MachairWind Offshore Windfarm

Appendix 10.5 Cumulative Effects Assessment Screening

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Glossary of Acronyms

Term	Definition
BEIS	Energy and Industrial Strategy
BND	Bottlenose dolphin
CCS	Carbon Capture Storage
CEA	Cumulative Effects Assessment
CEF	Cumulative Effects Framework
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CGNS	Celtic Greater North Sea
CWSH	Coastal West Scotland Hebrides
dB	Decibel
DESNZ	Department for Energy Security and Net Zero
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
HP	Harbour porpoise
HRA	Habitats Regulations Assessment
IAMMWG	Inter-Agency Marine Mammal Working Group
IS	Irish Sea
kHz	kiloHertz
km	Kilometres
m	Metre
MBES	Multibeam Echo Sounder
MNR	Marine Noise Registry
MNZ	Morecambe Net Zero
MRE	Marine Renewable Energy
MU	Management Unit
MW	Minke whale
NA	North Atlantic
NI	Northern Ireland
NMFS	National Marine Fisheries Service
O&M	Operation and Maintenance
OnTDA	Onshore Transmission Development Area
OSP	Offshore Substation Platform

Term	Definition
OW	Offshore Waters
PTS	Permanent Threshold Shift
RMS	Root Mean Square
RoC	Review of Consents
RoI	Republic of Ireland
SAC	Special Areas of Conservation
SBP	Sub-Bottom Profiler
SMASS	Scottish Marine Animal Stranding Scheme
SNCB	Statutory Nature Conservation Body
SSS	Side Scan Sonar
TTS	Temporary Threshold Shift
UHR	Ultra-High Resolution
UK	United Kingdom
UXO	Unexploded Ordnance
WDA	Windfarm Development Area
WI	Western Isles
WS	West Scotland

Glossary of Terms

Term	Definition
Collision	The act or process of two moving objects colliding.
Combined Assessment	A whole-Project assessment considering interactions between the Windfarm Development Area, Offshore Export Cable Corridor and Onshore Transmission Development Area (i.e. considering impact interactions and additive effects to determine if any effects would be materially elevated from those assessed for the Windfarm Development Area-alone assessment). Due to long delays in securing confirmation of the Project's grid connection location, the level of detail available for the Offshore Export Cable Corridor and Onshore Transmission Development Area is limited and therefore the assessment is commensurate with the level of detail available at the time of carrying out the assessment. When it is time to progress the Offshore Export Cable Corridor and Onshore Transmission Development Area consent applications, their respective scoping and Environmental Impact Assessment Report / Environmental Report will take account of all likely effects predicted within the WDA EIA and present updated combined assessments using the latest available information covering all aspects of the Project.
Cumulative Effects Assessment (CEA)	Assessment of likely significant effects resulting from the incremental change caused by other past, present and reasonably foreseeable projects / activities together with the Project. This is separate to combined effects arising between the Project's separate Development Areas.
Development Area	Application boundary for consenting purposes which, for the Project, consists of a Windfarm Development Area, Offshore Export Cable Corridor, and Onshore Transmission Development Area. Separate consent and marine licence applications will be submitted for each Development Area where applicable.
Environmental Impact Assessment (EIA)	The process of evaluating the likely significant environmental effects of a proposed development over and above the existing circumstances (or 'baseline').
Environmental Impact Assessment (EIA) Regulations	A collective term referring to The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017.
Fleet	A physical group of vessels sharing similar characteristics (e.g., nationality).
Habitats Regulations	A collective term used to describe the Conservation of Habitats and Species Regulations 2017 and The Conservation (Natural Habitats, &c.) Regulations 1994.
Landfall	The area from Mean Low Water Springs to a transition bay(s), where the offshore export cable(s) come ashore.
MachairWind Offshore Windfarm	An offshore windfarm capable of exporting around 2 GW of renewable energy to the National Electricity Transmission System. MachairWind Offshore Windfarm comprises three Development Areas: • The WDA – located on the west coast of Scotland to the northwest of Islay and west of Colonsay; • The Offshore Export Cable Corridor – a preliminary boundary extending from the WDA to mean high water springs at a landfall location near Girvan, South Ayrshire; and • The Onshore Transmission Development Area – a preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cables and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission.

Term	Definition
	Separate consent and licence applications will be submitted for each Development Area.
Management Units (MUs)	The MUs provide an indication of the spatial scales at which impacts of plans and projects alone, cumulatively and in-combination, need to be assessed for the marine mammal species in UK waters, with consistency across the UK.
Mean High Water Springs (MHWS)	The average, over a year, of the heights of two successive high waters during those periods of 24 hours (once every fortnight) when the range of the tide is greatest.
Mean Low Water Springs (MLWS)	The average, over a year, of the heights of two successive low waters during those periods of 24 hours (once every fortnight) when the range of the tide is greatest.
National Electricity Transmission System	The high-voltage electricity power transmission network serving Great Britain which receives electricity from generators (such as offshore windfarms) and transmits that electricity to anywhere on the National Electricity Transmission System to satisfy demand.
Offshore Export Cable Corridor (ECC)	The preliminary boundary extending from the WDA to mean high water springs near Girvan, South Ayrshire and within which the offshore export cable(s) will be located. A separate marine licence application will be submitted for the offshore export cable(s) located within the Offshore ECC.
Offshore Substation Platform (OSP)	An offshore platform with a fixed foundation located within the WDA which houses electrical equipment such as transformers, switchgear, protection and control systems, and enables the windfarm's renewable electricity to be collected via inter-array cables and exported to the National Electricity Transmission System via offshore export cables.
Onshore Transmission Development Area (OnTDA)	The preliminary boundary which extends landward from mean low water springs and includes the land required for the landfall of the offshore export cables and their route up to but not including the proposed high voltage direct current switching station which will be developed and constructed by Transmission Owner, ScottishPower Transmission. This Transmission Owner is responsible for consenting the high voltage direct current switching station. Onward connections to the National Electricity Transmission System will be consented by National Grid Electricity Transmission and ScottishPower Transmission. Where relevant, these are considered as part of cumulative effects assessment in the EIA.
OnTDA infrastructure	The onshore transmission infrastructure, for which the Applicant is responsible, that is located primarily within the OnTDA, up to mean low water springs, and includes but is not limited to: landfall(s), onshore export cables, transition joint bays, telecom/SCADA infrastructure including vehicular access, joint bays, link boxes and temporary construction compounds. The OnTDA infrastructure will be subject to a planning application under the Town and Country Planning (Scotland) Act 1997.
Permanent Threshold Shift (PTS)	A permanent total or partial loss of hearing sensitivity caused by acoustic trauma. PTS results in irreversible damage to the sensory hair cells of the ear, and thus a permanent reduction of hearing acuity.
ScotWind	A Crown Estate Scotland seabed leasing round which enabled developers to propose offshore wind projects and apply for seabed rights to plan and build windfarms in Scottish waters.
The Project	MachairWind Offshore Windfarm including all its Development Areas and associated infrastructure.
WDA infrastructure	The offshore generation and transmission infrastructure located within the WDA including but not limited to: WTGs, WTG fixed foundations (and associated scour protection), OSP(s), OSP fixed foundations (and associated scour protection), IACs, OSP link and offshore export cable(s) and their associated external cable protection (insofar as these are located within the WDA) and fibre optic cables.
Wind Turbine Generator (WTG)	A wind turbine generator which converts wind energy into electrical energy. Each wind turbine generator is a complex system composed of a high number of components. Typically, the main

Term	Definition
	components include the rotor assembly (composed of three blades and a hub); the nacelle (containing a generator, shaft and gearbox, power electronic converter and transformer); and the tower (containing lifting equipment and the switchgear).
Windfarm Development Area (WDA)	The application boundary within the OAA where consent will be sought for the proposed WDA infrastructure. The WDA infrastructure is subject to Section 36 consent and marine licence applications (generation and transmission) which are being applied for separately from the Offshore ECC infrastructure and OnTDA infrastructure.

1 MARINE MAMMAL CUMULATIVE EFFECTS SCREENING

1.1 INTRODUCTION

1. The cumulative effects of the MachairWind Offshore Windfarm (the Project') have been assessed in **Chapter 10 Marine Mammals and Leatherback Turtle** of the Project's Environmental Impact Assessment (EIA) Report (EIAR). This appendix summarises the results of the Cumulative Effects Assessment (CEA) screening and outlines the potential cumulative effects of the Project as well as other projects which have been screened in for marine mammals CEA. All projects considered in the CEA are included in **Section 1.5**. A CEA considers the potential significant effects on the same receptors or resources as defined in the EIA Regulations (see **Chapter 5 EIA Methodology** for further detail). It evaluates impacts arising from the Project alone and cumulatively with other relevant plans, projects (developments) and activities.

2. A CEA is required because the EIA regulations place a legal obligation on developers to assess not only the direct effects of a proposed project but also the likely significant cumulative effects. This requirement ensures that decision-makers gain a full understanding of the broader environmental context and the combined influence of multiple developments, rather than assessing each project in isolation.

3. **Section 1.2** outlines the initial screening stage, which involves the identification of an initial list of projects, plans and activities with the potential to interact with the Project (see **Appendix 5.1 Cumulative Projects Long and Short List**). For the marine mammal and leatherback turtle cumulative assessment, projects and activities screened in for CEA are those located within the relevant receptor Management Units (MUs) and the overall CEA screening area, as defined in (**Section 1.3.1.4 / Figure 1.1**).

4. **Section 1.3** describes the second step of the cumulative assessment process, which involves identifying the types of industries, projects and activities initially considered in this CEA screening.

5. **Section 1.4** outlines the cumulative assessment process, including the identification of individual impacts assessed for the WDA that have the potential to give rise to cumulative effects on receptors (impact screening). The outcome of this impact screening is presented in Section 10.12 of **Chapter 10 Marine Mammals and Leatherback Turtle**.

6. **Section 1.5** involves identifying other projects and activities that may contribute to cumulative effects (project screening). This appendix details the screening process used to determine which projects and activities are included in the WDA CEA for marine mammals and leatherback turtle. It also provides additional justification for the screening in and out of certain industries and activities from the **Section 1.4** assessment.

7. **Section 1.6** then provides the overall summary of the cumulative assessment.

1.2 SCREENING PROCESS FOR THE CUMULATIVE EFFECTS ASSESSMENT OF OTHER PROJECTS

8. The CEA project screening involved the identification of an initial list of projects, plans and activities with the potential to interact with the Project's construction activities based on the mechanism of interaction and spatial extent of the MU for each receptor (as outlined in **Table 1.1** and in Section 10.8.1 and Table 10.6 of **Chapter 10 Marine Mammals and Leatherback Turtle**). However, only piling within the construction phase requires detailed cumulative assessment, as it represents the worst-case noise source during the Project's construction period. All other noisy activities are included in the assessment but are screened as lower-risk and therefore considered collectively rather than individually.

9. At a high level, the projects, plans and activities that were included in the CEA screening are:

- Projects, plans and activities within the agreed MU for the given receptor (**Table 1.1**);
- Offshore projects and developments, if there was the potential for cumulative effects during the construction, operation and maintenance (O&M), or decommissioning phases of the proposed projects; and
- Offshore windfarm developments, if the construction and/or piling periods could overlap with the proposed piling window of the WDA, based on the best available information regarding their anticipated construction schedules, including a ±1-year allowance on either side of those timelines.

10. The O&M and decommissioning phases of the MachairWind WDA have been considered; however, for underwater noise, piling within the WDA has been assessed, representing the worst-case impact scenario across the life cycle of the Project. For other projects which will be operational after the completion of the baseline surveys and before construction at the MachairWind WDA (i.e. between 2023 – 2030), and that are within the Zone of Influence and have potential for cumulative effects, these have been assessed against the WDA construction activities (with piling as the worst-case). Projects that will have operational activities overlapping with the WDA O&M phase have already been assessed based on the worst-case of cumulative effects during the construction phase. Decommissioning effects at the WDA and other projects are expected to be the same as, or less than, the effects assessed during construction and therefore are not considered further in the CEA.

11. A wide range of data sources and information has been used for the CEA project screening, including, but not limited to:

- Developer websites;
- 4C Offshore Wind Farm Database (http://www.4coffshore.com/offshorewind/);
- Renewable UK website (http://www.renewableuk.com);
- The Crown Estate website (2025);
- Oil and gas United Kingdom (UK) licensing rounds website (https://www.gov.uk/guidance/oil-and-gas-licensing-rounds#past-licensing-rounds);
- The Scottish Government Marine licence register (https://www.marine.gov.scot/marine-projects);
- Cefas (Centre for Environment, Fisheries and Aquaculture Science) website (Cefas, 2022);
- Planning Inspectorate's National Infrastructure Planning website;
- The Marine Management Organisation public register;
- European Marine Observation and Data Network data;
- Hydrogen UKs project map (https://projectmap.hydrogen-uk.org/); and
- Ireland's Wind Energy (Wind Energy Resources In Ireland | SEAI GIS Maps | SEAI).

12. The initial project screening process has been based on the estimated offshore piling window dates for the Project (2030-2034), with the earliest start in 2030. The anticipated maximum offshore pilling window is four years.

13. Given the fast-moving nature of offshore development, it is likely that new projects relevant to the assessment will arise throughout the pre-application period. Therefore, to finalise the CEA for the EIAR, as agreed at Expert Topic Group meeting 2 on 15 October 2025, a cut-off period of six months prior to the submission of the WDA consent application (after which no more projects/activities have been included) has been applied.

14. For the marine mammal and leatherback turtle assessment, the different stages (maturity) of project development, especially for other offshore windfarm projects, have been taken into account within the CEA.

15. Despite the new Cumulative Effects Framework (CEF), in line with current Scottish guidance on CEA for offshore wind (NatureScot, 2023; Scottish Government, 2020; Marine Scotland, 2025), the assessment continues to follow the established approach of addressing cumulative impacts through project-level EIA and strategic plan-level Sectoral Marine Plan assessments. Therefore, as the CEF is still emerging and not yet operational, the tier system is retained to provide structure and consistency until the new framework is fully implemented.

1.3 IDENTIFICATION OF INDUSTRIES FOR SCREENING

16. The types of projects and activities initially considered in this CEA screening are:

- Other offshore windfarms: Construction: (i) piling, (ii) other construction activities, including vessels, and (iii) O&M activities;
- Marine renewable (wave and tidal) developments;
- Geophysical and seismic surveys (such as those associated with offshore windfarms and oil and gas exploration);
- Oil and gas installations:
  - Construction;
  - Operation; and
  - Decommissioning.
- Aggregate extraction and dredging;
- Licenced disposal sites;
- Planned construction of subsea cables and pipelines;
- UXO clearance; and
- Coastal developments, such as ports and harbours.

17. The potential effect levels associated with certain industry-wide activities are sufficiently low that they present no realistic potential for cumulative effects and have therefore been **screened out**. Further detail on these activities is provided in the following sections.

1.3.1 Industries and Associated Effect Pathways Screened Out

1.3.1.1 Barrier Effects due to the Physical Presence of Offshore Windfarms

18. As agreed by NatureScot and MD-LOT through consultation on the Scoping Report (Appendix 1 of this EIAR), the potential for physical barrier effects has been **screened out** because research looking at the barrier effects from the presence of offshore windfarms on marine mammals has found no evidence of an effect.

1.3.1.2 Underwater Noise and Increased Collision Risk due to Commercial Shipping

19. Commercial shipping has been **screened out** as it is considered an ongoing activity that forms part of the existing environmental baseline (Marine Scotland, 2018).

20. This approach aligns with current UK guidance, which states that if an activity is ongoing and its effects are already reflected in the baseline, it does not need to be reassessed in the CEA unless there is evidence of a significant change in intensity or management (Marine Scotland, 2018).

1.3.1.3 Commercial Fishing

21. Commercial fishing has been **screened out** as it is considered an ongoing activity that forms part of the existing environmental baseline (Marine Scotland, 2018).

22. While commercial fisheries in Scottish waters can cumulatively affect marine mammals and leatherback turtle through bycatch, prey depletion, and underwater noise from vessels, these impacts

are long-standing and have already influenced current population dynamics. A study by the Scottish Entanglement Alliance found that entanglement is a chronic and growing issue, with non-lethal injuries also affecting animal welfare and survival (MacLennan et al., 2021). A 30-year dataset from the Scottish Marine Animal Stranding Scheme (SMASS) shows a sharp increase in strandings, especially among common dolphins and mysticetes (SMASS, 2023).

23. Additionally, fishing pressure has shaped prey availability for marine mammals over time (Marine Mammal Commission, 2023). Vessel noise from fishing fleets is also considered part of the prevailing acoustic environment and is not expected to significantly change in the near future (Erbe et al., 2019).

24. This approach aligns with current UK guidance, which states that if an activity is ongoing and its effects are already reflected in the baseline, it does not need to be reassessed in the CEA unless there is evidence of a significant change in intensity or management (Marine Scotland, 2018). The Review of Consents (RoC) Habitats Regulations Assessment (HRA) (BEIS, 2020) also concluded that commercial fishing, including bycatch and prey impacts, has not adversely affected a population considered to be in favourable conservation status (BEIS, 2020).

25. As a result, the potential cumulative impacts of commercial fishing, including bycatch, prey reduction, and vessel noise, are considered part of the baseline conditions for marine mammals and leatherback turtle in the Hebrides and have been **screened out** from further assessment in the CEA.

1.3.1.4 Screening Area Considered in the Cumulative Effects Assessment

26. The screening area for marine mammals and leatherback turtle has been defined on the basis that both marine mammals and leatherback turtle are highly mobile and transitory in nature. It is therefore necessary to examine species occurrence not only within the WDA and zone of influence, but also over the wider area.

27. The zone of influence is the geographical area within which a project's activities are predicted to cause direct, indirect, or secondary environmental effects on specific receptors, during any stage of the project (construction, operation and maintenance, or decommissioning).

28. For the receptors in the assessments, the screening areas have been defined, based on the relevant MUs (Inter-Agency Marine Mammal Working Group (IAMMWG), 2023; SCOS, 2024), current knowledge, and understanding of the biology of each species (**Table 1.1**) (see **Appendix 10.2 Marine Mammal and Leatherback Turtle Baseline**).

29. Information and maps of the relevant MU areas are provided in **Appendix 10.2 Marine Mammals and Leatherback Turtle Baseline** (Plate 1.3; Plate 1.8, Plate 1.11, and Plate 1.24) to standardise approaches for marine mammal assessments across projects.

30. **Appendix 10.2 Marine Mammal and Leatherback Turtle Baseline** shows that there is connectivity between the Coastal West Scotland Hebrides (CWSH) MU and the Irish Sea (IS) bottlenose dolphin (BND) MU, so the IS MU area has been included in the CEA screening. Connectivity has also been presented for grey seal, showing that there is connectivity from the West Scotland (WS) and Western Isles (WI) MU with the Republic of Ireland (RoI) MU.

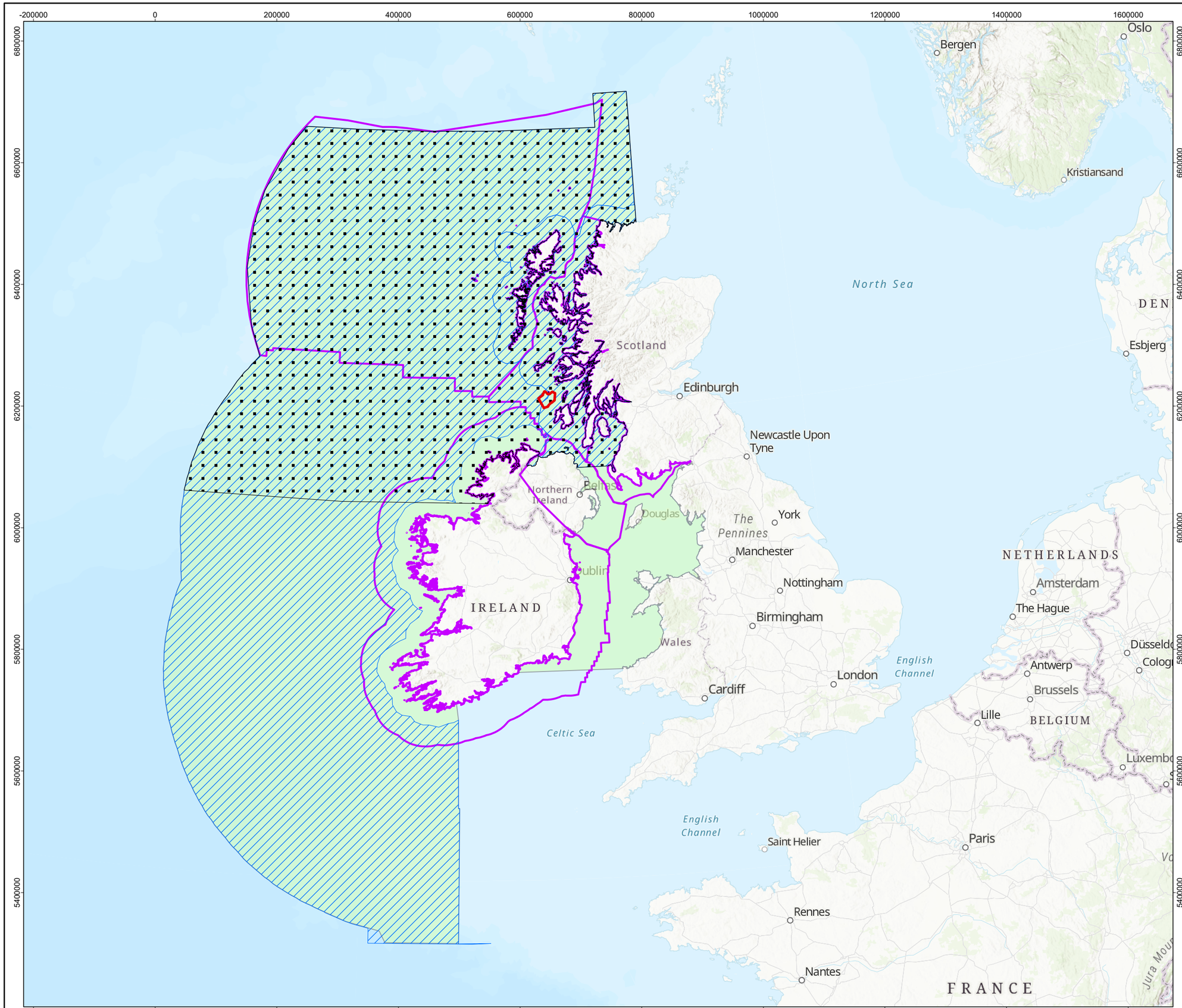
31. **Figure 1.1** shows all of the MUs for all of the species screened in for assessment. This figure has been clipped accordingly so the screening area avoids the south of the RoI because this area lies beyond the agreed screening extent for the Project and would not be expected to contribute to in-combination effects. This figure represents the total CEA screening area for marine mammals where any plans, projects and activities occurring in that area at the same time as construction in the WDA have been screened in. However, the list of other plans, projects and activities to be taken forward varies between receptors depending on which MU they are associated with, as presented in **Table** 1.1**.**

32. Consideration of these MUs therefore accounts for other plans, projects and activities occurring within:

- Western and northern Scotland (covered by all MUs);
- NI (covered by all MUs);
- CWSH and offshore waters (OW) MUs (collectively termed the 'BND MU'); (covered by the Celtic Greater North Sea (CGNS) MU); and
- RoI (covered by BND (OW MU) grey seal, harbour seal, the CGNS MU and the North Atlantic (NA)).

Table 1.1 Species in each MU which represents the CEA screening area

MUs	Species
WS	• Harbour porpoise (*Phocoena Phocoena)*
OW, CWSH, (BND MU)	• Bottlenose dolphin (*Tursiops truncatus)*
CGNS	• Short-beaked common dolphin (*Delphinus delphis)* • Atlantic white-sided dolphin (*Lagenorhynchus acutus)* • White-beaked dolphin (*Lagenorhynchus albirostris*) • Risso's dolphin (*Grampus griseus*) • Minke whale (*Balaenoptera acutorostrata)*
NA	• Killer Whale (*Orcinus orca);* • Long-finned pilot whale (*Globicephala melas*) • Fin whale (*Balaenoptera physalus);* • Humpback whale (*Megaptera novaeangliae)** • Leatherback turtle (*Dermochelys coriacea*)*
Wider MU (WS, South-west Scotland (SWS), WI, RoI), and Northern Ireland (NI))	• Grey seal (*Halichoerus grypus)* • Harbour Seal (*Phoca vitulina)*
**Assessed qualitatively*	



REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
2	26/03/2026	FC	AB	SB	PB

DRAWING NUMBER	MCW-DWF-ENV-MAP-RHS-000100		
DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:6,000,000	PAGE SIZE	A3
PROJECT TITLE	MachairWind		

Figure 1.1: CEA screening covering all receptor's MU's

NOT TO BE USED FOR NAVIGATION

Haskoning
Enhancing Society Together

ScottishPower Renewables

1.4 IDENTIFICATION OF POTENTIAL CUMULATIVE EFFECTS

33. This stage of the CEA involves identifying the potential impacts of the WDA that may interact cumulatively with other existing or proposed developments and activities (described as 'effect screening').

34. Initially, the potential for cumulative effects were considered for:

- Auditory injury from noisy activities;
- Disturbance from piling and other noisy activities;
- Vessel disturbance and collision risk;
- Disturbance at seal haul-out sites; and
- Changes to prey availability.

1.4.1 Auditory Injury Due to Underwater Noise from all Noisy Activities

35. Auditory injury (Permanent Threshold Shift (PTS) and Temporary Threshold Shift (TTS)) in marine mammals and leatherback turtle can occur when individuals are exposed to intense underwater noise sources. Activities such as impact piling during offshore windfarm construction, the use of underwater explosives for unexploded ordnance (UXO) clearance, and seismic surveys are known to pose a risk of inducing PTS/TTS (Southall et al., 2019; National Marine Fisheries Service (NMFS), 2018). When there is a credible risk of auditory injury from such activities, mitigation strategies such as soft-start procedures, or acoustic deterrent devices, are typically implemented to reduce potential harm to marine mammals (Natural Resources Wales, 2023).

36. In contrast, other sources of underwater noise, such as dredging, rock placement, vessel operations, and the functioning of offshore energy infrastructure, tend to produce lower-frequency broadband noise, which is considered unlikely to result in auditory injury due to their lower sound pressure levels and more continuous nature (Finneran, 2016; Erbe et al., 2019).

37. Therefore, the potential risk of any auditory injury to marine mammals and leatherback turtle from cumulative effects has been **screened out** from further consideration in the CEA, due to either there being no potential for auditory injury from activities which produce lower-frequency noise or the implementation of mitigation strategies designed to reduce the potential for auditory injury from intense underwater noise sources by other projects and activities, in line with statutory nature conservation body (SNCB) guidance. It should be noted that PTS due to the Project's and other offshore windfarm piling has been included within the population modelling as standard for the relevant species, regardless of this screening conclusion (see **Appendix 10.4 Interim Population Consequences of Disturbance (IPCoD) Modelling Technical Report**).

1.4.2 Disturbance due to Underwater Noise from Offshore Windfarm Construction (Piling) and Non-Piling Construction Activities

38. Disturbance from underwater noise is generally expected to affect marine mammals and leatherback turtle over broader spatial scales compared to auditory injury ranges.

39. As such, the potential for behavioural disturbance is considered in cumulative assessment of underwater noise impacts. To ensure a precautionary approach, the assessment adopts the latest Effective Deterrent Ranges (JNCC, 2025) or the worst-case disturbance data from individual projects (Finneran, 2016; Tougaard, 2021).

40. The potential for disturbance to marine mammals and leatherback turtle from underwater noise has therefore been **screened in**. This impact includes both the construction, operation and maintenance and decommissioning phases of the projects and plans screened in.

1.4.3 Barrier Effects due to Underwater Noise

41. Underwater noise during construction could have the potential to create a barrier effect to marine mammals and leatherback turtle. Barrier effects can prevent movement or migration of marine mammals and leatherback turtles between important feeding and / or breeding areas, or potentially increase swimming distances if they avoid the area and go around it.

42. The potential for barrier effects to marine mammals and leatherback turtle from underwater noise has been **screened in**. This impact includes both the construction and operation and maintenance phases of other projects and plans screened in, for example the cumulative underwater noise of multiple offshore windfarms. Note that no plans' or projects' decommissioning phases have been identified to overlap with piling at the WDA and therefore, barrier effects of underwater noise (and all other decommissioning impact pathways) during decommissioning has been screened out.

1.4.4 Underwater Noise and Increased Collision Risk due to Vessel Activity

43. The potential for an increase in vessel disturbance and collision risk, due to an increase in vessels across cumulative projects, has been **screened in**. This is due to the result of the WDA-alone assessment (see Section 10.11.1.7 in **Chapter 10 Marine Mammals and Leatherback Turtle**).

1.4.5 Disturbance at Protected Seal Haul-Out Sites

44. The potential for disturbance at protected seal haul-out sites has been **screened in** given that the closest protected seal haul-out site 'Oronsay Strand' is approximately 15 kilometres (km) east of the WDA and there are more protected seal haul-out sites within the CEA screening area (see **Section 1.2**). More information on the potential disturbance at seal haul-out sites can be found in Section 10.11.1.10 of **Chapter 10 Marine Mammals and Leatherback Turtle**.

1.4.6 Changes to Prey Availability

45. The potential for changes to marine mammal and leatherback turtle prey availability has been **screened in** due to the potential impacts on benthic ecology and fish and shellfish ecology from the Project and other projects and activities (see **Chapter 9 Fish (including Basking Shark) and Shellfish**).

1.4.7 Underwater Noise Effects from Operational Wind Turbine Generators and Maintenance Activities

46. Operational underwater noise from WTGs primarily originates from mechanical vibrations transmitted through the WTG structure into the water column (Zhou and Guo, 2023). Although these noise levels are considerably lower than those produced during construction activities such as pile driving, they may still elicit behavioural responses in marine mammals and leatherback turtle, particularly when individuals are in close proximity to the WTG (Yoon et al., 2023; Thomsen et al., 2023).

47. For instance, a cross-project evaluation of operational noise from 25 offshore windfarms in Germany found that sound levels at 100 m typically peaked around 120 decibel (dB) re 1 µPa (Root Mean Square (RMS)), with dominant frequencies between 50 and 200 Hz (Bellmann et al., 2023). These findings are consistent with earlier UK-based measurements, which reported operational noise levels ranging from 141 to 146 dB re 1 µPa·m (RMS sound pressure level) at several offshore windfarms (Marine Management Organisation, 2015; Cheesman et al., 2016). In contrast, studies from Sweden and Denmark observed lower levels (106–126 dB re 1 µPa·m), with noise becoming inaudible to harbour porpoises beyond approximately 70 m (Tougaard et al., 2009).

48. Recent research also suggests that WTG size does not consistently correlate with increased noise output. Across WTGs ranging from 3 to 8 MW, no clear trend in operational noise levels was observed (Bellmann et al., 2023).

49. Given the relatively low intensity and narrow frequency range of operational noise, the UK Department for Business, Energy and Industrial Strategy (BEIS)[1] concluded in its 2020 HRA for Special Areas of Conservation (SAC) that operational noise from offshore windfarms, even when considered cumulatively with construction noise, is unlikely to result in significant adverse effects on marine mammals (BEIS, 2020). This conclusion is supported by international studies indicating that operational noise often blends into ambient background levels within a few hundred metres (m) of the WTG (Bellmann et al., 2023; Thomsen et al., 2023).

50. In addition to operational noise from the WTG, maintenance operations at operational offshore windfarms, such as supplementary rock placement or the reburial, repair and replacement of subsea cables, are typically confined to small areas, are of often localised, short-term, and of relatively low intensity. The associated underwater noise levels are expected to remain below thresholds for physical injury and are generally indistinguishable from or only marginally above ambient vessel noise (further information is provided in **Appendix 10.1 Underwater Noise Modelling Report** on noise source levels from these activities).

51. Recent research confirms that noise from maintenance operations, including cable installation, rock placement and support vessel activity, can introduce temporary and localised behavioural disturbance such as displacement.

52. The potential for PTS from operational WTGs was screened out of the WDA-alone assessment, as PTS thresholds are not exceeded. While the potential for TTS from operational WTGs was screened in for the WDA-alone assessment, no cumulative TTS effect from multiple WTGs was identified due to the limited impact range of approximately 50 m. Given this small spatial extent, there is no potential for cumulative PTS or TTS effects from operational WTGs arising from multiple windfarms located several km apart. On this basis, PTS and TTS from operational WTGs have been **screened out** of the CEA

53. Disturbance from operational WTGs has been screened in due to the long-term, continuous nature of operational underwater sound and the potential for behavioural responses by marine mammals and leatherback turtle. Although sound levels from operational WTGs are substantially lower than those generated during construction activities, they may result in low-level, chronic exposure within the immediate vicinity of WTGs, which could lead to behavioural disturbance such as avoidance or displacement. Given the spatial persistence of operational sound throughout the lifetime of the windfarm, and associated uncertainty regarding cumulative exposure where multiple WTGs are present, disturbance effects are considered relevant to assess. Accordingly, disturbance from operating WTGs has been screened in to ensure that any potential behavioural effects are appropriately considered.

54. Therefore, noise from operational offshore windfarms is **screened in** for further consideration within the CEA screening.

1.4.8 Underwater Noise Effects from Other Offshore Windfarm Decommissioning Activities

55. At the time of writing, there is no information to indicate that any other offshore windfarms within the CEA screening area are scheduled for decommissioning during the piling construction window of the WDA. While it is possible that a small number of windfarms currently in operation may enter decommissioning during the WDA lifetime, there is insufficient information available to assess decommissioning effects cumulatively. Furthermore, noise levels associated with decommissioning activities are expected to be lower than those generated during construction, which has been

[1] Known as the Department for Energy Security and Net Zero (DESNZ) since 2023

assessed as the reasonably foreseeable worst-case scenario. On this basis, the decommissioning of other offshore windfarms has been **screened out** of the CEA.

1.5 SCREENING OF PLANS, PROJECTS AND ACTIVITIES

56. This section describes the screening of plans, projects, and activities from industries listed in the long list. **Appendix 5.1 Cumulative Projects Long and Short List** was the starting point in the CEA assessment, however, due to wider coverage of marine mammal and leatherback turtle MUs, this search area was expanded to encompass these areas (**Figure 1.1**). All of the plans, projects and activities considered are presented for each industry / activity in **Sections 1.5.1** to **1.5.13**. A review was conducted to determine whether any of these projects, plans, or activities within the CEA screening area (**Figure 1.1**) could potentially overlap with piling at the WDA. Any projects not within the CEA screening area are not included in the screening assessment.

57. In line with the methodology set out in Section 10.10.3 in **Chapter 10 Marine Mammals and Leatherback Turtle**, a tiered approach is used to provide a framework for placing relative weight on the potential for each plan or project to be included in the CEA, based on the plan's or project's current stage of maturity, certainty in the design or effects and overall availability of detail on which to carry out an assessment. Projects or plans that will be assessed will use the following tiers:

- Tier 1 assessment: projects which are operational (but not part of the baseline), under construction, those with consent and submitted but not yet determined;
- Tier 2 assessment: all plans/projects assessed under Tier 1, plus those projects with a Scoping Report and/or Scoping Opinion; and
- Tier 3 assessment: all plans/projects assessed under Tier 1 and Tier 2, plus those projects likely to come forward where a Crown Estate Scotland (CES) Option to Lease Agreement or equivalent has been granted (i.e., ScotWind and Innovation and Targeted Oil & Gas (INTOG) projects).

1.5.1 United Kingdom and Republic of Ireland Offshore Windfarm Long List

58. UK and RoI based offshore windfarm projects classified under Tiers 1 and 2 were evaluated for potential cumulative construction impacts, where overlapping construction timelines with the Project could be reasonably anticipated and where programme details were sufficiently defined to support a robust assessment. As piling in the WDA is scheduled to occur between Q2 2030 to Q4 2034, projects that are likely to overlap with that period and one year either side of the piling schedule have been **screened in**.

59. Where available, confirmed construction schedules for offshore windfarms were used to determine the likelihood of temporal overlap with the Project. For Tier 2 UK projects, the assessment relied on the most reliable information regarding potential construction windows.

60. The initial screening identified 87 UK and RoI offshore windfarm projects located within the relevant assessment areas for all receptors listed in **Table 1.1** and presented in **Figure 1.1.** Of these, 50 offshore windfarm projects were **screened out** due to either being cancelled or dormant. This includes potential projects in RoI which were proposed prior to the implementation of the National Designated Maritime Area Plan for Offshore Renewable Energy (ORE).

61. Of the 18 UK and RoI offshore windfarm projects in Tiers 1 and 2, 13 were identified as having construction periods (either piling or non-piling) that may coincide with the piling window for the WDA. Of these, ten have the potential to carryout piling activities at the same time as piling at MachairWind WDA.

62. In addition to piling, the assessment identified which offshore windfarms are expected to overlap with the MachairWind WDA piling window through non-piling construction activities. Of the 13 projects with overlapping construction phases (see **Table 1.2**), the remaining three have the potential to

overlap with other construction activities. Although these generate lower underwater noise than piling, they are included to ensure all relevant construction pressures are represented in the cumulative assessment.

63. The assessment also considered projects predicted to have O&M activity during the MachairWind WDA piling window. Five projects were identified as having potential O&M overlap (**Table 1.2**); three of which may also overlap with construction activities. While typically lower in acoustic intensity than construction, O&M activity is included to reflect cumulative vessel presence, maintenance-related noise and wider regional activity levels in **Figure 1.1**.

64. Projects outside the temporal piling-window overlap were also reviewed for their contribution to the wider baseline. At the time of writing (January 2025), there are 11 offshore windfarms considered part of the baseline, and a further eight Tier 3 projects were also excluded due to limited information.

65. Of the 18 Tier 1 and 2 projects that have potentially overlapping construction phases with piling at the WDA, eight of these could be piling at the same time, which are:

- Awel y Mor;
- Dublin Array;
- Havbredey;
- Malin Sea Wind;
- Mooir Vannin;
- North Channel Wind 1;
- North Channel Wind 2;
- Northern Irish Sea Array;
- Spiorad na Mara; and
- Western Star.

66. Of the 18 Tier 1 and 2 projects that have potentially overlapping construction phases with piling at the WDA, five of these are likely to be carrying out non-piling activities at the same time, which are:

- Arklow Bank - Phase 2;Coding;
- Mona;
- Morecambe
- and
- West of Orkney.

67. West of Orkney are currently scheduled to be operational by 2029, other windfarms, such as Arklow Bank – Phase 2; Coding; Mona and Morecambe are due to be operational by 2030. As piling activities are typically completed early in the construction programme, only non-piling construction activities (such as WTG commissioning, electrical works, installation of ancillary components, and demobilisation) would normally be expected at this stage. However, due to uncertainties in the actual timing and sequencing of construction activities, these projects have been conservatively included within assessment of underwater noise effects from O&M activities and operational WTGs. This precautionary approach ensures that any potential residual construction activity is captured in the cumulative assessment, should project timelines extend or be subject to delay.

68. The eight offshore windfarm projects that will be operational while the WDA is in construction and which are therefore **screened in** are:

- Arklow Bank- Phase;
- Codling;
- Mona:
- Morecambe;
- Morgan;
- Oriel Offshore Windfarm
- Pentland Floating Offshore Windfarms; and
- West of Orkney.

69. Windfarms that temporally overlap with the MachairWind construction phase through non-piling construction or O&M activities will be grouped within a single assessment, such that no windfarm is assessed twice. The results of this screening and which receptor will be included in the assessment is presented in **Table 1.2.**

Table 1.2 CEA Screening for all UK offshore windfarm projects within the relevant spatial area for each species and potential to overlap with the Project pilling window (2030-2034) (CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland, NA = North Atlantic; Wider MY, WS, Western Isles (WI), Republic of Ireland ROI) (MU= Management Unit , Y = Yes, N = No) (Green text in rows are projects screened in)

Scheme Name	Status	Distance from The Project	Tier	HP - WS	BND - OW	BND - CWSH	CGNS MU	NA MU	Seal Wider MU	Foundation Piling Start Date	Date operational	Potential for overlap of Offshore Windfarm construction with the Project Piling Window?	Potential for overlap of Offshore Windfarm O&M and the Project Piling Window?	Screened in?
60MW Floating Wind Test Site (UK80)	Concept/early planning	Unknown	3	N	Y	N	Y	Y	N	Unknown	Unknown	Unknown	Unknown	No, insufficient information
Arklow Bank - Phase 2 (IE07)	Consent application submitted	330 km	1	N	N	N	Y	Y	N	2027	2030	Y	Y	Yes, potential overlap with the Project's piling activities
Atlantic Marine Energy Test Site IE24)	Concept/early planning	288 km	3	N	Y	N	Y	Y	N	2027	Unknown	Unknown	Unknown	No, insufficient information
Awel y Mor	Consent authorised	328 km	1	N	N	N	Y	Y	N	2029	2030	Y	N	Yes, potential overlap with the Project's piling activities
Barrow	Operational	302 km	1	N	N	N	Y	Y	N	2005	2006	N	N	No, part of baseline
Burbo bank	Operational	350 km	1	N	N	N	Y	Y	N	2006	2007	N	N	No, part of baseline
Burbo bank extension	Operational	350 km	1	N	N	N	Y	Y	N	2016	2017	N	N	No, part of baseline
Clogherhead	Paused	226 km	3	N	N	N	Y	Y	N	2026	2028	Y	Y	No, insufficient information. No reports available.
Codling	Consent application submitted	306 km	1	N	N	N	Y	Y	Y	2027	2030	N	Y	Yes, potential overlap with the Project's piling activities
Dublin Array	Consent application submitted	300 km	1	N	N	N	Y	Y	Y	2027	2030	Y	N	Yes, potential overlap with the Project's piling activities
Greystones (IE38)	Concept/Early Planning	298 km	2	N	N	N	Y	Y	Y	2026	2030	Y	Y	No, insufficient information. No reports available.
Gwynt y Mor	Operational	334 km	1	N	N	N	Y	Y	N	2012	2015	N	N	No, part of baseline
Havbredey (UK6L)	Concept/Early Planning	301 km	2	Y	Y	Y	Y	Y	Y	3032	2036	Y	N	Yes, potential overlap with the Project's piling activities
Malin Sea Wind	Concept/Early Planning	41 km	2	Y	Y	Y	Y	Y	Y	2030	2031	Y	N	Yes, potential overlap with the Project's piling activities
Mid west broad area floating	Development zone phase-+	388 km	3	N	Y	N	Y	Y	N	N/A	N/A	N/A	N/A	No, insufficient information
Mona	Consent granted	249 km	1	N	N	N	Y	Y	N	2027	2029-2030	N	Y	Yes, potential overlap with the Project's piling activities

Scheme Name	Status	Distance from The Project	Tier	HP - WS	BND - OW	BND - CWSH	CGNS MU	NA MU	Seal Wider MU	Foundation Piling Start Date	Date operational	Potential for overlap of Offshore Windfarm construction with the Project Piling Window?	Potential for overlap of Offshore Windfarm O&M and the Project Piling Window?	Screened in?
Mooir Vannin	Consent Application Submitted	244 km	1	N	N	N	Y	Y	N	2032	2033	Y	N	Yes, potential overlap with the Project's piling activities
Morecambe	Consent application granted	304 km	1	N	N	N	Y	Y	N	2027	2029-2030	N	Y	Yes, potential overlap with the Project's piling activities
Morgan	Consent granted but Crown Estate lease handed back	290 km	1	N	N	N	Y	Y	N	2027	2029-2030	N	Y	Yes, potential overlap with the Project's piling activities
Nomadic Offshore Wind (UKY3)	Concept/Early Planning	30 km	3	Y	Y	Y	Y	Y	Y	2026	2030	Y	Y	No, insufficient information. No reports available.
North Channel Wind 2 (UK60)	Concept/Early Planning	142 km	2	N	N	N	Y	Y	Y	2029	2031	Y	N	Yes, potential overlap with the Project's piling activities
North Channel Wind 1 (UK6T)	Concept/Early Planning	100 km	2	Y	N	Y	Y	Y	Y	2029 -2030	2031	Y	N	Yes, potential overlap with the Project's piling activities
Northern Irish Sea Array	Consent application Submitted	244 km	1	N	N	N	Y	Y	N	2027	2029	Y	N	Yes, potential overlap with the Project's piling activities
North-west broad area floating wind (IE79)	Development zone phase	95 km	3	Y	N	N	Y	Y	Y	N/A	N/A	N/A	Unknown	No, insufficient information
Olympic Wind (UK70)	Concept/Early Planning	unknown	3	N	N	N	Y	Y	N	2025	2029	N	Y	No, insufficient information. No reports available.
Oriel	Consent application submitted	218 km	1	N	N	N	Y	Y	Y	2026	2028	N	Y	Yes, potential overlap with the Project's piling activities
Ormonde	Operational	288 km	1	N	N	N	Y	Y	N	2010	2012	N	N	No, part of baseline
Pentland Floating Offshore Wind Farm	Consent granted	324 km	1	N	Y	Y	Y	Y	N	2024	2026	N	Y	Yes, potential overlap with the Project's piling activities
Rhyl Flats	Operational	337 km	1	N	N	N	Y	Y	N	2009	2010	N	N	No, part of baseline
Robin Rigg	Operational	222 km	1	N	N	N	Y	Y	N	2009	2010	N	N	No, part of baseline
Spiorad na Mara (UK6N)	Concept/early planning	244 km	2	Y	Y	N	Y	Y	Y	2028-3031	2031	Y	N	Yes, potential overlap with the Project's piling activities

Scheme Name	Status	Distance from The Project	Tier	HP - WS	BND - OW	BND - CWSH	CGNS MU	NA MU	Seal Wider MU	Foundation Piling Start Date	Date operational	Potential for overlap of Offshore Windfarm construction with the Project Piling Window?	Potential for overlap of Offshore Windfarm O&M and the Project Piling Window?	Screened in?
Walney Extension	Operational	267 km	1	N	N	N	Y	Y	N	2017	2018	N	N	No, part of baseline
Walney Phase 1	Operational	282 km	1	N	N	N	Y	Y	N	2010	2011	N	N	No, part of baseline
Walney Phase 2	Operational	287 km	1	N	N	N	Y	Y	N	2011	2012	N	N	No, part of baseline
West of Duddon sands	Operational	292 km	1	N	N	N	Y	Y	N	2013	2014	N	N	No, part of baseline
West of Orkney (UK6K)	Consent granted	330 km	1	N	Y	N	Y	Y	N	2027	2029-2030	Y	Y	Yes, potential overlap with the Project's piling activities
Western Star (IE32)	Concept/early planning	Unknown	2	N	Y	N	Y	Y	Y	Unknown	2030/2032 (phase 2)	Y	N	Yes, potential overlap with the Project's piling activities

1.5.2 Screening of Marine Renewable Energy (Wave and Tidal) Projects

70. Both UK and RoI initiatives, including wave and tidal energy projects, were reviewed during the CEA screening process (see **Figure 1.1** for area assessed).

71. UK and RoI based marine renewable energy (MRE) projects were considered for potential cumulative effects during construction, operation and decommissioning, where timelines could coincide with the construction window of the WDA and where sufficient information was available. In cases where construction timelines were unknown, it was assumed that all operational, under-construction, or consented projects would be completed prior to the start of the Project. Operational projects were treated as part of the existing environmental baseline. The outcomes of this screening are presented in **Table 1.3.**

72. Projects that have been cancelled or are no longer active were **screened out** of the CEA.

73. The use of piling is considered highly unlikely for the installation of wave and tidal energy infrastructure. These technologies are typically deployed using methods such as drilled pin foundations or gravity-base structures. As a result, construction-related underwater noise is expected to have a much more limited spatial impact compared to offshore wind developments.

74. It is unlikely that the construction of wave or tidal energy projects will significantly contribute to cumulative underwater noise impacts affecting marine mammals and leatherback turtle. Nonetheless, any projects with potential temporal overlap in construction activities with the Project have been included for further assessment within the CEA.

75. The O&M phases of wave and tidal energy projects are also not expected to result in significant cumulative underwater noise impacts on marine mammals and leatherback turtle due to the limited zone of influence. Consequently, these phases have been **screened out**.

76. Most of the operational MRE projects have been in operation since the start of the Project's baseline data collection (April 2021) and are therefore considered part of the existing conditions, and not subject to further assessment.

77. MRE projects classified under Tier 3 were **screened out** due to a lack of information regarding their construction schedules.

78. While tidal energy devices may pose a potential collision risk to marine mammals and leatherback turtle, it is assumed that appropriate mitigation and monitoring measures would be implemented to minimise this risk. Such measures typically include real-time monitoring using passive acoustic monitoring (PAM) systems, underwater cameras, deployment of marine mammal observers (MMOs), acoustic deterrent devices (ADD) activated by sensors, temporary shutdown of turbines/machines when animals are detected within defined impact zones, and adaptive management measures informed by ongoing environmental monitoring. These approaches are commonly recommended in tidal-energy collision-risk guidance and industry practice to reduce the likelihood of close-range encounters (e.g., use of active imaging sonars, near-field tracking systems, and automated detection technologies).

79. Wave energy devices, being surface-based, do not present a collision hazard. Therefore, collision risk associated with both wave and tidal technologies have been **screened out**.

80. Only one tidal project has become operational after the baseline data collection surveys (see **Table** 1.3). Due to the limited impacts during the O&M phase and localised zone of influence, all O&M activities associated with wave and tidal energy projects have been **screened out** of the CEA due to their negligible contribution to cumulative impacts.

Table 1.3 CEA screening for marine renewable projects within relevant spatial areas and potential overlap with the Project's construction (2030-2034) CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland, NA = North Atlantic; Wider MU, WS, Western Isles (WI), Republic of Ireland (ROI) (MU= Management Unit , Y = Yes, N = No)

Scheme Name	MRE	Distance from The Project	Phase	Tier	Operational Date	HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of construction with the Project construction?	Screened in?
Flex Marine Power	Tidal	26 km	Installation	1	2026	Y	N	Y	Y	Y	Y	N	No, no potential for cumulative effects.
Oran na Mara	Tidal	24 km	Pre-application	3	N/A								No, insufficient information
Strangford Lough Tidal Test Site	Tidal	164 km	Decommissioned in 2019. Still an active test site.	1	2019	N	N	N	Y	Y	Y	N	No, considered part of the baseline

1.5.3 Screening of Aggregate and Dredging Projects

81. The CEA screening process considered West of Scotland, NI and RoI aggregate extraction and related dredging activities (see **Figure 1.1** for area assessed), including both operational sites (Production Agreement Areas) and those identified for potential future use (Exploration and Option Areas), as listed in **Table 1.4**.

82. Projects were initially assessed for potential cumulative operational impacts where their activities could coincide with the pilling window of the WDA. Any projects that were operational prior to the commencement of baseline surveys in April 2021 were treated as part of the existing environmental baseline. Projects that have been cancelled or are no longer active were not included in the CEA.

83. NI uses Production Agreement Areas only for marine aggregate extraction, and offshore extraction zones include sites such as Area 528/2, which is designated as an exploration/option area that may later become a Production Agreement Area (The Crown Estate, 2025). In contrast, the RoI has no Production Agreement Areas. Similarly, the West of Scotland has no Production Agreement Areas or active aggregate extraction sites, because Crown Estate Scotland uses leasing mechanisms for offshore wind, tidal, and wave developments rather than production agreements. Therefore, aggregate and dredging projects have been **screened out**.

84. All currently active dredge soil deposit site operations have been in place since the start of the Project baseline data collection (April 2021) and are therefore considered part of the existing baseline and are **screened out**.

85. Noise generated by dredging vessels during transit has been **screened out**, as it is comparable to that produced by other vessels of similar size and is therefore considered part of the baseline acoustic environment (Todd et al., 2015).

86. During active dredging, elevated noise levels, particularly above 1 kilohertz (kHz), are produced due to the mechanical interaction of aggregate materials with the drag head, suction pipe, and pump. Research indicates that gravel extraction generates higher noise levels than sand extraction (Robinson et al., 2011; Southall et al., 2021; Haven Dredging, 2024).

87. However, given the limited spatial extent of noise propagation and the distance of aggregate extraction and dredging sites from the Project, the likelihood of these activities contributing to cumulative acoustic impacts is minimal. As such, the risk of auditory injury in marine mammals and leatherback turtle has been **screened out** of further consideration.

88. The results of the screening exercise for aggregate extraction and dredging projects are presented in **Table 1.4**.

Table 1.4 CEA screening for UK aggregate and dredging projects within the relevant spatial areas and potential overlap with the Project construction (2030-2034) (CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland, NA = North Atlantic; Wider MY, WS, Western Isles (WI), Republic of Ireland ROI) (MU= Management Unit , Y = Yes, N = No)

Scheme Name	Area number/ Licence number	Distance from The Project	Status	Licence date		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of aggregate extraction with the Project construction?	Screened in?
				Start	End								
Area 528/2	528/2	N/A	Designated as an Exploration and Option Area	N/A	N/A	N	N	N	N	N	N	N	No, insufficient information
Belfast Harbour dredging (NI)	ML 149_16	139 km	Open	Aug 2022	July 2025	N	N	N	Y	N	N	N	No, considered part of the baseline
Hilbre Swash	393	345 km	Open	01/01/15	12/31/2029	N	N	N	Y	N	N	N	No, considered part of the baseline
Liverpool Bay	457	349 km	Closed	12/07/12	7/13/2025	N	N	N	Y	N	N	N	No, considered part of the baseline
Red Bay Harbour dredging (NI)	ML 21_17	91 km	Closed	N/A	March 2020	W	N	Y	Y	N	N	N	No, considered part of the baseline

1.5.4 Screening of Licenced Disposal Sites

89. All UK licensed disposal sites are part of the existing baseline environment, as they were all operational prior to the start of the baseline surveys in April 2021. All UK licensed disposal sites have therefore been **screened out** from further consideration in the CEA. All UK licensed disposal sites considered in the CEA screening are presented in **Table 1.5**.

Table 1.5 Screening for UK disposal sites within the Relevant Spatial Areas and Potential to Overlap with the Project Construction (2030-2034) (CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland, NA = North Atlantic; Wider MY, WS, Western Isles (WI), Republic of Ireland ROI) (MU= Management Unit , Y = Yes, N = No)

Scheme Name	Area number	Distance from The Project	Status	Year of opening	HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Screened in?
Armadale	HE070	107 km	Open	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Bàgh Ùige	HE034	154 km	Open	2021	Y	N	N	Y	Y	Y	No, considered part of the baseline
Beauforts Dyke Scotland	IS280	130 km	Closed	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Campbeltown	MA060	79 km	Open	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Coleraine	MA540	57 km	Closed	N/A	Y	N	N	Y	Y	Y	No, considered part of the baseline
Drummore A	IS285	171 km	Open	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Drummore B	IS286	171 km	Open	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Drummore B	IS287	171 km	Open	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Drummore B	IS288	171 km	Open	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Gills Bay	FI030	350 km	Closed	N/A	N	N	N	Y	Y	N	No, considered part of the baseline
Isle Of Eigg	HE020	83 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline

Scheme Name	Area number	Distance from The Project	Status	Year of opening	HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Screened in?
Leverburgh	HE033	175 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Loch Inchard	HE060	273 km	Closed	N/A	Y	N	N	Y	Y	Y	No, considered part of the baseline
Loch Maddy	HE030	161 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Loch Staosnaig	MA070	17 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Lochinver	HE040	233 km	Open	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
North Channel Scotland	MA010	274 km	Open	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Port Ellen	MA030	37 km	Open	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Port Mor Isle of Muck	HE080	97 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Portnahaven	MA035	23 km	Open	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Portpartick	IS290	144 km	Closed	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Portstewart Bay	MA520	70 km	Disused	2025	Y	N	N	Y	Y	Y	No, considered part of the baseline
Portstewart Bay B	MA545	59 km	Disused	2025	Y	N	N	Y	Y	Y	No, considered part of the baseline

Scheme Name	Area number	Distance from The Project	Status	Year of opening	HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Screened in?
Rathlin Island A	MA520	70 km	Closed	N/A	Y	N	N	Y	Y	Y	No, considered part of the baseline
Rathlin Island B	MA545	59 km	Closed	2019	Y	N	N	Y	Y	Y	No, considered part of the baseline
Rathlin Island C	MA520	57 km	Closed	N/A	Y	N	N	Y	Y	Y	No, considered part of the baseline
Sound of Canna	HE025	97 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Stornoway	HE035	222 km	Open	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Stranraer	MA015	274 km	Open	2020	N	N	Y	Y	Y	N	No, considered part of the baseline
Tayinloan	MA040	59 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Tiree	MA080	39 km	Closed	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline
Ullapool (Loch Broom)	HE050	210 km	Open	2020	Y	N	N	Y	Y	Y	No, considered part of the baseline

1.5.5 Screening of Oil and Gas Projects

90. Existing oil and gas developments are considered part of the baseline environment. Routine O&M activities are expected to be of low intensity, spatially limited, and short in duration. However, construction and decommissioning phases of oil and gas infrastructure may present potential for cumulative effects if they coincide with the construction phase of the Project (Seiche Ltd., 2020).

91. The CEA screening included UK-based oil and gas projects that are either operational, under construction or decommissioning, consented, or subject to a submitted application.

92. Other projects were assessed for potential cumulative impacts where their construction or decommissioning activities could overlap with the MachairWind WDA piling period.

93. According to the BEIS (2020) RoC HRA for SACs, cutting equipment is anticipated to be primarily used during decommissioning. While data on acoustic emissions from such equipment is limited, Panger et al. (2016) measured underwater noise from a diamond wire cutter at an offshore gas platform. The study reported increases in sound levels between 4 dB and 15 dB, predominantly at frequencies above 5 kHz, with no significant increase at lower frequencies beyond vessel noise (Pangerc et al., 2016).

94. Recent studies confirm that mechanical cutting methods such as diamond wire cutting produce continuous, non-impulsive sound, which is generally less harmful to marine mammals and leatherback turtle than impulsive sources like explosives (Fernandez-Betelu et al., 2024; Seiche Ltd., 2020).

95. Based on available evidence, underwater noise generated during decommissioning is unlikely to exceed thresholds for auditory injury (PTS) in marine mammals and leatherback turtle. Any disturbance is expected to be localised and comparable to vessel-related noise. Consequently, cumulative impacts from cutting equipment used in decommissioning have been **screened out** of further assessment.

96. Vessel activity associated with decommissioning is not anticipated to result in significantly greater impacts than those occurring during the operational phase of oil and gas installations. Therefore, cumulative effects from vessel operations during decommissioning have also been **screened out** (Seiche Ltd., 2020; MARAD, 2023).

97. Of the 22 oil and gas projects reviewed, two are undergoing or scheduled for decommissioning, with potential temporal overlap with the Project's piling window (Q2 2030 to Q4 2034). The remaining 19 projects may coincide with the Project's timeline; however, given the absence of relevant identified cumulative impact pathways, these have not been taken forward for further assessment.

98. Projects that have been cancelled or are no longer active were **screened out**.

99. All oil and gas projects undergoing decommissioning since the commencement of the Project's baseline surveys (in April 2021) are part of the existing baseline and **screened out** from further consideration in the CEA.

100. Looking at the projects that overlap with construction activities of the Project, none of the decommissioning projects have stated that they will be using any explosives for removal of structures. Therefore, decommissioning projects are **screened out** of the CEA.

101. The remaining projects comprise operational oil and gas fields and licence blocks. None of these activities are expected to have any overlap with the Project's construction programme and are therefore **screened out** of the CEA.

102. The results of the screening are provided in **Table 1.6**.

Table 1.6 CEA screening for oil and gas projects (both decommissioning and production schemes are included) within relevant spatial areas and with the potential to overlap with the Project construction (2030-2034) (CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland, NA = North Atlantic; Wider MY, WS, Western Isles (WI), Republic of Ireland ROI) (MU= Management Unit , Y = Yes, N = No)

Scheme Name	Type of Scheme	Status	Distance from The Project	Tier	Expected date of activity	Potential for overlap of activities with the Project construction?	HP - WS	BND – OW	BND - CWSH		CGNS MU	NA MU	Seals Wider MU	Screened in?
Bains	Hydrocarbon/gas field	Decommissioned	299 km	1	2017-2018	N	N	N	N		Y	Y	N	No, no identified cumulative impact pathway
Calder	Hydrocarbon/gas field	Producing with planned decommissioning	295 km	1	Decom 2027-2033	Y	N	N	N		Y	Y	N	No, no identified cumulative impact pathway
Conwy	Hydrocarbon/gas field	Operational (unknown decommissioning)	311 km	1	2016-Present	N/A	N	N	N		Y	Y	N	No, insufficient information on when decommissioning will take place – could be any time after 2032.
Dalton	Hydrocarbon/gas field	Decommissioning	284 km	1	2025-2032	Y	N	N	N		Y	Y	N	No, no identified cumulative impact pathway
Douglas	Hydrocarbon/gas field	Operational	326 km	1	2025-2028	N	N	N	N		Y	Y	N	No, no identified cumulative impact pathway
Douglas west	Oil field	Operational	325 km	1	2025-2028	N	N	N	N	Y	Y	Y	N	No, no identified cumulative impact pathway
Hamilton	Hydrocarbon/gas field	Operational	322 km	1	2025-2028	N	N	N	N		Y	Y	N	No, no identified cumulative impact pathway
Hamilton east	Hydrocarbon/gas field	Operational	324 km	1	2025-2028	N	N	N	N		Y	Y	N	No, no identified cumulative impact pathway
Hamilton north	Hydrocarbon/gas field	Decommissioned; repurposing to a carbon capture storage (CCS)	316 km	1	Construction works 2026-2027 Operational Q4 2027	N	N	N	N		Y	Y	N	No, no identified cumulative impact pathway
Lennox (gas)	Gas field	Operational	330 km	1	2025-2028	N	N	N	N	Y	Y	Y	N	No, no identified cumulative impact pathway
Lennox (oil)	Oil field	Operational	330 km	1	2025-2028	N	N	N	N	Y	Y	Y	N	No, no identified cumulative impact pathway
Licence Block 110/12a	Licence Block	New or recently reassigned licences	293 km	3	N/A	N/A	N	N	N		Y	Y	N	N/A, insufficient information
Licence Block 110/14a, 110/14c, 110/7a	Licence Block	New or recently reassigned licences	296 km	3	N/A	N/A	N	N	N		Y	Y	N	N/A, insufficient information
Licence Block 110/15a	Licence Block	New or recently reassigned licences	310 km	3	N/A	N/A	N	N	N		Y	Y	N	N/A, insufficient information
Licence Block 110/2a	Licence Block	New or recently reassigned licences	270 km	3	N/A	N/A	N	N	N		Y	Y	N	N/A, insufficient information
Licence Block 110/3a, 110/8a	Licence Block	New or recently reassigned licences	280 km	3	N/A	N/A	N	N	N		Y	Y	N	N/A, insufficient information

Scheme Name	Type of Scheme	Status	Distance from The Project	Tier	Expected date of activity	Potential for overlap of activities with the Project construction?	HP - WS	BND – OW	BND - CWSH		CGNS MU	NA MU	Seals Wider MU	Screened in?
Licence Block 110/3b	Licence Block	New or recently reassigned licences	288 km	3	N/A	N/A	N	N	N		Y	Y	N	N/A, insufficient information
Licence Block 113/27c	Licence Block	New or recently reassigned licences	260 km	3	N/A	N/A	N	N	N		Y	Y	N	N/A, insufficient information
Millom	Hydrocarbon/gas field	Decommissioning	265 km	1	2024-2033	Y	N	N	N		Y	Y	N	No, no identified cumulative impact pathway.
North Morecambe	Hydrocarbon/gas field	Operational	280 km	1	1979-Present	N	N	N	N		Y	Y	N	No, considered part of the baseline
Rhyl	Hydrocarbon/gas field	Operational	270 km	1	2012-Present	N	N	N	N		Y	Y	N	No, considered part of the baseline
South Morecambe	Hydrocarbon/gas field	Operational	287 km	1	1974-Present	N	N	N	N		Y	Y	N	No, considered part of the baseline

1.5.6 Screening of Subsea Cables and Pipelines Projects

103. Subsea cable and pipeline developments were considered for cumulative effects only during their construction phase, as operational projects do not generate significant underwater noise or disturbance. The screening process included UK-based projects that are operational, under construction, consented, or subject to a submitted application. Projects already in operation were treated as part of the existing environmental baseline and **screened out** (Hale, 2025).

104. Of the 127 subsea cable and pipeline projects reviewed, all but two were screened out as they were operational prior to the commencement of the Project. The two **screened in** are Western Link 2, which remains at the pre-application and early design stage and the LirIC Interconnector, which is due to be commissioned by 2032. These cable works are located in all marine mammal and leatherback turtle MUs.

105. Underwater noise modelling presented in **Appendix 10.1 Underwater Noise Modelling Report** indicates that noise generated during seabed preparation, cable trenching (via ploughing, jetting, or trenching), rock dumping, and vessel operations is generally confined to the immediate vicinity of the activity, with the exception of TTS in harbour porpoise (HP) for rock dumping (up to 6.2 km) and suction dredging (up to 4.2 km); and mysticetes, for rock dumping (up to 2 km) and suction dredging (up to 630 m). However, the results of the underwater noise modelling are for a stationary receptor, meaning that an individual would need to remain within the predicted area of impact for approximately 24-hours, which is highly unlikely.

106. Recent reviews confirm that acoustic emissions from cable burial and trenching operations are typically low-frequency and non-impulsive, with limited potential to cause auditory injury. Behavioural responses such as avoidance may occur but are generally short-term and spatially restricted (Hague et al., 2022; Hale, 2025).

107. The CEA screening for subsea cables and pipelines is summarised in **Table 1.7**.

Table 1.7 CEA screening for subsea cables and pipelines within the relevant spatial areas and potential overlap with the Project construction (2030-2034) (CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland, NA = North Atlantic; Wider MY, WS, Western Isles (WI), Republic of Ireland ROI) (MU= Management Unit , Y = Yes, N = No)

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
2 Inch Wax Inhibitor From Douglas Complex To Lennox Platform	1	323 km	UK	UK	N	N	N	Y	Y	Y	No - considered as part of the baseline	No
3 INCH POA-DD METHANOL PIPELINE	1	333 km	UK	UK	N	N	N	Y	Y	Y	No - considered as part of the baseline	No
4" Pirelli Subsea Electrical Cable (multicore) from Douglas to Hamilton North	1	33 km	UK	UK	N	N	N	Y	Y	Y	No - considered as part of the baseline	No
8 Inch Douglas To Conwy Water Injector	1	310 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
8 Inch Hamilton East To Hamilton North (Flexible) Gas Export	N/A	317 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
12 INCH GAS RE-INJECTION FROM DOUGLAS COMPLEX TO LENNOX PLATFORM"	1	333 km	UK	UK	N	N	N	Y	Y	Y	No - considered as part of the baseline	No
14 Inch Hamilton North Platform To Douglas Gas Export	1	317 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
14 Inch Oil Line Douglas To Osi	1	309 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
16 Inch Gas Export (Associated Gas) From Lennox To Douglas Complex	1	323 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
20 Inch Gas Export Line Hamilton Platform To Douglas Complex	1	323 km	UK	UK	N	N	N	Y	Y	Y	No - considered as part of the baseline	No
AE connect seg 05 telecom cable	1	230 km	N/A	Ireland	N	Y	N	Y	Y	N	No - considered as part of the baseline	No
Barra - vatersay power cable	1	100 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Benbecula - south uist east power cable	1	143km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Benbecula - south uist west power cable	1	143km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Bridgend [islay]	1	20km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Bt-hie seg 01.13 telecom cable	1	213km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Bt-hie seg 01.14 telecom cable	1	162km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Bt-hie seg 01.15 telecom cable	1	140km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Bt-hie seg 01.16 telecom cable	1	108km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
BT-HIE Seg 01.18a TELECOM CABLE	1	109km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
BT-HIE Seg 01.18b TELECOM CABLE	1	105km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Bt-hie seg 01.8 telecom cable	1	40km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Bt-te1 telecom cable	N/A	270km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Calder To Rivers Onshore Terminal 24in Gas Line	1	296 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Celtixconnect telecom cable	1	271km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Claddach east	1	154km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Claddach west	1	154 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Coll - tiree power cable	1	42km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
East west interconnector power cable	1	260km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Eilean - loain power cable	1	54km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Eilean - righ power cable	1	58km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
EMERALD BRIDGE TELECOM cable	1	270km	UK	NI	Y	N	N	Y	Y	Y	No - considered as part of the baseline	No
Eriskay - barra 1 power cable	1	106 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Eriskay - barra 2 power cable	1	106 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Esat 1 telecom cable	1	280km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Esat 2 telecom cable	1	280km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Farice telecom cable	1	332 km	Iceland	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Farice telecom cable	1	332 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Harris - scalpay east 2 power cable	1	190 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Harris - scalpay east power cable	1	190 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Harris - scalpay west 1 power cable	1	190 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Havfrue seg 2 telecom cable	1	300 km	Halifax	Irland	N	Y	N	Y	Y	N	No - considered as part of the baseline	No
Havhingsten seg 1.1 telecom cable	1	250 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Havhingsten seg 1.2 telecom cable	1	229 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Havhingsten seg 1.4 telecom cable	1	250 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Hibernia atlantic bu-ni telecom cable	1	49 km	UK	UK	N	N	Y	Y	Y	N	No - considered as part of the baseline	No
Hibernia atlantic seg a	1	49 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Hibernia atlantic seg.a telecom cale	1	38 km	UK	NI	Y	Y	N	Y	Y	Y	No - considered as part of the baseline	No
Hibernia atlantic seg.c telecom cable	1	279 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Hibernia atlantic seg.d telecom cable	1	279 km	N/A	NI	Y	N	N	Y	Y	Y	No - considered as part of the baseline	No
Hie 1.04 telecom cable	1	69 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Hie 1.07 telecom cable	1	25 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Hie 1.08 telecom cable	1	39 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Hie 1.09 telecom cable	1	35 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Hie 1.10 telecom cable	1	62 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Hie s 1.11 telecom cable	1	63 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Hie s 1.17 telecom cable	1	36 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
HyNet CO2	3	333 km	UK	UK	N	N	N	Y	Y	Y	No - considered as part of the baseline	No
Interconnector 1 Scotland To Ireland Ic1	1	202 km	Ireland	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Interconnector 2 Scotland To Ireland Ic2	1	219 km	Ireland	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Iris seg 1 telecom cable	1	317 km	Ireland	Ireland	N	Y	N	Y	Y	N	No - considered as part of the baseline	No
Isaly - colonsay power cable	1	16 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Islay - jura power cable	1	25 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Islay - orsay power cable	1	19km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Isle Of Man Spur (IOMS)	1	211 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Kerrera - mull 2 power cable	1	62km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Kerrera - mull replacement power cable	1	61 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Kintyre - gigha power cable	1	55 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Kintyre - hunterston 1 north power cable	1	70 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Kintyre - hunterston 1 south power cable	1	70 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Kismul - castle power cable	1	100 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Lanis 2 telecom cable	1	160 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Lanis 3 telecom cable	1	134 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Laxay - kershader power cable	1	214 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Laxay - kershader 2 power cable	1	214 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
LirIC Interconnector	2	125 km	NI	UK	N	N	N	Y	Y	N	Y - commissioning year 2032	Yes
Loch bi	1	138 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Lochaline - mull power cable	1	62 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Lochaline power cable	1	65 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Mainland - jura power cable	1	44 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Mainland - kerrera 2 power cable	1	65 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Mainland - kerrera power cable	1	66 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Manx-n ireland telecom cable	1	191 km	UK	NI	N	N	N	Y	N	Y	No - considered as part of the baseline	No
MaresConnect Interconnector	3	N/A	Ireland	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Millom Plem To Millom Wellhead Q1 Chemical	N/A	270 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Morecambe Cpp1 To Dp4 2in Line	N/A	293 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Morecambe Dp8 To Cpp1 24in Gas Line	1	290 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Morecambe Dppa To Dalton Plem Chemical	N/A	283 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Moyle interconnector north power cable	1	126 km	UK	NI	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Moyle interconnector south power cable	1	126 km	UK	NI	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Mull - calve island power cable	1	62 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Mull - coll ab power cable	1	55 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Mull - coll power cable	1	54 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Mull - iona power cable	1	25 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Mull - ulva power cable	1	56 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
North uist - benbecula centre power cable	1	151 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
North uist - benbecula east power cable	1	151 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
North uist - benbecula west	1	151 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
North uist - berneray power cable	1	173 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Northern lights telecom cable	1	332 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
North Morecambe 36in Gas Trunkline	1	283 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Otter ferry power cable	1	70 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Pentland firth east 3 power cable	1	332 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Pentland firth new power cable	1	332 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Pentland firth west 1 power cable	1	332 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
R 100 s 2.15 telecom cable	1	23 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
R 100 s 2.16 telecom cable	1	16 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
R 100 seg 13 telecom cable	1	88 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Rhyl-Dppa Import Production Flexible Pipeline	1	276 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Rockabill telecom cable	1	265 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Scotland-n Ireland 1 telecom cable	1	154 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Scotland-n Ireland 2 telecom cable	1	118 km	UK	NI	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Scotland-n Ireland 3 telecom cable	1	154 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Scotland-n Ireland 4 telecom cable	1	154 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Scotland to NI pipeline (snip) 24in gas line	1	124 km	NI	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Seil - easdale power cable	1	54 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Shearwater one export (uk5p)	N/a	20 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Sirius north telecom cable	1	136 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Sirius north telecom cable	1	115 km	UK	UK	N	N	Y	Y	Y	N	No - considered as part of the baseline	No
Sirius south telecom cable	1	270 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Skye - harris power cable	1	158 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Skye - south uist power cable	1	137 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No
Solas Telecom Cable	1	110 km	UK	NI	N	N	N	Y	Y	N	No - considered as part of the baseline	No
South Morecambe 36in Gas Trunkline	1	294 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
South Morecambe Cpp1 To Cut Point A Electrical (Morecambe Cpp1 To Dp3 Electric)	N/A	295 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
South uist - eriskay power cable	1	109 km	UK	UK	Y	N	Y	Y	Y	Y	No - considered as part of the baseline	No

Scheme Name	Tier	Distance from The Project	Landfall		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap of cable construction with the Project construction?	Screened in?
			Point 1	Point 2								
Umbilical Bundle From South Morecambe Topside Termination Box To Cut Point B	N/A	290 km	UK	UK	N	N	N	Y	Y	N	No - considered as part of the baseline	No
Western link ardneill to wirral 1 power cable (Western HVDC Link)	1	110 km	UK	UK	N	N	Y	Y	Y	N	No - considered as part of the baseline	No
Western Link 2	1	106 km	UK	UK	Y	Y	Y	Y	Y	Y	Y - early design / pre-application phase.	Yes

1.5.7 Screening of Coastal Developments

108. Coastal development projects considered in the CEA include ports and harbours located along the west and north coasts of Scotland and Ireland coastline (see **Figure 1.1** for area assessed). Projects that commenced after the start of the baseline surveys for the Project (April 2021), or those with submitted but unapproved applications, were considered for further assessment. Developments completed prior to April 2021 were treated as part of the existing environmental baseline and **screened out**.

109. **Table 1.8** presents the results of the screening. Several active ports (Tier 1) and marine licence applications for port/harbour related works were considered when developing the long list, however, due to being already in operation or completed by 2030 they were **screened out** and are not included in **Table 1.8**.

110. Recent studies highlight that coastal infrastructure developments, particularly those involving dredging and land reclamation, can significantly impact marine ecosystems. These impacts include increased turbidity, habitat loss, and underwater noise, which may affect sensitive species such as marine mammals and benthic communities (UNEP, 2023; Agarwala & Saengsupavanich, 2023). The scale of sediment removal and dredging associated with port construction has been shown to disrupt sediment transport and water quality, with long-term ecological consequences if not properly mitigated.

Table 1.8 CEA screening for coastal developments with an approved status (such as ports and harbour) with the potential to overlap with the Project's construction (2030-2034) (CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland, NA = North Atlantic; Wider MY, WS, Western Isles (WI), Republic of Ireland ROI) (MU= Management Unit , Y = Yes, N = No)

Scheme Name	Tier	Distance from The Project	Status	Application Reference	Relevant activity / licence activity dates		HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Potential for overlap with the Project construction?	Screened in?
					Start	End								
Aea Defences - Corpach Harbour, Corpach, Fort William	1	115 km	Licence	00010931	2024	2026	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Alteration and improvement to Pier and Slipway and Deposit of Pontoon - Aros, Tobermory Bay, Isle of Mull	1	62 km	Licence	00010123	2023	Application expires 2048 (works expected to be complete by 2026)	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Belfast Harbour (new cruise and offshore wind energy terminal)	3	140 km	Early planning		2025	2030	N	N	N	Y	Y	N	N	Potential overlap with construction start date, but insufficient information.
Capital Dredging and Sea Disposal - Iona Harbour, Isle of Iona	1	23 km	Application	00010433	2023	N/A	Y	N	Y	Y	Y	Y	N	No, insufficient information available at the time of writing
Dubh Artach lighthouse (Removal of the existing aluminium entrance platform and installation of a replacement platform)	3	1.5 km	Early planning	N/A	2029	2030	Y	Y	Y	Y	Y	Y	Y	No, insufficient information available at the time of writing
Harbour Development - Port Ellen Ferry Terminal	1	37 km	Application	00011158	2025	N/A	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Harbour Improvements - Blackmill Bay, Isle of Luing	1	52 km	Licence	00010898	2024	2025	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Kilchoan Ferry Terminal – Harbour Improvement Works	2	67 km	Pre-application (2025-09-05)	SCR-0113, SCR-0105	2025	N/A	Y	N	Y	Y	Y	Y	N	No, insufficient information available at the time of writing
Land Reclamation - Kishorn Port	1	150 km	Licence	00009579 / 00010918	2024	2028	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Maintenance Dredge - Ardrishaig Harbour, Loch Gilp	1	54 km	Licence	00009691	2025	2028	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Maintenance Dredging & Sea Deposit - Kirkcudbright Harbour	1	197 km	Licence	00010958	2025	2028	N	N	N	Y	Y	N	N	No, no overlap with construction
Maintenance Dredge & Sea Deposit - Port William	1	178 km	Licence	00010422	2024	2027	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Maintenance Dredge and Sea Deposit - Troon Harbour, Ayrshire	1	123 km	Licence	00010809	2024	2027	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Maintenance Dredge and Sea Disposal - Girvan Harbour, South Ayrshire	1	128 km	Licence	00010485	2023	2028	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Maintenance Dredge and Sea Disposal - Port of Ness Harbour, Isle of Lewis	1	255 km	Licence	00010290	2023	2027	Y	N	Y	Y	Y	Y	N	No, no overlap with construction
Piled Pontoon - Carradale Harbour	1	73 km	Application	00010926	2024	N/A	Y	N	Y	Y	Y	Y	N	No, insufficient information available at the time of writing.
Sea Defences - Corpach Harbour, Fort William	1	114 km	Licence	00010410	2024	2024	Y	N	Y	Y	Y	Y	N	No, no overlap with construction

1.5.8 Screening of Other Industries Projects

111. The results of the CEA screening for gas storage, offshore mines and carbon capture schemes are presented in **Table 1.9** and described in the following sections.

1.5.9 Gas Storage Projects

112. There are currently no operational gas storage facilities on the west coast of Scotland or RoI (see **Figure 1.1** for area assessed). While the Hunterston site in Ayrshire is undergoing redevelopment to host a large-scale Liquid Air Energy Storage facility (Highview Power, 2023), this does not involve natural gas storage. Similarly, NI has no active underground gas storage projects, though feasibility studies for alternative energy storage, such as pumped hydro, are underway (Higher Ground NI, 2023). As no gas storage construction is planned during the Project's construction period, gas storage Projects have been **screened out** of the CEA.

1.5.10 Offshore Mining Projects

113. There are currently no offshore mining projects within the screening area (see **Figure 1.1**) on the west coast of Scotland or NI/RoI (Department for the Economy, 2024). Existing marine policies and conservation designations restrict seabed mineral extraction in these regions, and no licences or applications for offshore mining have been issued (Scottish Parliament, 2024). As no offshore mining activity is planned during the Project's construction period, offshore mining projects have been **screened out** of the CEA.

1.5.11 Carbon Capture Projects

114. Carbon capture projects considered in the CEA screening are operational, under construction, or consented. There is limited information on projects that are in early development.

115. No projects were identified as operational, nor as under construction. However, two major carbon capture and storage projects in the East Irish Sea are progressing toward development. The Morecambe Net Zero (MNZ) Cluster, led by Spirit Energy, has an NSTA licence and will begin construction in 2027 and is expected to be operational by 2030. It will repurpose the North and South Morecambe gas fields to store up to 1 gigatonne of CO_2, supporting industrial decarbonisation through its partnership with the Peak Cluster (NS Energy, 2024; Spirit Energy, 2024).

116. The second is the Liverpool Bay CCS project, operated by Eni UK, which entered construction in April 2025 and is expected to begin operations in 2028. The project will utilise depleted reservoirs in the Hamilton, Hamilton North, and Lennox fields, forming the backbone of the HyNet industrial cluster (Eni, 2025; Pallanich, 2025).

117. Although the operational phases of carbon capture projects may overlap with the Project, they are not expected to contribute to cumulative underwater noise impacts. This is because the majority of their construction activities occur onshore, they rely largely on existing offshore infrastructure, and only minimal underwater noise is anticipated during operation. Therefore, all carbon capture projects have been **screened out** of the CEA.

Table 1.9 CEA screening for other industries (gas storage facilities, offshore mines and carbon capture projects) within the relevant spatial areas and with the potential to overlap with the Project construction (2030-2034) (CGNS = Celtic and Greater North Seas, CWSH= Coastal West Scotland & Hebrides, OW = Offshore Waters, WS = West Scotland,NA = North Atlantic; Wider MY, WS, Western Isles (WI), Republic of Ireland ROI) (MU= Management Unit , Y = Yes, N = No)

Scheme Name	Tier	Distance from The Project	Status	Date operational	HP - WS	BND – OW	BND - CWSH	CGNS MU	NA MU	Seals Wider MU	Screened in?	Potential for overlap of with the Project construction?
Liverpool Bay CCS project	3	330 km	Early Planning	Operational by 2028	N	N	N	Y	Y	N	N	No, but there is potential overlap with operational activities
Morecambe Net Zero Cluster	3	297 km	Early Planning	Operational by 2030	N	N	N	Y	Y	N	N	No, but there is potential overlap with operational activities.

1.5.12 Screening of Seismic and Geophysical Surveys

1.5.12.1 Seismic Surveys

118. It is currently not possible to accurately estimate the location or number of potential seismic surveys that could be undertaken by third parties at the same time as construction and potential piling activity at the Project.

119. It is noted that there is low certainty on the schedule of any such activity and there are no active licence applications. Regardless, the potential for cumulative effects from seismic surveys has been **screened in** for further consideration.

120. Analysis of Marine Noise Registry (MNR) reports indicates noisy activities happening in the Celtic Sea and the Greater North Sea but not the sea area around the Hebrides. Therefore, as a precautionary approach, seismic activity was reviewed for the Celtic Sea which covers a large area, and is most representative to the Hebrides compared to the North Sea. Over the last few years of available data, the following seismic surveys were carried out in the Celtic Sea.

- 2020 – two activities carried out for a total of 127 days; (up to one survey per day);
- 2021 – three activities carried out for a total of 128 days; (up to one survey per day);
- 2022 – five activities carried out for a total of 366 days; (up to one survey per day);
- 2023 – six activities carried out for a total of 307 days; (up to one survey per day); and
- 2024 – five activities carried out for a total of 183 days; (up to one survey per day).

121. Overall, in the Celtic Sea, data from the MNR show that there is an average of one seismic survey per day. Considering the WDA is in the Hebrides, and not in the Celtic Sea, i.e. a smaller, more remote area of sea with lower levels of industrial activity, as a realistic but still precautionary approach, for the purposes of the CEA, it is assumed that there would be one seismic survey undertaken by a third party at the same time as piling for the Project at the WDA.

1.5.12.2 Geophysical Surveys

122. Prior to construction, marine development projects (e.g. Offshore Windfarm, MRE and port expansions) conduct geophysical surveys to understand seabed conditions, check for debris and other anomalies.

123. These geophysical surveys can involve different equipment, such as:

- Sub-Bottom Profilers (SBP) (such as pingers, sparkers, boomers and CHIRP systems);
- Ultra-Short Baseline systems;
- Ultra-High Resolution (UHR) systems;
- Multibeam Echo Sounder (MBES) system; and
- Side Scan Sonar (SSS).

124. Due to the high amplitude of SBP and MBES, there is the potential for auditory injury to marine mammal species, however, this is highly unlikely as an animal would need to be within very close proximity of the source and all surveys will be subject to the application of mitigation measures in JNCC (2017).

125. Equipment used for geophysical surveys, such as SBP, and MBES have intensities (sound pressure and sound exposure levels) and frequency ranges that can be in range of marine mammal hearing ranges (JNCC, 2017) and likely in the hearing range of leatherback turtles. In addition, UHR systems use higher frequencies than conventional SBPs but lower than SSS systems, and therefore fall within the hearing ranges of marine mammals. Although UHR systems produce shorter-range, higher-resolution pulses aimed downward into the seabed, their frequency characteristics mean they may

still be detectable to marine mammals and leatherback turtles in close proximity. As a result, geophysical surveys using SBP, MBES, and UHR systems, have the potential to disturb marine mammals and leatherback turtle, and therefore have been **screened in**.

126. Auditory injury effects from SBP (as it is the worst case equipment) is not predicted, as an animal would need to remain in close proximity of the acoustic source for a prolonged period of time, which is highly unlikely (JNCC et al., 2010). Most of the sound energy generated by the SBP equipment will be directed towards the seabed and the pulse duration is extremely short, with the continuous movement of the survey.

127. For geophysical surveys with SBP, it is realistic and appropriate to base the assessments on the potential impact buffer around the vessel, as the potential for disturbance would be around the vessel at any one time. Marine mammals and leatherback turtle would not be at risk throughout the entire area surveyed in a day, as animals would return once the vessel had passed, and the disturbance had ceased (Affatati et al. (2023); JNCC (2025)).

128. It is currently not possible to accurately estimate the location or number of potential geophysical surveys that could be undertaken at the same time as construction and potential piling activity at the Project.

129. Analysis of MNR reports indicates that, using the Celtic Sea as the most representative sea-area as described in **Section 1.5.12.1**, the following geophysical surveys were carried out:

- 2020 – five activities carried out for a total of 187 days; (up to one per day);
- 2021- ten activities carried out for a total of 632 days; (up to two per day);
- 2022- 14 activities carried out for a total of 887 days; (up to three per day);
- 2023- 15 activities carried out for a total of 557 days; (up to two per day); and
- 2024- ten activities carried out for a total of 535 days; (up to two per day).

130. Data from the MNR shows that on average there could be up to two geophysical surveys happening at the same time. Although this covers the whole Celtic Sea (**Table 1.1**) several offshore wind projects on Scotland's west coast are expected to continue development into the 2030s, suggesting further geophysical survey activity may occur during the piling of the WDA. For the Combined Assessment approach of geophysical surveys in the Offshore ECC, see **Chapter 10 Marine Mammals and Leatherback Turtle**.

131. It is therefore assumed, as a worst-case scenario, and as a precautionary approach that there could be two geophysical surveys undertaken by third parties at the same time as piling for the Project at the WDA.

1.5.13 Screening of UXO clearance

132. As detailed in **Section 1.4.1**, the potential for auditory injury in marine mammals and leatherback turtle due to cumulative impacts have been **screened out**. This is because appropriate mitigation measures would be implemented to eliminate any significant risk (injury/auditory injury) to marine mammals and leatherback turtle (see **Appendix 9 Draft Marine Mammal Mitigation Protocol**).

133. The possibility of cumulative disturbance effects arising from UXO clearance activities associated with other developments during the piling window of the WDA has been **screened in**.

134. Alternative UXO clearance methods, such as low-order techniques, may involve the use of small donor charges rather than full high-order detonations.

135. High order clearance would only occur under exceptional circumstances, and it is therefore considered highly unlikely that multiple high-order UXO detonations would occur simultaneously or on the same day, even if the clearance operations overlap in duration. Therefore, the CEA evaluates

the potential disturbance based on a worst-case scenario involving one high-order clearance with mitigation, alongside one low-order clearance event. However, due to limited certainty around scheduling and the likelihood of temporal overlap, this assessment remains precautionary.

136. Using the Celtic Sea from the MNR data as the most representative sea-area, indicates there are no UXO clearance events recorded in the MNR, within the Celtic Sea.

1.6 SUMMARY OF CEA SCREENING

137. **Table 1.10** summarises the impacts that are screened in.

138. **Table 1.11** summarises the other projects and activities that are screened in.

139. **Table 1.12** summarises the projects and activities that are screened out.

Table 1.10 Summary of cumulative effects screened in

Impact (EIA Chapter 10 Marine Mammals and Leatherback Turtle)	Potential for Cumulative Effects	Rationale
Impact 1: Disturbance from underwater noise	Yes	There is a possibility that underwater noise could lead to cumulative impacts, such as behavioural responses like fleeing. Among the various underwater noise effects considered, disturbance has the broadest spatial extent and is therefore used in the assessment as a worst-case scenario. Projects / activities with the potential for cumulative effects due to disturbance from underwater noise include: • Piling at offshore windfarms (as worst-case noise impact during the construction phase); • O&M activities; including vessels, cable installation works, dredging, seabed preparation and rock placement; • Geophysical and seismic surveys; • Aggregate extraction and dredging; • Subsea cable and pipelines; and • UXO clearance.
Impact 2: Barrier Effects due to Underwater Noise	Yes	The potential for barrier effects to marine mammals and leatherback turtle from underwater noise has been assessed for the WDA-alone as having a **minor adverse** effect for all species considered. This level of potential impact is considered sufficient to warrant a **qualitative CEA**.
Impact 3: Vessel disturbance and collision risk	Yes	The potential for increased collision risk with vessels during the construction phase has been assessed for the WDA-alone as having a **minor adverse** effect for all species considered. This level of potential impact is considered sufficient to warrant a **qualitative CEA**.
Impact 4: Disturbance at Protected Seal haul-out sites	Yes	The significance of effect in this assessment for disturbance to seals at protected haul-out sites has been assessed as having a **minor adverse** effect. Given this worst-case outcome of minor adverse significance, it is deemed appropriate to include this pressure in a **qualitative CEA**.
Impact 5: Changes to Prey Availability	Yes	Changes to prey availability have been assessed as resulting in a **negligible** to **minor adverse** effect. As with the other pressures, this level of potential impact justifies inclusion in a **qualitative CEA** as a precautionary measure.

Table 1.11 Summary of projects and activities screened in

Cumulative Effect	Industry / activity with the potential for cumulative effect	Projects
Cumulative Effect 1: Disturbance from underwater noise due to piling and O&M activities	Piling at offshore windfarms	The offshore windfarms that could be piling at the same time as MachairWind and screened in are: • Awel y Mor • Dublin Array • Havbredey • Malin Sea Wind • Mooir Vannin • North Channel Wind 1 • North Channel Wind 2 • Northern Irish Sea Array • Spiorad na Mara • Western Star
	Other construction and O&M activities (WTG operational noise and maintenance activities)	The offshore windfarms screened in for non-piling construction and O&M activities that could have cumulative effects with piling activities at the WDA are: • Arklow Bank - Phase 2 • Codling • Mona • Morecambe • Morgan • Oriel Offshore Windfarm • Pentland Floating Offshore Windfarm • West of Orkney (UK6K)
	Geophysical surveys	Unknown It is assumed, as a worst-case scenario, that there could potentially be up to two geophysical surveys being undertaken at other offshore windfarms at any one time, during piling at the WDA.

Cumulative Effect	Industry / activity with the potential for cumulative effect	Projects
	Seismic surveys	Unknown It is assumed, as a worst-case scenario, that there could be up to one seismic survey occurring at any one time, during piling at the WDA.
	UXO clearance	Unknown It is assumed UXO clearance would use a low-order technique. However, as a worst-case scenario, the CEA includes potential for one UXO high-order clearance with mitigation and one low-order clearance at the same time as piling at the WDA.
	Subsea cables	The subsea cable screened in that could have cumulative effects with other construction activities at the Project are: • LirIC Interconnector Subsea Cable • Western Link 2

Table 1.12 Summary of projects and activities screened out of the CEA

Effect	Potential for cumulative effect	Projects
Disturbance from underwater noise	No	The activities and types of projects screened out of the CEA, due to there being no potential for a significant contribution to underwater noise cumulative impacts during piling at the WDA are: • Decommissioning of offshore windfarms • MRE (wave and tidal) developments • Aggregate and Dredging • Oil and gas installation (construction) • Coastal developments • Licensed disposal sites • Gas storage, offshore mining, and carbon capture • Shipping • Commercial fisheries

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