporting form	Not considered to be licensable but included in this application for completeness
Major component replacement	Replacement of major components e.g. transformers and switchgear. This activity will be undertaken from a JUV or SOV. This activity will be undertaken up to three times per OSP over the lifetime of the Mona Offshore Wind Project.	Dropped objects to seabed, jack-up footprint and minor seabed disturbance, see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Safety of navigation to other sea users, see: • Volume 2, Chapter 10: Other sea users of the Environmental Statement (Document Reference F2.10).	Dropped object reporting form Notice to Mariners Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Painting or other coatings	Application of paint or other coatings to protect the OSP(s) from corrosion (internal/external), including surface preparation. Technicians deployed via rope access or mobile working platform from SOV or CTV. This activity will occur up to once every five years per OSP.	As per 'Wind turbines): painting or other coatings' above.	Marine Pollution Contingency Plan	Licensable and included in this application
Inter-array cables				
Routine inspections	Visual inspections and performance tests of the inter-array cable and any cable protection, including at the entry into J-tubes. This activity will be conducted up to once per year with access via SOV or CTV. Inspections	As per 'Foundations (wind turbines and OSPs): routine inspections' above.	None	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
	of cable entry into J-tubes will be conducted with an ROV.			
Geophysical surveys	Geophysical survey of the seabed and assets will be carried out from vessels with SSS, MBES and/or magnetometer equipment. Geophysical surveys will be deployed to check scour protection and cable protection coverage of subsea cables. The surveys will have no interaction with the seabed. Geophysical surveys will be conducted up to once every three years.	As per 'Foundations (wind turbines and OSPs): geophysical surveys' above.	Voluntary notification for geophysical and acoustic surveys	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)
Inter-array cable repair	Repair and replacement of a section of an inter-array cable or replacement of a whole inter-array cable with Cable Lay Vessel(s) (CLVs) and ROV. Up to one repair event every three years, with replacement of up to 10 km of inter-array cable in one repair event.	Seabed disturbance and temporary habitat loss – see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Hazard to navigation – see: • Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement (Document Reference F2.7) • Volume 2, Chapter 10: Other sea users of the Environmental Statement (Document Reference F2.10). Disturbance, injury (including collision risk) or displacement from vessel use and other (non-	Notice to Mariners; Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Inter-array cable reburial	Reburial of exposed inter-array cable section via pre-lay plough, plough, trenching or jetting, via CLV, ROV, SOV or CTV. Up to one reburial event of up to 20 km every five years.	Seabed disturbance – see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3)	Notice to Mariners; Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		• Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Additional cable protection	Placement of additional cable protection outside the parameters considered in this Application. This is considered a highly unlikely event and consent would be sought from the NRW before commencement.	Seabed disturbance, increased suspended sediment concentration and associated deposition, and introduction of hard substrate – see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	Notice to Mariners Start/end of works notices	Licensable but not included in this application. Further consent may be needed if not within the consented envelope.
Interconnectors				
Routine inspections	Visual inspections and performance tests of the interconnector cable and any cable protection, including at the	As per 'Foundations (wind turbines and OSPs): routine inspections' above.	None	Not licensable (not deemed to be a licensable marine activity

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
	entry into J-tubes. This activity will be conducted up to once per year with access via SOV or CTV. Inspections of cable entry into J-tubes will be conducted with an ROV.			under the Marine and Coastal Access Act 2009)
Geophysical surveys	Geophysical survey of the seabed and assets will be carried out from vessels with SSS, MBES and/or magnetometer equipment. Geophysical surveys will be deployed to check scour protection and cable protection coverage of subsea cables. The surveys will have no interaction with the seabed. Geophysical surveys will be conducted up to once every three years.	As per 'Foundations (wind turbines and OSPs): geophysical surveys' above.	Voluntary notification for geophysical and acoustic surveys	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)
Interconnector cable repair	Repair and replacement of a section of interconnector cable or replacement of a whole interconnector cable with CLV(s) and ROV, SOV, CTV or excavator. Up to three repair events every 10 years, with replacement of up to 16.03 km of interconnector cable in one event.	Seabed disturbance and temporary habitat loss – see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Hazard to navigation – see: • Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement (Document Reference F2.7) • Volume 2, Chapter 10: Other sea users of the Environmental Statement (Document Reference F2.10).	Notice to Mariners; Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within: • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).		
Interconnector cable reburial	Reburial of exposed interconnector cable section via pre-lay plough, plough, trenching or jetting, via CLV, ROV, SOV, CTV or excavator. Up to one reburial event of up to 2 km every five years.	Seabed disturbance – see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Disturbance, injury (including collision risk) or displacement from vessel use and other (non-piling) sound producing activities, see specific assessments within:	Notice to Mariners; Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		• Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 4: Marine mammals of the Environmental Statement (Document Reference F2.4) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5).		
Additional cable protection	Placement of additional cable protection outside the parameters considered in this Application. This is considered a highly unlikely event and consent would be sought from the MMO before commencement.	Seabed disturbance, increased suspended sediment concentration and associated deposition, and introduction of hard substrate – see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1) • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3). Increased risk of introduction and spread of invasive non-native species (INNS): • Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2).	Notice to Mariners Start/end of works notices	Licensable but not included in this application. Further consent may be needed if not within the consented envelope.

Table 1.3: Mona Offshore Wind Project offshore operations and maintenance activities covered by the deemed marine licence(s).

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
Offshore Export Cables				
Routine inspections	Visual inspections and performance tests of the offshore export cables and any cable protection, including at the entry into J-tubes. This activity will be conducted up to once per year with access via SOV or CTV. Inspections of cable entry into J-tubes will be conducted with an ROV.	As per 'Foundations (wind turbines and OSPs): Routine inspections' within Table 1.2.	None	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)
Geophysical surveys	Geophysical survey of the seabed and assets will be carried out from vessels with SSS, MBES and/or magnetometer equipment. Geophysical surveys will be deployed to check scour protection and cable protection coverage of subsea cables. The surveys will have no interaction with the seabed. Geophysical surveys will be conducted up to once every three years.	As per 'Foundations (wind turbines and OSPs): geophysical surveys' within Table 1.2.	Voluntary notification for geophysical and acoustic surveys	Not licensable (not deemed to be a licensable marine activity under the Marine and Coastal Access Act 2009)
Offshore export cable repair (subtidal)	Repair and replacement of a section of offshore export cable with CLV(s) and ROV, SOV, CTV or excavator. Up to eight repair events every five years, with repair of up to 4 km of offshore export cable per event; or one repair event of up to 6.4 km per year.	Seabed disturbance, increased suspended sediment concentration and associated deposition, disturbance and injury from vessel, and temporary habitat loss – see: • Volume 2, Chapter 1: Physical processes of the Environmental Statement (Document Reference F2.1)	Notice to Mariners; Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
		• Volume 2, Chapter 2: Benthic subtidal and intertidal ecology of the Environmental Statement (Document Reference F2.2) • Volume 2, Chapter 3: Fish and shellfish ecology of the Environmental Statement (Document Reference F2.3) • Volume 2, Chapter 5: Offshore ornithology of the Environmental Statement (Document Reference F2.5). Hazard to navigation – see: • Volume 2, Chapter 7: Shipping and navigation of the Environmental Statement (Document Reference F2.7) • Volume 2, Chapter 10: Other sea users of the Environmental Statement (Document Reference F2.10).		
Offshore export cable reburial (subtidal)	Reburial of exposed offshore export cable section via pre-lay plough, plough, trenching or jetting, via CLV, ROV, SOV, CTV or excavator. Up to one reburial event of up to 15 km every five years.	As per 'Interconnectors: Interconnector cable reburial' within Table 1.2.	Notice to Mariners; Start/end of works notices	Licensable and included in this application

Activity	Activity description	Possible environmental impact	Measures adopted	Licensable status
Additional cable protection	Placement of additional cable protection outside the parameters considered in this Application. This is considered a highly unlikely event and consent would be sought from NRW before commencement.	As per 'Interconnectors: Additional cable protection' within Table 1.2.	Notice to Mariners Start/end of works notices	Licensable but not included in this application. Further consent may be needed if not within the consented envelope.