MachairWind Offshore Windfarm

Windfarm Development Area

Environmental Impact Assessment Report – Non-Technical Summary

ScottishPower Renewables | MachairWind Offshore Windfarm

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GLOSSARY OF ACRONYMS

Term	Definition
BEIS	Department for Business, Energy and Industrial Strategy
BGS	British Geological Survey
DESNZ	Department for Energy Security and Net Zero
ECC	Export Cable Corridor
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EU	European Union
GBS	Gravity-Based Structure
GVA	Gross Value Added
GW	Gigawatt
HES	Historic Environment Scotland
HND	Holistic Network Design
IAC	Inter-Array Cable
ICES	International Council for the Exploration of the Seas
LAT	Lowest Astronomical Tide
MAIB	Marine Accident Investigation Branch
MD-LOT	Marine Directorate – Licensing Operations Team
MMO	Marine Management Organisation
MoD	Ministry of Defence
MW	Megawatt
NCMPA	Nature Conservation Marine Protected Area
NERL	National Air Traffic Services (En-Route) plc
NESO	National Energy System Operator
NLB	Northern Lighthouse Board
NTS	Non-Technical Summary
O&M	Operation and Maintenance
OAA	Option Agreement Area
OSP	Offshore Substation Platform
OSPAR	Oslo–Paris Convention for the Protection of the Marine Environment of the North-East Atlantic
PAC	Pre-Application Consultation
PMF	Priority Marine Feature
RNLI	Royal National Lifeboat Institution
SAC	Special Area of Conservation

Term	Definition
SLVIA	Seascape, Landscape and Visual Impact
SPA	Special Protection Area
SPR	ScottishPower Renewables
UKHO	United Kingdom Hydrographic Office
WDA	Windfarm Development Area
WTG	Wind Turbine Generator

GLOSSARY OF TERMS

Term	Definition
Allision	The act of striking or collision of a moving vessel against a stationary object.
Breeding season	Furness (2015) defines breeding season as the period from modal return to the colony through to modal departure from the colony at the end of breeding, for birds at UK colonies.
Cable protection	Protective measure to minimise the effects of scour and hazards along the offshore cables (e.g. to prevent cable exposure or snagging of vessel anchors or fishing gear), as well as for protecting these cables at infrastructure crossing points.
Climate Change Impact	Climate Change Impact is defined as an impact from a climate hazard, such as asset damage or failure, which affects the ability of the receptor to maintain its function or purpose.
Climate Hazard	Climate Hazard is defined as a weather or climate-related event or trend in climate variable, such as storms or heatwaves, which has potential to do harm to receptors.
Climate Variable	Climate variable is defined as a measurable, monitorable aspect of the weather or climate such as temperature or wind speed.
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. Within the upcoming 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.
Controlled airspace	Defined airspace within which pilots must follow Air Traffic Control instructions implicitly. In the UK, Classes A, C, D, and E are areas of controlled airspace.
Cumulative Effects Assessment	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.
Embedded mitigation measure	Mitigation measures, including industry good practice measures, that are directly incorporated into the design for the MachairWind Windfarm Development Area to avoid or reduce environmental effects.
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.

Term	Definition
Greenhouse gas	A gas in the Earth's atmosphere that traps heat by absorbing and emitting infrared radiation, a process known as the greenhouse effect. Also known by the collective shorthand "carbon".
Gross Value Added (GVA)	Measure of the value of goods and services produced in an area, industry, or sector of an economy.
Habitats Regulations	A collective term used to describe the Conservation of Habitats and Species Regulations 2017 and The Conservation (Natural Habitats, &c.) Regulations 1994.
Highest astronomical tide (HAT)	The highest level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions.
Holistic Network Design (HND) process	An integrated approach for connecting 23 GW of offshore wind (including from ScotWind projects) to Great Britain providing a recommended offshore and onshore design for a 2030 electricity network, that facilitates the Government's ambition for 50 GW of offshore wind by 2030. The recommended design in the HND has equally considered four objectives to make sure the most appropriate approach is taken forwards, including: cost to consumer, deliverability and operability, impact on environment; and impact on local communities.
Inter-array cables (IACs)	Armoured cable containing electrical and fibre optic cores which link the wind turbine generators to each other and to the offshore substation platform(s).
International Council for the Exploration of the Seas (ICES) statistical rectangles	The International Council for the Exploration of the Seas (ICES) standardise the division of sea areas to enable statistical analysis of data. Each ICES statistical rectangle is 30 min latitude by 1 degree longitude in size (approximately 30 x 30 nautical miles). A number of rectangles are amalgamated to create ICES statistical areas.
Landfall	The area from Mean Low Water Springs to a transition bay(s), where the offshore export cable(s) come ashore.
Landings	Quantitative description of the amount of fish returned to port for sale, in terms of value or weight.
Lowest Astronomical Tide (LAT)	The lowest level that can be expected to occur under average meteorological conditions and under any combination of astronomical conditions.
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 cable(s) 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. Separate consent and licence applications will be submitted for each Development Area.
Mean sea level	The average level of the sea taking account of all tidal effects but excluding surge events.
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.
Non-breeding season	Furness (2015) defines non-breeding season as the remaining part of the year that is not a part of breeding season.
Offshore cables	The collective term for all offshore cables i.e. IACs, offshore substation platform link cables, offshore export cables and associated fibre optic cables.

Term	Definition
Offshore ECC infrastructure	The offshore transmission infrastructure located within the boundary of the Offshore Export Cable Corridor, namely the offshore export cable(s).
Offshore export cable	Armoured cable containing electrical cores between the offshore substation platform(s) and landfall. Offshore export cables will include bundled fibre optic cables. The offshore export cables are subject to Marine Licence applications under the Marine (Scotland) Act 2010. The portion of the offshore export cable(s) located within the WDA is assessed as part of this MachairWind WDA EIA and a marine licence application to construct, alter or improve this portion has been submitted alongside the WDA application. A separate marine licence application will be submitted for the portion of the offshore export cable(s) from the WDA boundary to mean high water Mean High Water Springs.
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.
Offshore Substation Platform (OSP) link cables	Electrical cables which link OSPs (if more than one OSP is required). These cables will include fibre optic cores or bundled fibre optic cables. OSP link cables will be wholly located within the WDA.
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.
Operational life	The operational life is the expected length of time from final commissioning of the WDA until the cessation of commercial operations. This is anticipated to be 35 years.
Option Agreement Area (OAA)	The seabed area awarded to ScottishPower Renewables in January 2022 through the Scotwind leasing round.
OSPAR	OSPAR started in 1972 with the Oslo Convention against dumping and was broadened to cover land-based sources of marine pollution and the offshore industry by the Paris Convention of 1974. These two conventions were unified, updated and extended by the 1992 OSPAR Convention. OSPAR is so named because of the original Oslo and Paris Conventions ("OS" for Oslo and "PAR" for Paris).
Safety zones	An area of water around or adjacent to a wind turbine generator or Offshore Substation Platform and associated substructure which is to be constructed, extended, operated or decommissioned, from which certain or all classes of vessels are excluded and within which activities can be regulated for the purpose of securing safety of the wind turbine generator, substructure or vessels in that vicinity, and individuals on both the wind turbine generator, substructure or vessel, in line with Section 95 of the Energy Act 2004.

Term	Definition
ScotWind	A Crown Estate Scotland seabed leasing round which enabled developers to apply for propose offshore wind projects and apply for seabed rights to plan and build windfarms in Scottish waters.
Scour protection	Protective measures to avoid sediment being eroded away from the base of the wind turbine generator foundations as a result of the flow of water.
The Applicant	The legal entity submitting consent applications for the MachairWind Offshore Windfarm, namely MachairWind Limited.
The Lighthouse	The Dubh Artach lighthouse.
The Project	MachairWind Offshore Windfarm including all its Development Areas and associated infrastructure.
Theoretical Visibility	The theoretical visibility of wind turbine generators within the WDA in the SLVIA Study Area.
Unexploded Ordnance	Munitions (such as bombs, rockets, shells etc.) that were fired, dropped, or launched but failed to detonate.
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 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 INTRODUCTION

1.1 PURPOSE OF THIS DOCUMENT

1. This Non-Technical Summary (NTS) forms part of the overall MachairWind Windfarm Development Area (WDA) Environmental Impact Assessment (EIA) Report (EIAR) for the proposed MachairWind Offshore Windfarm (hereafter 'the Project').

2. The WDA is located northwest of Islay and west of Colonsay. When operational, the Project is anticipated to have a capacity of around 2 Gigawatts (GW) generated by up to 144 Wind Turbine Generators (WTGs). This will have the potential to produce renewable electricity for up to two million UK homes, contributing to Scotland and the UK's transition to Net Zero and the UK's energy security in line with Government policy.

3. The aim of this NTS is to provide a summary of the Project, the site selection process and the key findings of the EIA in non-technical terms.

4. Should you wish to read the EIAR in full, it can be found in the Document Library on MachairWind's website, which can be accessed via the link provided here: https://www.scottishpowerrenewables.com/offshore/machairwind/document-library. Alternatively, you can view the EIAR on the Scottish Government's marine licensing portal or in local venues as listed below:

   - Islay Service Point, Jamieson Street, Bowmore, Isle of Islay, PA43 7HP
   - Jura Service Point, Craighouse, Isle of Jura, PA60 7XG
   - Colonsay Service Point, Scalasaig, Isle of Colonsay, PA61 7YW
   - Island Castaways Charity Shop, The Square, Bunessan, Isle of Mull, PA67 6DG
   - Iona Village Hall, Isle of Iona, PA76 6SJ

5. Copies of the application documents can be made available on request. Digital copies will be subject to a charge of £15 on a USB stick (including postage and packaging). Hard copies will be subject to a charge of £1,000. Hard copies of this MachairWind EIA NTS are available on request free of charge. Requests for copies of the application documents can be made at: machairwind@scottishpower.com

6. If you wish to comment on the MachairWind WDA EIA or make representations to Marine Directorate, you must do so within the representation period specified in the relevant public notice. Please email Marine Directorate at MD.MarineLicensing@gov.scot or write to:

   Marine Directorate - Licensing Operations Team
   Scottish Government
   375 Victoria Road
   Aberdeen
   AB11 9DB

1.2 PROJECT BACKGROUND

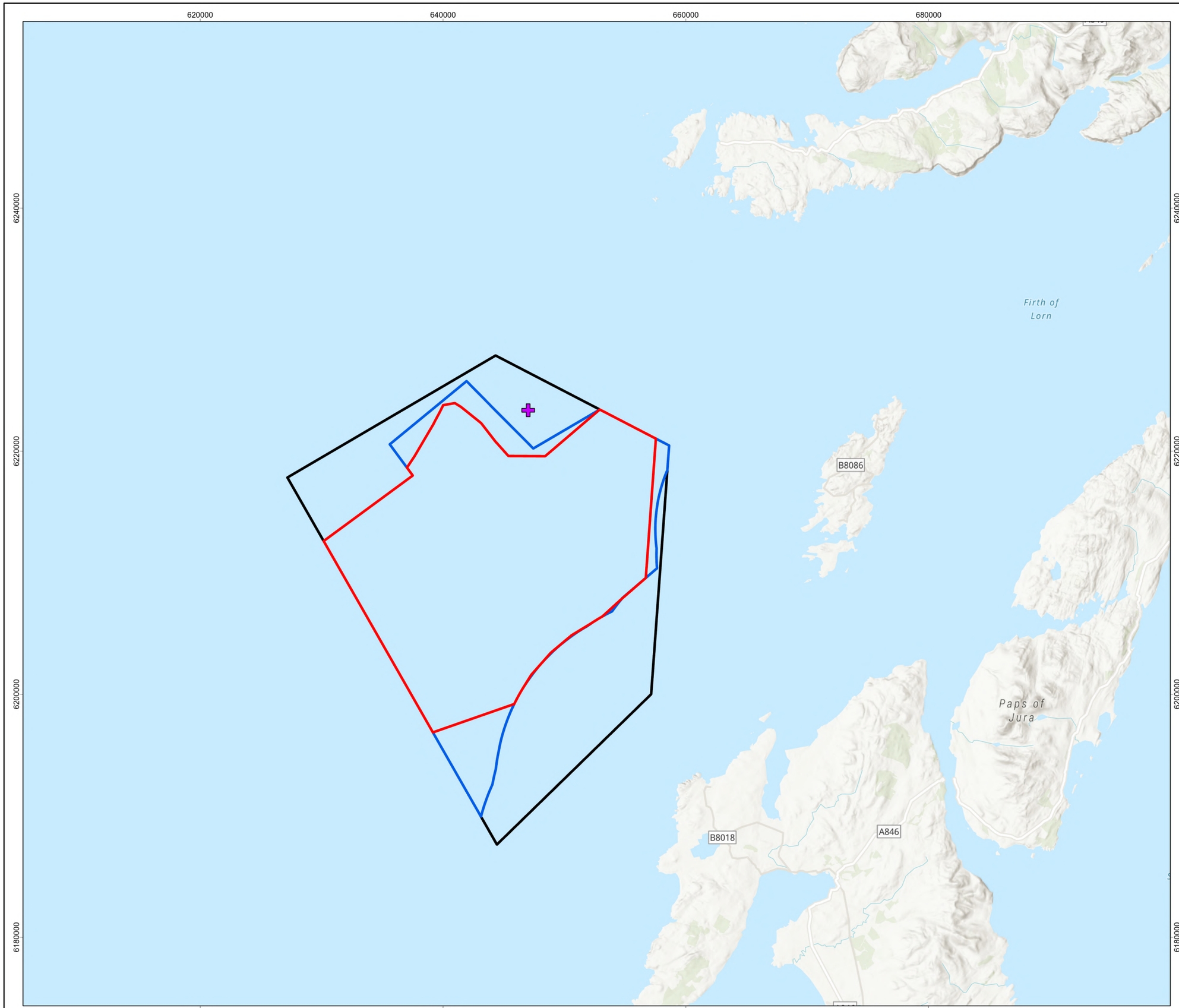
7. This development area for an offshore windfarm was identified within the Scottish Government's Sectoral Marine Plan – Offshore Wind (2020); at the time, it was known as the 'W1' Plan Option. In 2022, through Crown Estate Scotland's competitive ScotWind leasing round, SPR secured the rights to develop 'W1' and work then began on what is now the MachairWind project.

8. In April 2022, MachairWind Limited (hereafter referred to as 'the Applicant') signed an agreement with Crown Estate Scotland to lease an area of seabed ('the Option Agreement Area'). The Option Agreement Area (OAA) is located northwest of Islay and west of Colonsay.

9. To determine the most suitable site for development within the OAA, the Applicant undertook early engineering and environmental surveys in 2023 to study the area's key features. In 2024, using the findings from these surveys, along with other information and consultation feedback, the Applicant identified a smaller, more suitable development area, labelled the WDA. Through the EIA process and extensive stakeholder consultation, in 2025 the WDA was further refined to mitigate potential impacts of the Project. The 754 km^2 OAA, the original 510 km² WDA boundary shown in the Scoping Report, and the current 448 km² WDA boundary assessed in this EIAR are all shown in **Figure 1.1**. The 448 km² WDA boundary represents an approximate 40% reduction in area when compared to the original 754 km² OAA.

10. The Project's grid connection location was confirmed by Transmission Owner ScottishPower Transmission (SPT) in August 2025, to be in the vicinity of Girvan, South Ayrshire. The proposed design follows national reviews of the electricity network by the National Energy System Operator (NESO), and the connection will use a High Voltage Direct Current connection from the Project to a switching station close to Girvan. This station will be built by SPT and act as the High Voltage Direct Current hub to link the Project to the wider grid, with connections running both north, within Scotland, and south, to the northern coast of Wales.

11. The WDA will include a maximum of 144 WTGs on fixed foundations, up to two offshore substation platforms (OSPs), offshore substation link cables (if required), inter-array cables (IACs), offshore export cable(s) where they enter the WDA to link with the OSP(s), and associated scour and cable protection (see **Section 3**). The seabed lease is for up to 60 years and the Project has an anticipated operational life of approximately 35 years, with plans to achieve first power generation in the early to mid-2030s.



Option Agreement Area (754km²)

EIA Scoping Windfarm Development Area (510km²)

Windfarm Development Area (448km²)

Dubh Artach lighthouse

N

0 4 8 12 Kilometres

REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
1	16/04/2026	AB	GC	CC	PM

DRAWING NUMBER	MCW-DWF-ENV-MAP-RHS-000198		
DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:300,000	PAGE SIZE	A3
PROJECT TITLE	MachairWind		

Figure 1.1: WDA Overview

Haskoning Enhancing Society Together

ScottishPower Renewables

1.3 THE NEED FOR THE PROJECT

The Project is anticipated to have a generating capacity of around 2 GW of electricity, with the potential to supply enough renewable electricity to power up to two million homes. Should the consent be granted and Project constructed, this will contribute towards the United Kingdom (UK)'s energy security in line with Government policy, as well as meeting Scottish and UK renewable energy targets to reduce carbon emissions by avoiding the production of millions of tonnes of carbon dioxide each year from the equivalent generation of electricity from fossil fuels (see **Sections 2.4** and **7.14**).

The continued development of offshore wind within Scotland is therefore critical to ensuring that Scotland and the UK can meet their binding energy and climate change targets. This includes the Scottish Governments ambition of deploying up to 40 GW of new offshore wind capacity by 2040 under its updated offshore wind policy ambition (Scottish Government, 2026b) and contributing to the Scottish Governments ability to stay within the legally-binding five-year carbon budget periods introduced within The Climate Change (Emissions Reduction Targets) (Scotland) Act 2024.

Diversity in electricity generation infrastructure is required in the UK to deliver secure electricity supply and lower the cost of energy. Renewable technologies, such as offshore wind, will contribute to a significant proportion of the national energy generation mix. Offshore wind offers Scotland a wide range of benefits contributing to the reduction in greenhouse gas emissions, supporting economic growth, and improving energy security, thereby contributing to various international agreements, protocols, and policies aimed at promoting the development of renewable energy.

Homegrown clean green energy supports the UK's drive for energy security and green energy independence. To meet its current needs, the UK currently imports over 40% of its energy requirements, mainly oil and gas, which leaves us exposed to global market shocks and supply risks (Department of Energy Security and Net Zero, 2024). Expanding our own renewable capacity not only reduces this reliance but also supports a more stable, sustainable, and resilient energy future for everyone.

Scottish Government Policy emphasises the need to tackle the nature crisis through developments that contribute towards halting biodiversity loss and supporting biodiversity enhancement. The **Nature Positive Plan** that accompanies this application sets out how the Project as a whole has considered impacts on biodiversity and how it will seek to implement measures to quantify and restore affected habitats.

The Project has developed a **Socio-economic Action Plan** (SEAP) which accompanies this application. The SEAP has been informed by the Applicant's engagement with local communities, businesses and other key stakeholders and draws on expert insights from the MachairWind Development Economic and Social Scenarios: Opportunities and Impacts report (BiGGAR Economics, 2024).

The SEAP sets out how the Applicant will develop, build and operate MachairWind in a manner that maximises social, economic and wider benefits for its host island communities, Argyll and Bute, the West of Scotland, and Scotland more broadly. It is presented as a supporting document alongside the EIAR and explains how opportunities and positive impacts can be maximised for the benefit of local communities and businesses.

The need for the Project and its compliance with relevant planning policy is detailed in the **Planning Statement** which accompanies the Application.

1.4 CONSENTING APPROACH

12. The Project consists of onshore and offshore components which are needed to generate and export clean, green energy from the offshore windfarm into the electricity transmission system at a location in the vicinity of Girvan, South Ayrshire. Due to lengthy delays with the onshore grid connection location being confirmed, separate consents will be sought for areas defined as follows: The WDA; The Offshore Export Cable Corridor (ECC); and The Onshore Transmission Development Area. **Plate 1.1** below represents the infrastructure that makes up an offshore windfarm, as well as our different areas for consenting purposes.

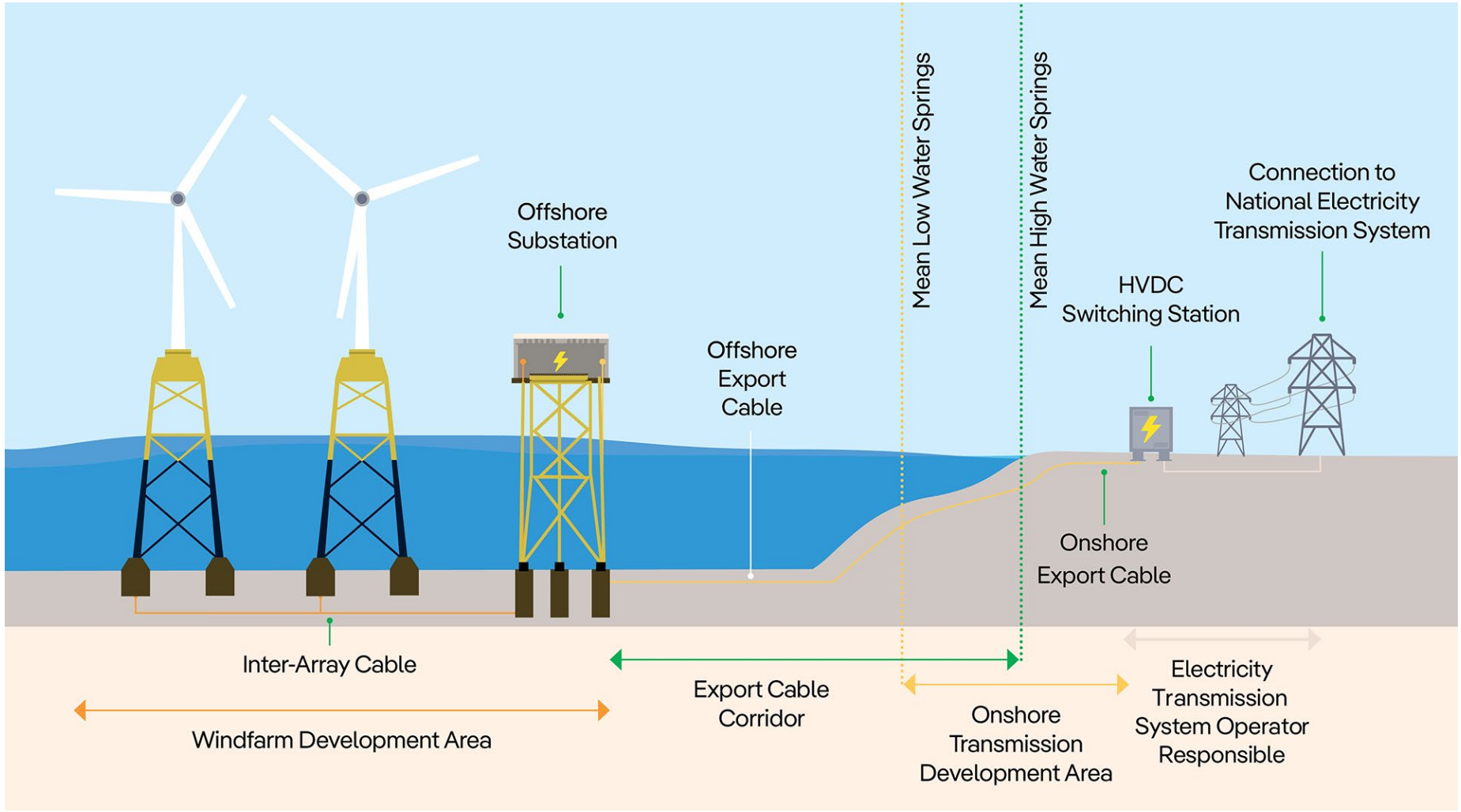


Plate 1.1 Overview of the MachairWind Development Areas (illustrative only)

13. This NTS and the associated EIAR covers the WDA only, although a combined assessment using indicative parameters relating to project components and associated construction methods and timelines has been undertaken of the WDA, Offshore ECC and Onshore Transmission Development Area to identify and assess potential interactions between each Development Area ensuring a meaningful and proportionate whole project assessment. The Applicant will submit a separate Marine Licence application for the Offshore ECC infrastructure following further refinement and EIA scoping of the Offshore ECC. Similarly, a separate planning application for the onshore infrastructure will be made under the Town and Country Planning (Scotland) Act 1997 once the arrangements for the onshore infrastructure and connection to the National Electricity Transmission System have been defined. See **Volume 1, Chapter 1 Introduction** for further details on the consenting approach.

1.5 PURPOSE OF THIS EIA

14. The purpose of the EIAR is to present an assessment of the likely significant environmental effects on the proposed WDA infrastructure. The EIAR also provides assessment of the combined effects of the Project as a whole and assessment of likely significant cumulative effects from the Project in combination with other relevant plans and projects.

15. The EIAR communicates to stakeholders the effects of the Project on the environment, through its construction, operation and decommissioning. Extensive consultation with stakeholders and communities throughout the early development stages has informed the Project design and EIAR, with engagement including but not limited to Scoping workshops, which helped define how to approach the assessment and what information may be needed; subject matter expert workshops, focusing discussion on key topics to be assessed in the EIA (known as 'expert topic groups'); and community engagement activities, such as non-statutory drop-in events, statutory webinar events and attending community events (see **Sections 4** and **6**).

16. The WDA EIAR is submitted to the Scottish Government alongside the application for a Section 36 consent under the Electricity Act 1989 and marine licenses under the Marine (Scotland) Act 2010 (see **Section 2**) required for the WDA infrastructure.

17. The WDA EIAR is divided into 3 Volumes:

- Volume 1 Introductory Chapters;
- Volume 2 Technical Chapters;
- Volume 3 Technical Appendices
  - Volume 3a – Standalone Reports;
  - Volume 3b – Introductory Chapters; and
  - Volume 3c – Technical Chapters.

18. A full list of the documents comprising the EIAR can be found in **Volume 1, Chapter 1 Introduction**.

19. In accordance with the **Scoping Opinion** (provided in **Volume 3a, Appendix 2**) and stakeholder consultation, the WDA EIAR addresses the topics presented in **Plate 1.2** below:

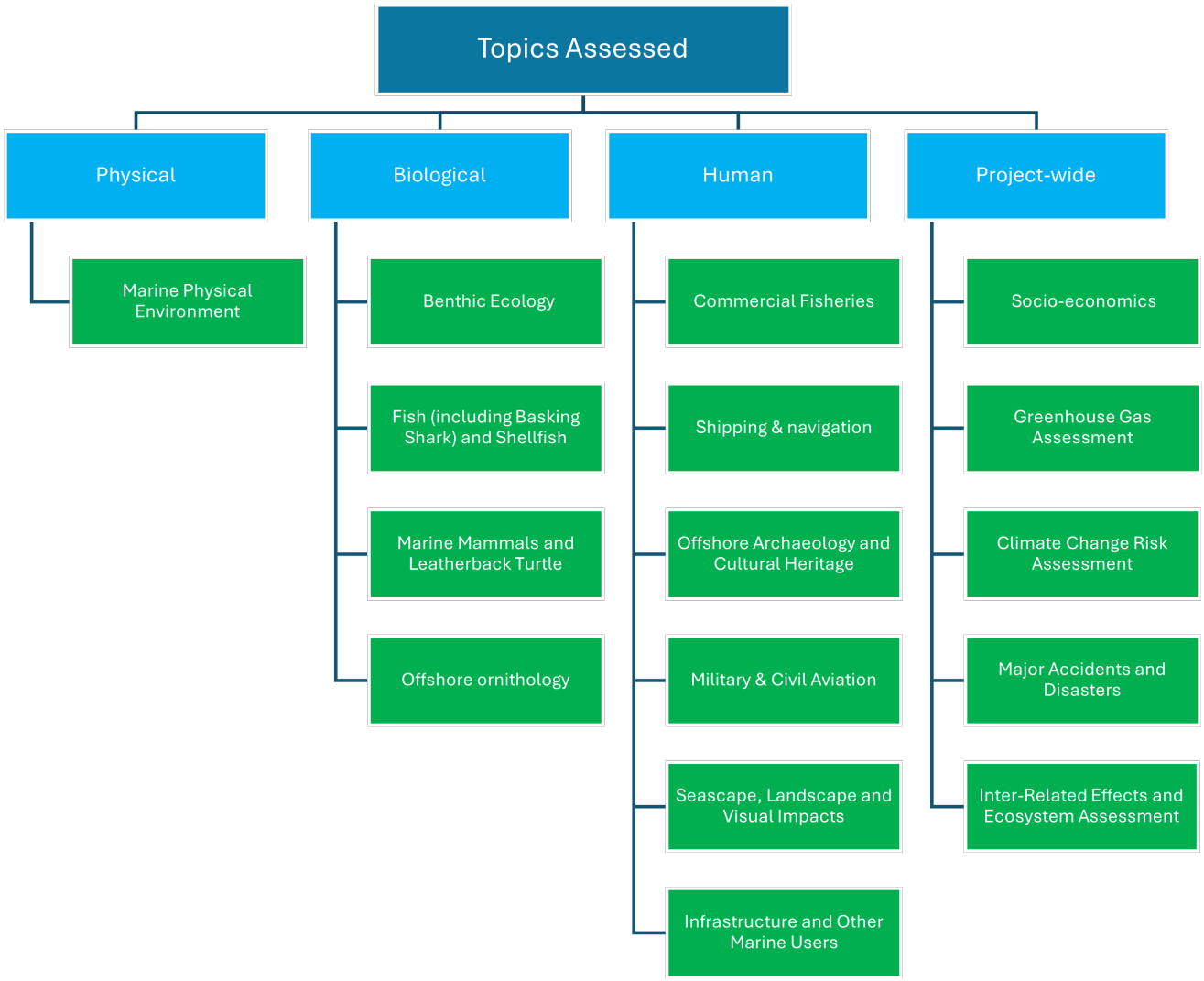


Plate 1.2 Topics assessed in this EIAR

20. In accordance with the **Scoping Opinion** (**Volume 3a, Appendix 2**) and stakeholder consultations, the WDA EIAR scoped out the following topic:

- Offshore Air Quality

21. The topic of Traffic and Transport in relation to the WDA is considered within **Volume 1, Chapter 3 Project Description**. Additionally human health considerations are included where appropriate in the relevant technical chapters.

1.6 THE APPLICANT

22. The Applicant is a wholly owned subsidiary of ScottishPower Renewables (SPR), a leading renewables developer and operator of both offshore and onshore wind assets throughout the UK. SPR is part of the Iberdrola Group, one of the world's largest utilities and leading wind energy producer. SPR is responsible for progressing Iberdrola's renewable energy projects in the UK, including managing the development, construction, and operation of offshore windfarms.

23. Iberdrola Group is a global energy company and world leader in wind energy production, with an installed renewable power capacity of over 57 GW, of which 37% is onshore wind and 3% is offshore wind.

24. SPR has been actively developing renewable projects in the UK for over 30 years and currently has over 40 operational windfarm sites generating more than 3 GW of renewable energy. SPR's offshore wind portfolio includes the 714 Megawatt (MW) East Anglia ONE project which supported approximately 3,500 jobs at the peak of construction and now supports 100 long term skilled jobs in the operational phase. SPR has created a pathway of development in the East Anglia region with a pipeline of three further projects, consisting of East Anglia ONE North, East Anglia TWO and East Anglia THREE, known collectively as the East Anglia Hub.

25. SPR is one of the largest onshore wind operators in the UK, with over 2 GW of operational capacity across 38 sites and a UK onshore wind pipeline of 3.6 GW. Five of SPR's operational onshore projects are located within Argyll and Bute, namely Clachan Flats, Cruach Mhor and Beinn an Tuirc 1, 2 and 3.

26. MachairWind Offshore Windfarm builds on SPR's long-standing presence and positive track record as a responsible onshore wind developer and good neighbour across Argyll and Bute where it has been working with, and investing in, people, communities, and businesses for more than 20 years to realise the benefits of renewable energy.

2 LEGISLATION, POLICY AND GUIDANCE

2.1 OVERVIEW

27. This section summarises the information in **Volume 1, Chapter 2 Policy and Legislation** which provides an overview of the policy and legislation of relevance to the WDA EIA and associated consenting applications for the proposed WDA infrastructure.

28. The policy and legislative context for the WDA is considered in relation to:

- Scottish consenting legislation;
- Planning policy;
- Renewable energy legislation and policy; and
- Nature conservation legislation.

29. The **Planning Statement,** which accompanies this application, presents an assessment of the accordance of the Project with the relevant policy and legislation, including with reference to conclusions from the EIAR and other supporting documents.

2.2 CONSENTING LEGISLATION

30. The WDA requires consent under Section 36 of the Electricity Act 1989 for construction and operation of offshore generating stations over 1 MW, administered by Marine Directorate – Licensing Operations Team (MD-LOT).

31. Additionally, Marine Licences are required under the Marine (Scotland) Act 2010 for certain activities in the marine environment within Scottish territorial waters.

32. This EIAR relates to the Section 36 consent and Marine Licence Applications for the WDA. A separate EIAR will be provided to support the Application for the Offshore ECC and Onshore Transmission Development Area, which require a Marine Licence and permission under the Town and Country Planning (Scotland) Act 1997, respectively.

2.2.1 EIA Regulations

33. To inform the consent applications outlined above, an EIA must be undertaken in accordance with the following legislation relevant to the WDA:

- The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, which requires an EIA to support relevant Section 36 consent applications; and
- The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017, which requires an EIA to support relevant Marine Licence applications.

2.2.2 Other Consenting Requirements

2.2.2.1 Supporting Environmental Assessments

34. In addition to the EIAR, this submission is supported by the following standalone assessments:

- **Report to Inform Appropriate Assessment**; and
- **Report to Inform Marine Protected Area Assessment**.

35. The legislation underpinning these assessments is detailed in each individual report.

2.2.2.2 Decommissioning

36. Sections 105 to 114 of the Energy Act 2004 set out statutory requirements in relation to the decommissioning of offshore renewable energy infrastructure and associated electrical lines.

2.2.2.3 Safety Zones

37. Section 95 of the Energy Act 2004 sets out that Safety Zones can be established for an offshore renewable energy project, where appropriate. Safety Zones are discussed further in **Volume 2, Chapter 13 Shipping and Navigation.**

2.2.2.4 Pre-application Consultation

38. The Marine Licensing (Pre-Application Consultation) (Scotland) Regulations (2013), referred to as the 'PAC' Regulations, require pre-application consultation for certain marine licence applications within Scottish Territorial Waters. The Applicant has fulfilled this statutory requirement for the WDA, with further details on stakeholder and public engagement available in **Section 6**.

2.2.3 Biodiversity Enhancement

39. In accordance with Scottish Government policy aimed at halting biodiversity loss and promoting biodiversity enhancement, the Project has considered impacts on biodiversity and how it will seek to implement measures to quantify and restore affected habitats. The Applicant has provided a **Nature Positive Plan** as part of the Application.

2.3 PLANNING POLICY

40. In Scotland, marine planning policy is used to inform decisions made under the relevant consenting legislation, e.g. for the purposes of obtaining a Marine Licence. The following marine and spatial planning policies are relevant to the WDA:

- Regional Marine Plans;
- The Marine Strategy Framework Directive;
- UK Marine Policy Statement (HM Government, 2011);
- Scotland's National Marine Plan, 2015 (reviewed in 2024);
- Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2020b)
- A Blue Economy Vision for Scotland (Scottish Government, 2022)
- National Planning Framework 4 (Scottish Government, 2023);
- Argyll and Bute Local Development Plan 2 (Argyll and Bute Council, 2024);
- Draft Updated Sectoral Marine Plan for Offshore Wind Energy (Scottish Government, 2025a); and

- Draft Updated Offshore Wind Ambition (Scottish Government, 2026b).

41. The above plans and policies (in particular Scotland's National Marine Plan, National Planning Framework 4 and Argyll and Bute Local Development Plan 2) set out the policies relevant to the Project to protect the environment and to inform the consenting of renewable energy projects.

42. **Plate 2.1** below illustrates the general hierarchy of these policies and plans, with higher-level legislation and policies informing those at lower spatial scales.

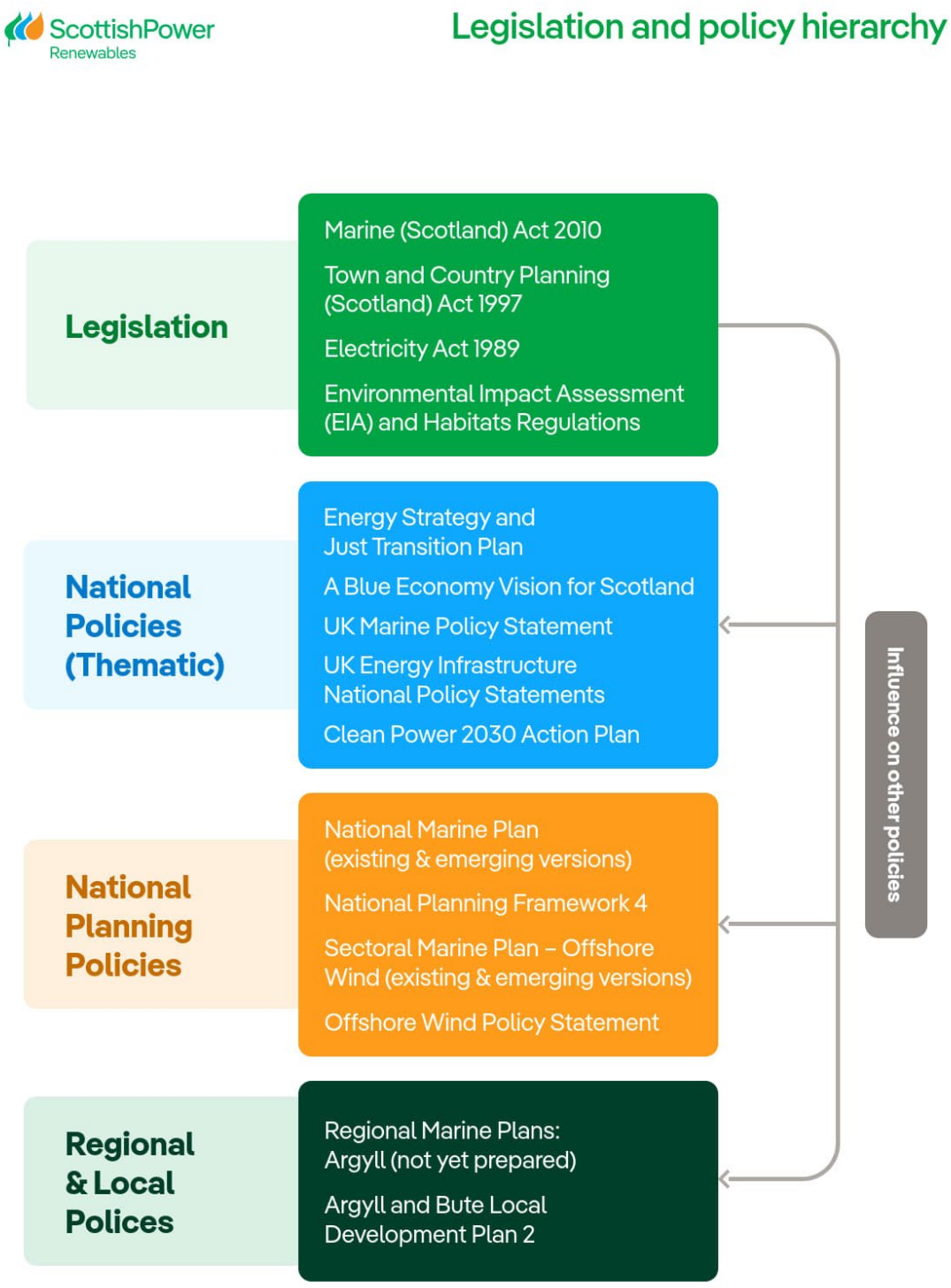


Plate 2.1 Legislation and policy hierarchy

2.4 RENEWABLE ENERGY LEGISLATION AND POLICY

43. As discussed in **Section 1**, the Project is driven by a range of Scottish, UK and International policy and legislation. These include:

- Legislation:
  - Climate Change (Scotland) Act 2009, amended by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 and Climate Change (Emissions Reduction Targets) (Scotland) Act 2024;
  - Great British Energy Act (2024);
  - UK Energy Security Bill (BEIS, 2022b);
  - Energy Act 2023; and
  - Climate Change Act 2008 (2050 Target Amendment) Order 2019.
- Policy:
  - Draft Energy Strategy and Just Transition Plan (Scottish Government, 2023b);
  - Energy Strategy: Position Statement (Scottish Government, 2021a);
  - The Climate Change Plan, Third Report on Proposals and Policies (2018-2032) (Scottish Government, 2020c);
  - Offshore wind policy statement 2020 update: Scotland's Offshore Wind Ambition (Scottish Government, 2026b);
  - British Energy Security Strategy (BEIS, 2022a);
  - Carbon Budget and Growth Delivery Plan (DESNZ, 2025);
  - Clean Power 2030: Advice on achieving clean power for Great Britain by 2030 (NESO, 2024);
  - Holistic Network Design (HND) Pathway to 2030 (ESO, 2022);
  - Energy White Paper: Powering our Net Zero Future (BEIS, 2020b); and
  - Offshore Wind Sector Deal, Updated 2020 (BEIS, 2020).

3 PROJECT DESCRIPTION

3.1 INTRODUCTION

44. This section provides a summary of the infrastructure and the construction, operation and maintenance (O&M) and decommissioning activities associated with the Project, as discussed in **Volume 1, Chapter 3 Project Description**.

3.2 EMBEDDED MITIGATION

45. Through the EIA process and development of the Project Description, a number of mitigation commitments have been made which are embedded in the project design. These are listed in full in **Volume 3a, Appendix 5 WDA Mitigation and Commitments Register** and the following plans are submitted with the Application to provide further detail on proposed mitigation (**Volume 3a**):

- **Appendix 6 Outline Environmental Management Plan;**
- **Appendix 7 Marine Pollution Contingency Plan;**
- **Appendix 8 Invasive Non-Native Species Mitigation Plan;**
- **Appendix 9 Draft Marine Mammal Mitigation Protocol;**
- **Appendix 10 Fisheries Mitigation, Monitoring and Communication Plan;**
- **Appendix 11 Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries;**
- **Appendix 12 Outline Lighting and Marking Plan;**
- **Appendix 13 Outline Vessel Management Plan and Navigational Safety Plan; and**
- **Appendix 14 Outline Carbon Management Plan.**

3.3 WINDFARM DEVELOPMENT AREA INFRASTRUCTURE

46. The key WDA infrastructure components are:

- Between 91 and 144 WTGs and associated fixed-bottom foundations and scour protection. The total number of WTGs will ultimately depend on the generating capacity selected for the final Project design, i.e. higher capacity WTGs would require fewer WTGs to reach the 2 GW maximum generating capacity of the Project, while lower capacity WTGs would require more WTGs;
- Up to two OSPs and associated fixed-bottom foundations and scour protection;
- IACs and associated cable protection;
- OSP link cables (if required) and associated cable protection; and
- The portion of the offshore export cable(s) located within the WDA, and associated cable protection.

47. A range of minimum and maximum values have been used to outline each part of the WDA design. This approach identifies realistic worst-case scenarios for each receptor and impact. By covering all main aspects during construction, operation, and decommissioning, it allows for a thorough and conservative assessment of effects in accordance with the EIA Regulations. This method is widely accepted by regulators and stakeholders.

48. The WTGs will convert wind energy into electrical energy which will then be exported through the offshore and onshore transmission infrastructure to the National Electricity Transmission System.

49. The WTGs will be secured to the seabed using foundations which will be fixed to the seabed. Three different types are being considered (monopiles, jackets on pin piles and jackets on suction buckets), as shown in **Plate 3.1**. WTGs on floating foundations are not under consideration for the Project. Foundations may require scour protection to avoid sediment being eroded away from the base as a result of the flow of water.

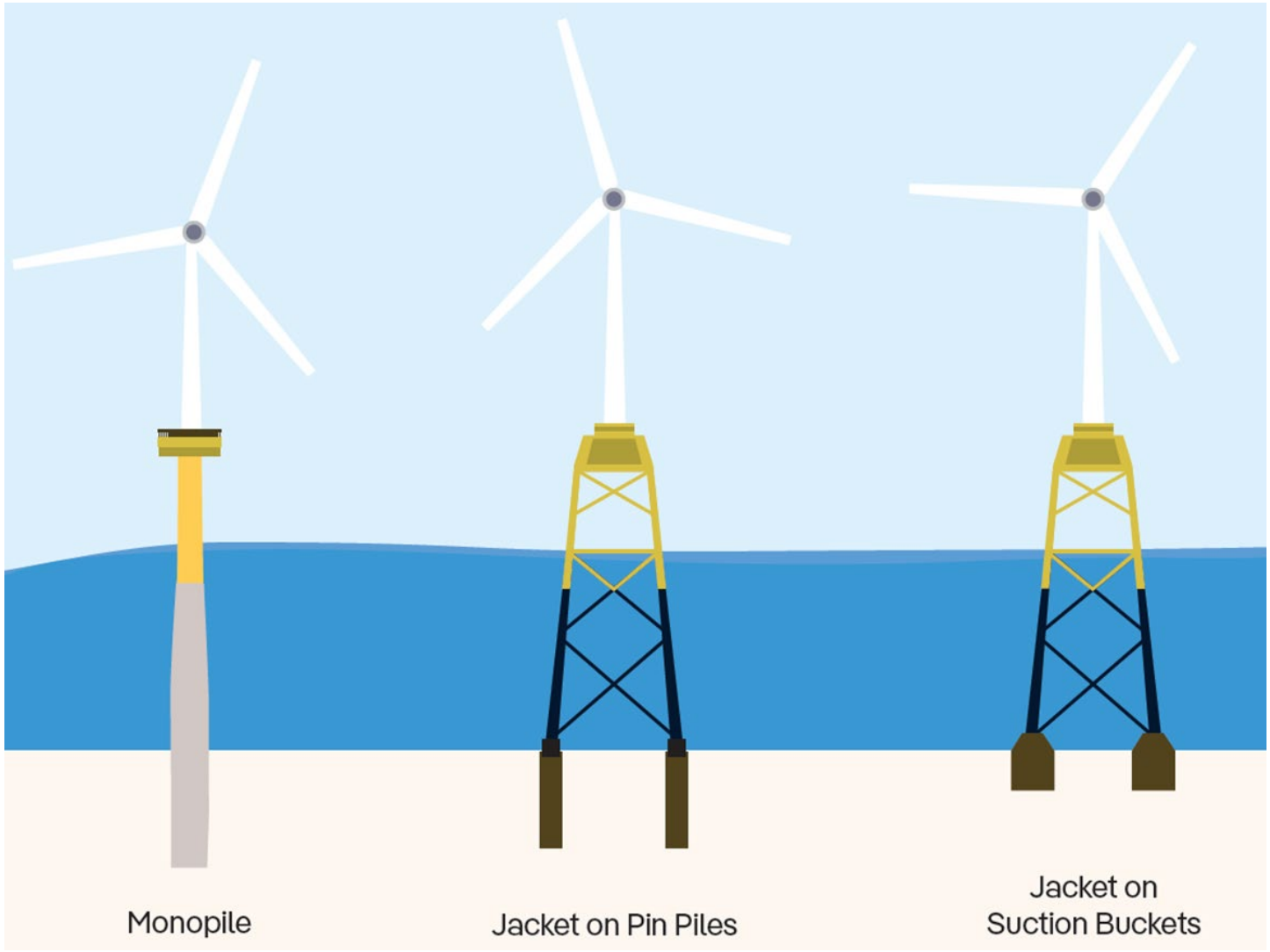


Plate 3.1 Illustrative representation of the potential fixed-bottom wind turbine foundation types

50. WTGs typically incorporate tapered tubular towers and three blades attached to a nacelle housing mechanical and electrical generating equipment. The overall layout of the WTGs within the WDA will be informed by offshore site investigation works, wind resource modelling and stakeholder engagement.

51. The OSP(s) and link cables (if required) will be located within the WDA. The OSP topside(s) (the main structure visible above the water supporting the substation operations) will be installed upon one of these three foundation types; jackets on pin piles, jackets on suction buckets, or gravity-base structures (GBSs).

52. There will be up to two OSPs located to optimise the cabling. The location of the OSPs will be confirmed during the detailed design process, dependent on the WTG layout but will be within the WDA and not located on the perimeter. Indicative OSP locations have been used for the relevant environmental assessments set out in the EIAR.

53. IACs will be used to link the WTGs together and link the WTGs to the OSPs. The OSPs provide a connection point for the IACs and contain electrical equipment required to transport power to the national electricity grid.

54. The portion of the offshore export cable(s) that will be located within the WDA have been defined to ensure that the full suite of impacts within the WDA can be assessed within the WDA EIAR. The total length of offshore export cable that could be located wholly within the WDA is 50 km per cable giving 200 km in total for up to four cables.

3.4 SUMMARY OF WDA INDICATIVE DESIGN PARAMETERS

55. **Table 3.1** below sets out the key design parameters (i.e., the maximum/minimum limits of the Project design envelope) for the offshore infrastructure used to inform the EIA included in the EIAR:

Table 3.1 WDA parameters summary

Indicative Parameters	Values
Lease period (years)	60
Indicative WDA construction duration (years)	5
Anticipated operational life (years)	35
WDA (km^2)	448
WDA restricted build area (km^2)	51
WDA closest distance to shore (Colonsay) (km)	12.4
Maximum water depth in the WDA (m, Lowest Astronomical Tide)	81.7
Average water depth in the WDA (m, Lowest Astronomical Tide)	53.8
Number of WTGs (Wind turbine generators)	91-144
WTG foundation type options	• Monopiles • Jackets on pin piles • Jackets on suction buckets
Maximum length of all IACs (km)	572
Maximum length of one OSP link cable (km)	68
Maximum number of OSP link cables	4
Maximum length of all OSP link cables (km)	272
Maximum number of export cable(s)	4

Indicative Parameters	Values
Maximum length of individual offshore export cable(s) located wholly within the WDA boundary (km)	50
Maximum total length of offshore export cable(s) located wholly within the WDA boundary (km)	200
Maximum number of OSP(s) located within the WDA	2
OSP foundation type options	• Jackets on pin piles • Jackets on suction buckets • Gravity-base structures
Maximum piling hammer energy (kilojoules)	• Monopiles = 6,600 • Pin piles = 4,400

3.5 SITE PREPARATION

56. For all foundation types, pre-installation works may be required including:

- Pre-construction surveys to confirm that the seabed is clear of any obstructions and to provide data to inform any micro-siting of infrastructure, clearance operations, seabed preparation and for environmental monitoring purposes.
- Unexploded Ordnance clearance requirements will be informed by the results of the pre-construction surveys. Where possible, micro-siting will avoid unexploded ordnance. Otherwise, clearance will be conducted to ensure construction and operational safety. All unexploded ordnance clearance activities will require a separate marine licence application before construction begins.
- Boulders identified as obstacles to foundation installation will be confirmed through pre-construction surveys. Where possible, micro-siting will avoid these boulders; if not feasible, large boulders (approximately 5 m in diameter, 1 m high) will be moved nearby within the WDA to non-obstructive areas with similar sediment and away from sensitive habitats.
- For all foundation types, seabed levelling might be required to prepare a flat area of seabed prior to installation.

3.6 CONSTRUCTION

57. The earliest that construction works would start at the WDA is assumed to be in 2030. It is anticipated all offshore construction activities, including all those required within the WDA, will be completed within a single five-year period (this does not include time required to undertake pre-construction activities such as surveys). The final construction programme will be dependent on numerous factors such as the length of time for consent to be granted, the final design of the Project itself, and weather conditions during construction. As such, details of the construction programme are indicative at this stage and are designed to provide a reasonable and realistic basis for undertaking the environmental assessments. **Table 3.2** sets out an indicative construction period.

Table 3.2 Indicative offshore construction programme

WDA Component	Indicative Programme
Pre-construction activities	To take place ahead of construction Year 1
WTG and OSP foundations (design, manufacture and install)	Years 1-4
IACs (design, manufacture and install)	Years 1-4
Export and OSP link cables (design, manufacture and install)	Years 1-4
OSP(s) topsides (design, manufacture and install)	Years 1-4

WDA Component	Indicative Programme
WTG (design and manufacture)	Years 1-4
WTG (install)	Years 4-5

3.7 OPERATION AND MAINTENANCE

58. A programme of monitoring and scheduled maintenance would be undertaken through the lifetime of the Project to ensure that all offshore infrastructure is maintained in safe working order and to maximise operational efficiency. The overall O&M strategy will be finalised once the O&M base location and technical specification of the Project are known.

3.8 DECOMMISSIONING

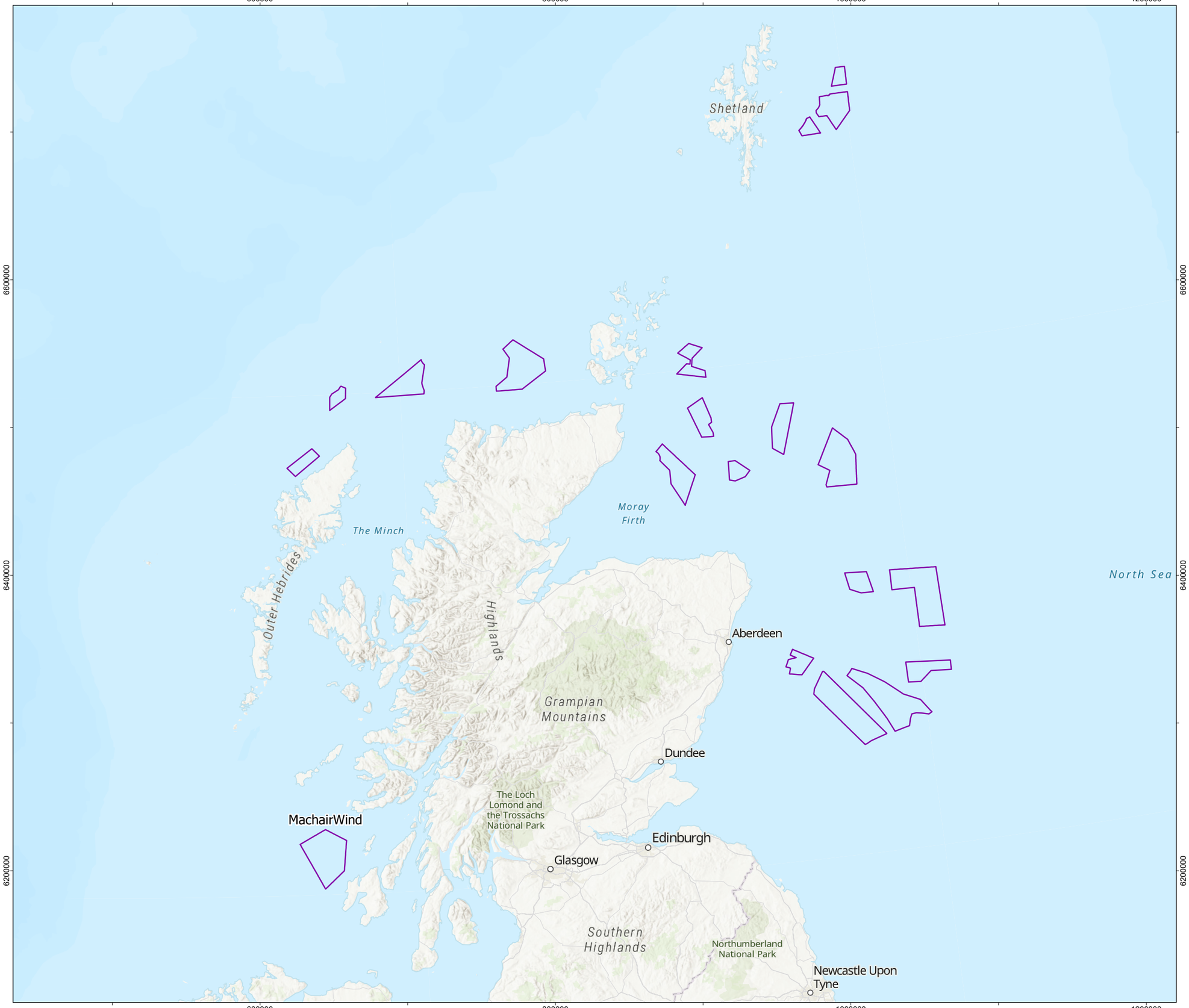
59. The Applicant will prepare a Decommissioning Programme for approval by the Scottish Ministers in the pre-construction period which will include anticipated costs and financial securities, and consider industry best practice, as well as guidance and legislation relating to decommissioning at the time.

60. At the end of the WDA's operational life, it is expected that all structures above the seabed (except for scour protection and cable protection) will be fully removed where feasible.

4 SITE SELECTION AND ALTERNATIVES

61. The site selection process for the WDA has been predominantly influenced by a marine planning exercise led by the Scottish Government, which resulted in the publication of the Sectoral Marine Plan for Offshore Wind Energy in October 2020. The Sectoral Marine Plan identified the initial Plan Options considered to be the most suitable areas where offshore wind projects could be developed around Scotland, including the W1 Plan Option Area where the MachairWind WDA is located. The location of all plan option areas identified around Scotland in the Sectoral Marine Plan (including the MachairWind Plan Option Area) is presented in **Figure 4.1** below.

62. This paved the way for Crown Estate Scotland's ScotWind leasing process, which launched in June 2020 and allowed developers to apply for the rights to develop and operate offshore wind farms in Scottish waters within the draft Plan Option Areas. It should be noted that prior to the commencement of the ScotWind bidding process, the W1 Plan Option Area was reduced in extent to avoid a key shipping route and to increase the distance of the boundary from land, reducing impacts on visual amenity. Following a competitive bidding process, the Applicant was awarded the rights to the W1 OAA within which the MachairWind WDA is wholly located.



Marine Plan Option Areas

N

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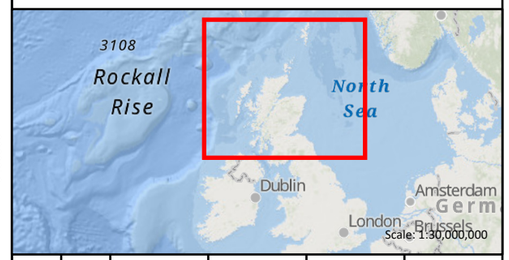
Kilometres



REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
1	27/04/2026	FC	AB	CC	CM

DRAWING NUMBER	MCW-DWF-ENV-MAP-RHS-000208		
DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:2,500,000	PAGE SIZE	A3
PROJECT TITLE	MachairWind		

Figure 4.1: Sectoral Marine Plan Option Areas

Haskoning Enhancing Society Together

ScottishPower Renewables

63. Subsequently, refinement of the WDA has taken into account environmental, physical, technical, commercial and social considerations and opportunities (in particular seascape and visual impacts and presence of the Dubh Artach lighthouse), as well as engineering requirements.

64. The site selection and project design process involved early engagement with stakeholders including local communities. This ensured that site selection decisions were communicated with people and sought feedback to influence and refine the project design. Notable instances of stakeholder consultation that has informed the site refinement process include, but are not limited to:

- Hazard Workshops held with Shipping and Navigation and Commercial Fisheries stakeholders;
- A meeting with the Northern Lighthouse Board (NLB) to discuss potential impacts on Dubh Artach lighthouse; and
- The Statutory Consultation events and webinars held on the islands of Islay, Colonsay, Jura, the Ross of Mull and Iona in summer 2025, and the wider community stakeholder engagement that has taken place throughout the pre-application period (**Section 6**).

65. As discussed in **Section 1.2**, through the EIA process and consultation, the WDA has been refined down from the original 754 km^2 OAA, to a 510 km² WDA boundary shown in the Scoping Report, and finally to the 448 km² WDA boundary used for the consent application, representing an approximate 40% reduction in total area (**Figure 1.1**).

66. The WDA may be refined further following WTG layout optimisation, continued collaboration with stakeholders, detailed site surveys and identification of any additional constraints from consenting requirements in the post-consent period.

67. Full details on the site selection process are provided in **Volume 1, Chapter 4 Site Selection and Alternatives**.

5 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

68. **Volume 1, Chapter 5 EIA Methodology** details the methodology for the assessment of 'likely significant effects' (in EIA terms). It also describes the methodology for assessment of the whole project, cumulative effects with other plans and projects and inter-related effects.

5.1 EIA PROCESS

69. EIA regulations, policy, guidance and best practice documents have informed the EIA process. Additionally, regular consultation and engagement with stakeholders (**Section 6**) is key to the EIA process and has influenced the Project's design and EIA methodology.

70. The first stage of the EIA process is EIA screening to confirm an EIA is required, and a request for a Scoping Opinion from the Scottish Ministers through the submission of a Scoping Report to confirm the EIA methodology and the effects to be considered. This is followed by the completion of the EIA, which is reported in the EIAR.

71. The EIA process provides opportunities to incorporate environmental considerations into the design of a project. Multiple design iterations are typically undertaken before the final detailed design is identified, allowing for adjustments based on environmental constraints and feedback from stakeholder engagement (**Section 6**). This iterative approach is a core component of the EIA.

72. As part of the process to produce the EIAR, a detailed description of the current baseline (existing environment) in the relevant Study Areas for each topic is characterised through a combination of desk-based studies, site-specific surveys and stakeholder consultation.

73. The relevant worst-case scenario (discussed further in **Section 5.2**) for each impact and receptor is then assessed, based on the impact magnitude and receptor sensitivity to determine the significance of the effect.

74. An overview of the approach to assessment methodology is illustrated in **Plate 5.1** below.

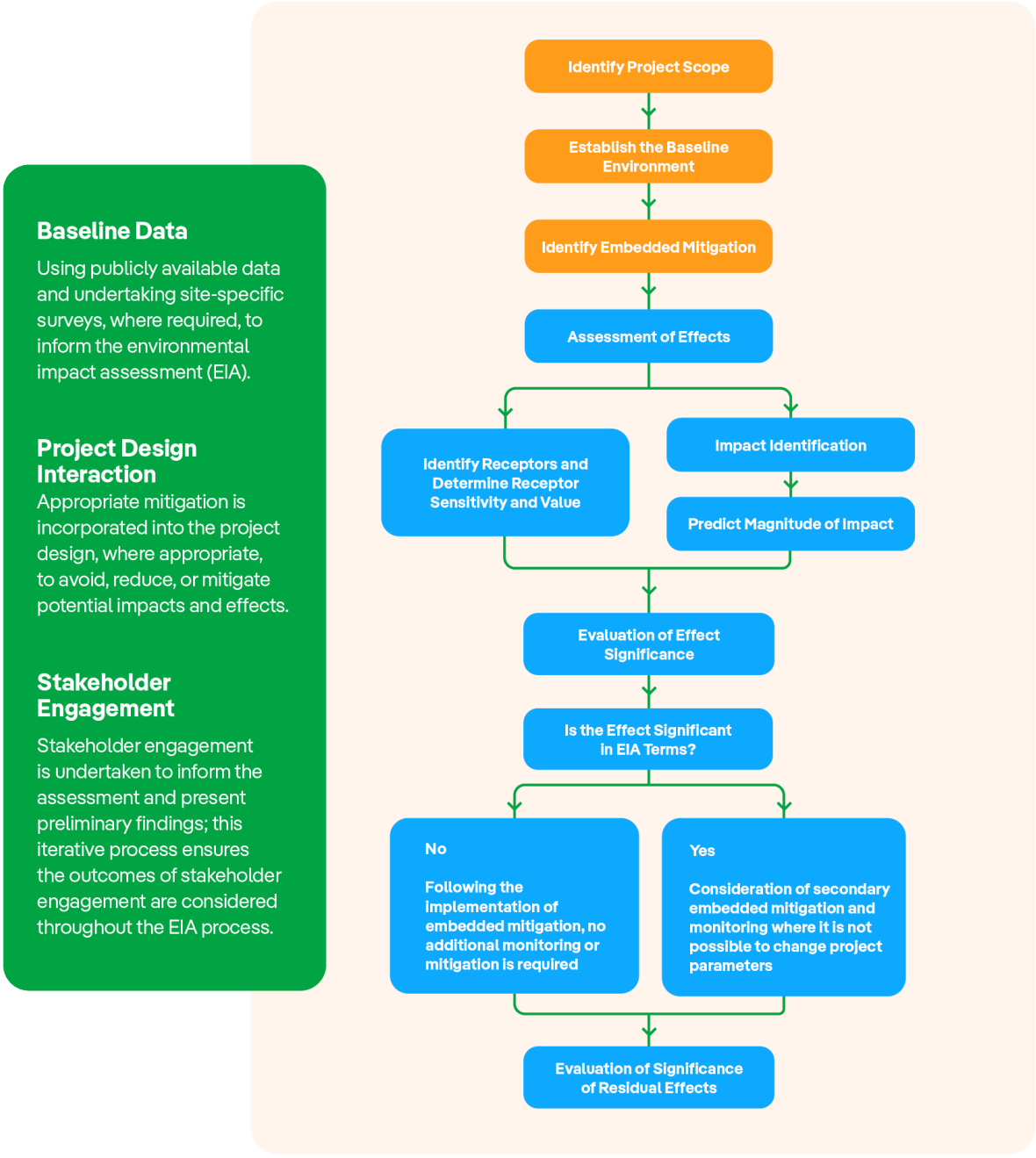


Plate 5.1 Overview of EIA Methodology

75. To assess the 'significance' an effect may have on a 'receptor' (such as a harbour porpoise for example), the 'magnitude' of the impact and the 'sensitivity' of the receptor to that impact must be identified. The magnitude of an impact is typically established through consideration of:

- Scale or spatial extent (small scale to large scale or a few individuals to most of the population);
- Duration (short term to long term, temporary or permanent);

- Likelihood of impact occurring; and
- Frequency; and Nature of change relative to the baseline.

76. The sensitivity of a receptor to an impact is determined through its ability to accommodate change and to recover from that change if it is affected. This is determined through applying known up-to-date research and information on the status and sensitivity of the receptor under consideration coupled with professional judgement and past experience.

77. Once the magnitude and sensitivity have been determined, these are then typically considered within a matrix approach to determine the resulting 'significance of effect', as shown in **Table 5.1** below. In general, effects which are of major or moderate significance are considered to be significant in EIA terms, although it is also possible that a conclusion of moderate effect significance may not be considered significant. In these cases, a justification and rationale is provided in this EIAR. Whilst minor effects are not significant, these may contribute to significant effects cumulatively or through interactions

Table 5.1 Matrix for evaluating the significance of an effect

Sensitivity	Adverse Magnitude				Beneficial Magnitude			
	High	Medium	Low	Negligible	Negligible	Low	Medium	High
High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
Medium	Major	Moderate	Minor	Minor	Negligible	Minor	Moderate	Major
Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

78. Embedded mitigation refers to measures that are integrated into the design of the Project from its outset and which avoid, reduce or offset significant environmental effects (as presented in the mitigation hierarchy infographic in **Plate 5.2**). Embedded mitigation is considered where relevant in each EIAR chapter, with effects being assessed with this mitigation in place. Where an impact assessment identifies that an aspect of the WDA is likely to lead to significant effects, 'additional' mitigation measures will be considered where appropriate to avoid, prevent, reduce or offset effects. Where 'additional' mitigation is identified, the post-mitigation 'residual effect' significance is provided.

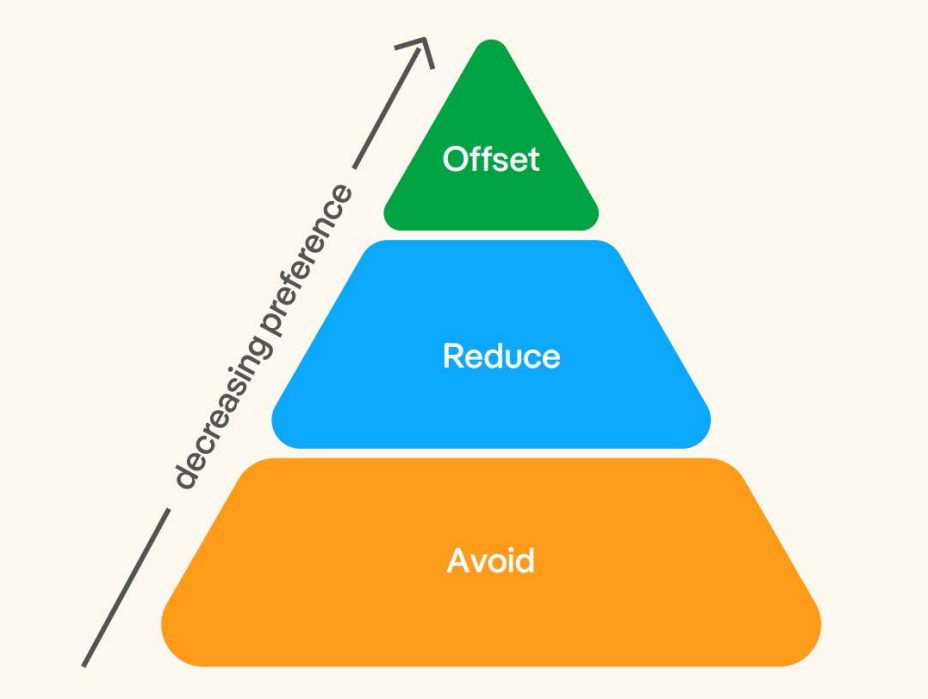


Plate 5.2 Mitigation hierarchy

79. This EIAR relates to the WDA, however consideration is given to the Project as a whole (the WDA, Offshore ECC and Onshore Transmission Development Area). Due to the nature of the high voltage direct current technology that will be used to transmit power generated from the WDA to the National Grid network, the configuration and design of the offshore export cable and onshore transmission infrastructure is in the early stages of development and will require refinement informed by discussions with the relevant Transmission System Operators. Therefore, a qualitative combined assessment is provided for each topic, commensurate with the level of detail available at the time of writing.

80. **Table 5.2** below presents a summary of all the effects assessed within the EIAR.

Table 5.2 Types of effects assessed in the EIAR

Types of Effects
Windfarm Development Area Alone Assessment of direct and indirect effects resulting from the construction, O&M and decommissioning of the WDA alone. **Combined Assessment** The combined assessment of potential effects interacting between the construction, O&M and decommissioning of the WDA, Offshore ECC and Onshore Transmission and Development Area. **Inter-relationships between impacts from different EIAR chapters** Where impacts from different EIA topics interact to affect a single receptor. For example, impacts on fish and shellfish ecology can lead to changes in prey resource for marine mammals and birds, and can also affect commercial fisheries through the disturbance of commercially important fish and shellfish resources and subsequent displacement or disruption of fishing activity. **Interactions between impacts**

Types of Effects
The impacts identified and assessed for each EIA topic have the potential to interact and impact on the same receptor. For example, higher levels of suspended sediment in the water column and the settlement of this material on the seabed could result in damage to seabed habitats. **Cumulative effects** Where MachairWind is considered alongside the predicted effects of other plans and projects in the nearby area (for example a neighbouring offshore windfarm). **Transboundary impacts** Where activities / receptors in other countries may be impacted (for example commercial fishing activities).

5.2 DESIGN ENVELOPE APPROACH

81. At this stage of development, some flexibility in the project design is needed so the WDA can adapt to future requirements. The Project has been assessed using a design envelope. This means that the EIA looks at option design ranges rather than one single final design. The assessment then focuses on the worst-case scenarios within these ranges, which means the option(s) that would have the greatest potential impacts. This flexibility will not lead to environmental impacts greater than the worst-case effects assessed in the EIAR.

82. Allowing for flexibility in the consent is essential for large and long-term projects, particularly in offshore wind developments where technology is continually progressing. The design envelope needs to be adaptable so that those responsible for the Project can make use of the latest, most effective and cost-efficient methods and equipment during construction, operation, maintenance and decommissioning of the Project.

6 CONSULTATION

6.1 CONSULTATION OVERVIEW

83. This section provides a summary of **Volume 1, Chapter 6 Consultation and Stakeholder Engagement.** Further information is also available in the **Pre-Application Consultation (PAC) Report** and its appendices.

84. Meaningful engagement with communities and stakeholders is an important part of the EIA process in addition to being key to responsible development. Scottish legislation and Government guidance is designed to ensure opportunities are provided for consultees to share their views throughout the lifecycle of projects.

85. The Applicant is committed to engaging with statutory bodies and non-statutory advisors, interest groups and local communities. Engagement with the public and local communities has focused on sharing clear, transparent and accessible information in relation to Project updates. This includes details on timelines, design, visual appearance, and various potential impacts and benefits for local areas and communities, ensuring that engagement activities are structured to encourage maximum participation and deliver outcomes that reflect the interests and concerns of all parties.

86. The Applicant places strong emphasis on understanding and minimising the impact of its activities on both the local environment and communities. The engagement process (outlined in **Plate 6.1**) is iterative and prioritises inclusive dialogue with a broad spectrum of stakeholders. The Applicant is committed to listening and responding to the concerns raised by those affected. The Project team

initiated community engagement early in the development of the Project and intends to maintain open communication throughout the construction phase, should consent be granted. The Applicant's goal is to foster transparent and constructive engagement at every stage of the Project.

Plate 6.1 Engagement process

6.2 STAKEHOLDER ENGAGEMENT

6.2.1 Pre-Scoping Engagement

87. From signing the option agreement with Crown Estate Scotland in April 2022, the Applicant launched engagement activities to introduce stakeholders to the Project, outline the anticipated development process and timescales, and gather initial feedback, including on EIA topics to inform baseline surveys and EIA scoping.

6.2.2 EIA Scoping Engagement

88. The MachairWind Scoping Report was submitted to Scottish Ministers on 11 October 2024 and, following consultation with stakeholders, a Scoping Opinion was received on 09 January 2025. A copy of the Scoping Report and a link to the Scoping Opinion are available in the Document Library on the Project website (https://www.scottishpowerrenewables.com/offshore/machairwind/document-libraryhttp://www.machairwind.com/).

6.2.3 Post-Scoping Engagement

89. The Applicant held a series of meetings post-scoping with key statutory and non-statutory stakeholders to enable detailed technical engagement on EIA receptor topics, allowing relevant subject matter experts to provide specialist advice and review emerging assessment outputs.

6.3 PUBLIC ENGAGEMENT

The Applicant recognises the islands of Islay, Jura, Colonsay, Ross of Mull and Iona as hosts of this nationally significant infrastructure Project. Importantly, the Applicant has been building relationships with local people in these host communities to better understand the distinct priorities between and within communities and ensure as many people as possible are aware of MachairWind and how they can share their views during statutory and non-statutory consultation events.

Plate 6.2 Left: Colonsay visit 2023. Right: Islay, Jura and Colonsay Agricultural Show 2023

Plate 6.3 Left: Jura Care Centre, May 2024. Right: Creich Hall, Ross of Mull, June 2024.

Plate 6.4 Left: Iona Village Hall, June 2024. Right: Colonsay Book Festival, April 2025.

90. The Project's Community Engagement Manager is based on Jura and is the first point of contact for host communities.

6.3.1 Early Engagement

91. Before the PAC process began, the Applicant undertook an extensive programme of non-statutory public engagement to raise awareness and gather feedback. These efforts included, but were not limited to, information drop-in sessions, supporting island community initiatives, and attending community events and meetings. A chronological summary of the wider engagement undertaken to date is illustrated in **Plate 6.5** below.

2022

- **October:** first engagement consisted of introductory meetings with Islay and Jura Community Councils and local Development Trusts. Introductory meetings were held with some local businesses, namely distilleries and estates.

2023

- **April:** project update meetings were arranged on Islay, Jura, and Colonsay with Argyll and Bute Council, Islay Energy Trust (IET), local councillors, Community Councils, and local Development Trusts. A locally based Community Engagement Manager with cross-island knowledge is appointed.
- **August:** first community drop-in session was held on Colonsay and met with local landowners. The Applicant sponsored the Islay, Jura and Colonsay Agricultural Show, which involved hosting a stand at the event.
- **October:** engagement event with a focus on children and young people was held on Bowmore beach, Islay, in partnership with marine survey company Fugro, to encourage the construction and decommissioning of a small wind turbine using educational offshore wind toolkits.

2024

- **February:** hosted a stand at MAK STEM event in Machrihanish, to showcase a range of renewable career routes, reaching over 140 pupils (Senior year 2-6) in the region.
- **Feb/March:** project update meetings were held with Islay, Jura and Colonsay Community Councils and local Development Trusts.
- **May:** community drop-in sessions were held across Jura, Colonsay, Bowmore, Islay and Port Ellen, Islay. During this visit, the Applicant met with the IET to provide members with a project update.
- **June:** first community drop-in sessions were held on the Ross of Mull and Iona to introduce community members to the Project and team. Attended a meeting with Islay and Jura Senior Citizen Association to introduce the Project to members. Carried out educational session with Port Ellen Primary and Islay High School.
- **August:** the Applicant sponsored the annual Islay, Jura, and Colonsay Agricultural Show, which involved hosting a stand at the event for a second year.
- **November:** rounded off the year at the Islay and Jura's Senior Citizen Tea & Talk event, presenting a project update to 22 attendees. Carried out educational session with Small Isles Primary School, Jura.
- **November:** sponsored and exhibited at the Scottish Maritime Cluster (SMC) Maritime Careers Event at Glasgow Science Centre; this event is catered to S3 pupils with an interest in careers in maritime and renewables.
- **Nov/December:** project update meetings were held with Islay, Jura, Colonsay and Mull Community Councils and local Development Trusts.

2025

- **March:** in-person project update with Iona Community Council. Delivered a second round of community drop-in sessions on the Ross of Mull and Iona, including an educational wind turbine-building workshop at Iona Primary School. Hosted a stand at MAK STEM event in Machrihanish to showcase a range of renewable career routes, reaching over 100 pupils (S2-S6) in the region.
- **April - September:** sponsored and attended some of the key local events, including the Colonsay Book Festival (April), Mull Bunessan Show (August), and the Islay, Jura and Colonsay Agricultural Show (August) for the third consecutive year.
- **May/June:** completed the first statutory public consultation across five host islands, comprising six in-person events and two online webinars, gathering community feedback.
- **August:** launched the MachairWind Small Donations Fund (SDF) in response to community feedback to support local groups during the early project development phase, offering funding of up to £500 for local island initiatives that focus on education, training and research; social initiatives; art and culture; and biodiversity and climate change.
- **Oct/November:** completed the second statutory public consultation across five host islands, comprising six in-person events and two online webinars, informing on key findings from first round of statutory consultation and gathering further community feedback.
- **December:** allocation of Small Donations Fund, 21 applicants across the Project's five host communities were successful.

2026

- **February:** returned to MAK STEM Fest in Machrihanish, for third year to showcase a range of renewable career routes, reaching 110 pupils across Kintyre.
- **Feb/April:** project update meetings, including discussions on the Socio-Economic Action Plan (SEAP), were held with host island Community Councils and local Development Trusts.

Plate 6.5 Timeline of Early Engagement Activities

6.3.2 Statutory Pre-Application Consultation Events

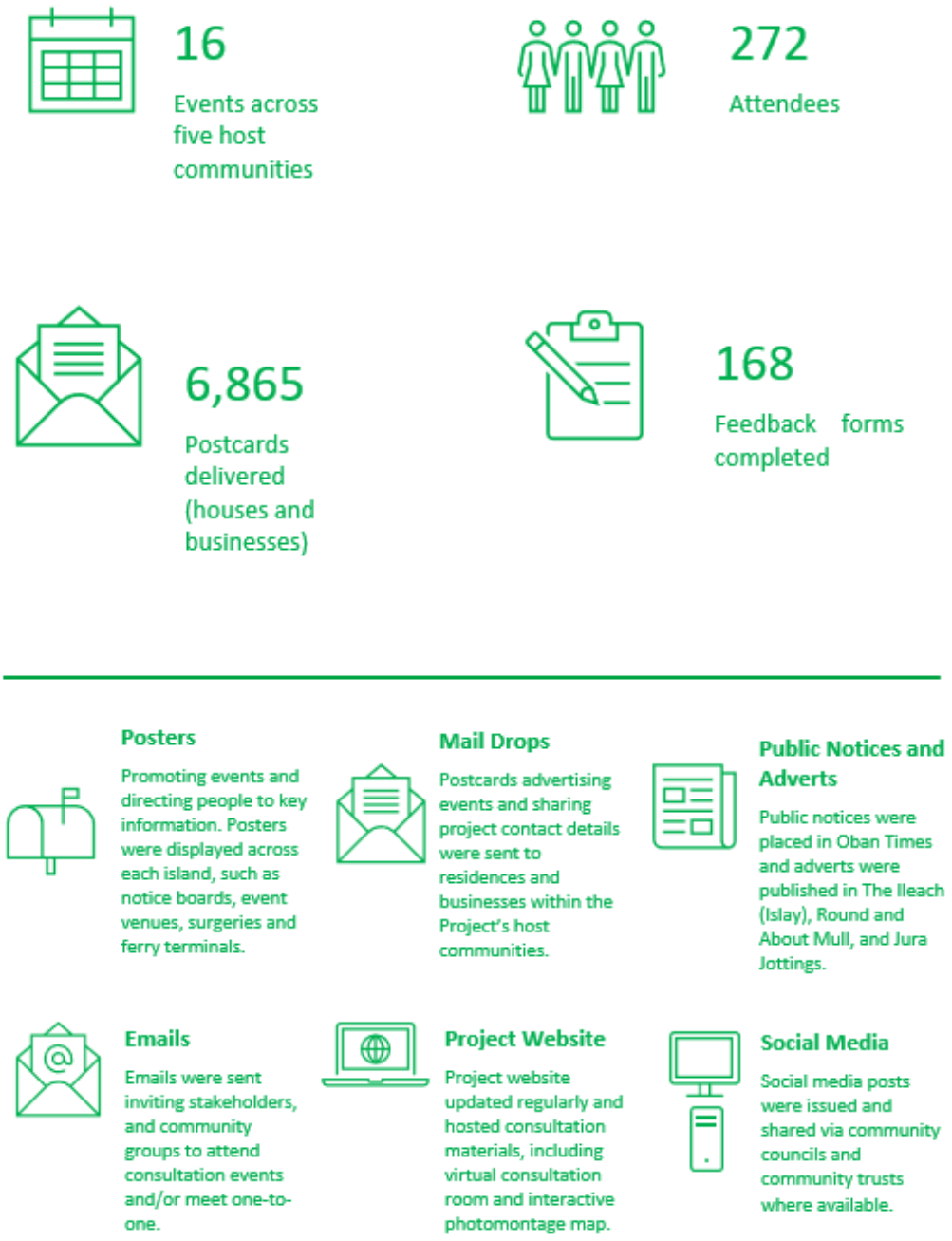


Plate 6.6 Pre-Application Consultation Overview

92. Two rounds of statutory consultation were delivered, the first six-week period of consultation was held from May to July 2025, and second six-week consultation period was held from October to November 2025. These featured 12 in-person drop-in sessions across the five host island communities, and 4 webinars, in addition to a virtual consultation room and interactive online map for both rounds of consultation. The combination of in-person and online events and printed and digital materials allowed attendees to access key Project information and share informed feedback at their convenience in order that their input could shape decision-making on the Project.

6.3.3 Community Events

93. The Applicant hosted 11 public drop-in events and delivered 16 statutory public consultation events. In addition to this, the Applicant has attended community council and development trust meetings, supported educational engagement workshops in local schools, and has attended and sponsored several community initiatives and events of importance to local communities.

94. To ensure those interested and impacted by the Project know how, why and when they can participate in consultation, the Applicant has advertised community engagement events using multiple communication channels, including on the Projects' website, posters displayed in community facilities, printed and digitised Project newsletters, residential and business postcard drops, community organisations' social media pages and project email distribution lists.

7 IMPACT ASSESSMENTS

7.1 INTRODUCTION

95. This section of the NTS presents a summary of the assessment of likely significant effects for the following EIAR chapters:

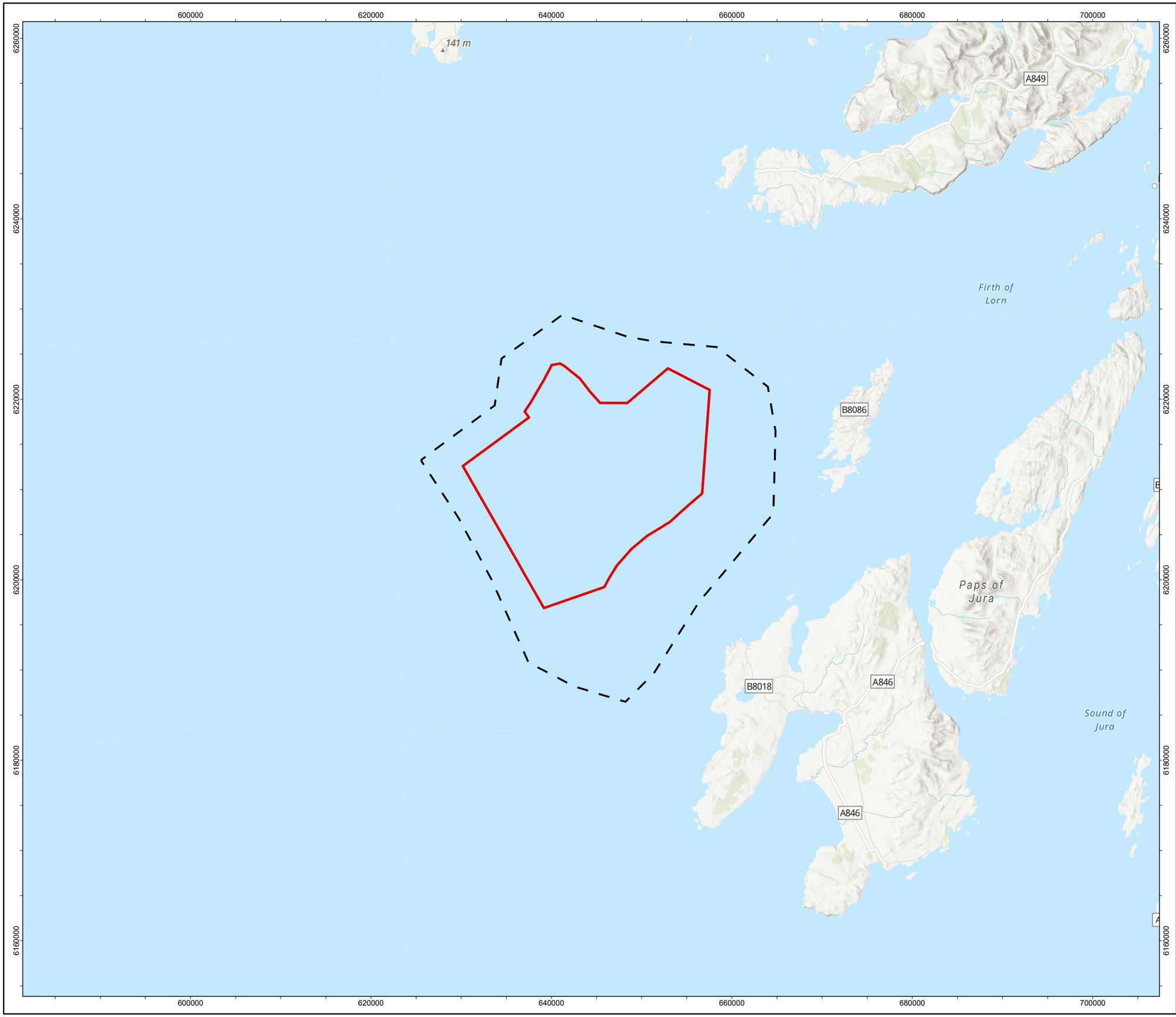
- **Section 7.2 – Marine Physical Environment**
- **Section 7.3 – Benthic (Seabed) Ecology**
- **Section 7.4 – Fish (including Basking Shark) and Shellfish**
- **Section 7.5 – Marine Mammals and Leatherback Turtle**
- **Section 7.6 – Offshore Ornithology**
- **Section 7.7 – Commercial Fisheries**
- **Section 7.8 – Shipping and Navigation**
- **Section 7.9 - Offshore Archaeology and Cultural Heritage**
- **Section 7.10 - Military and Civil Aviation**
- **Section 1.1 - Seascape, Landscape and Visual Impacts**
- **Section 7.12 - Infrastructure and Other Marine Users**
- **Section 7.13 - Socio-economics**
- **Section 7.14 - Greenhouse Gas Assessment**
- **Section 7.15 - Climate Change Risk Assessment**
- **Section 7.16 - Major Accidents and Disasters**
- **Section 7.17 - Inter-Related Effects and Ecosystem Assessment**

7.2 MARINE PHYSICAL ENVIRONMENT

96. This section summarises the findings of the assessment presented in **Volume 2, Chapter 7 Marine Physical Environment.** The Marine Physical Environment refers to how water levels, waves, tides and currents shape the geology and morphology of the seabed, the shallow geology, and the structure of the water column.

97. Site-specific surveys were commissioned by the Applicant and undertaken by Fugro in 2023 and Sulmara in 2025, to characterise the physical environment of the seabed. This was supplemented with data from a third-party survey undertaken in 2021. In addition, metocean data (such as wind, wave, water currents and temperature) were collected for two years from 2023 to 2025. The characterisation of the existing marine physical environment was also informed by a review of available data from wider sources, such as British Geological Survey (BGS) information (BGS, 2023a; BGS, 2023b; BGS, 2023c; BGS, 2023d).

98. The Study Area for the marine physical environment has been defined using numerical modelling and an understanding of the tidal processes in the area to define the ‘zone of influence’ shown in **Figure 7.1**. This zone of influence represents the Study Area for this topic.



Windfarm Development Area

Marine Physical Environment Zone of Influence (ZoI)

N

0 5 10 Kilometres

REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
1	25/11/2025	AB	GC	MH	CM

DRAWING NUMBER	MCW-DWF-ENV-MAP-RHS-000082		
DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:400,000	PAGE SIZE	A3
PROJECT TITLE	MachairWind		

Figure 7.1: Zone of Influence

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99. Water depths in the WDA range from 21.6 m to 81.7 m below Lowest Astronomical Tide (LAT). The seabed sediment is predominantly sand with occasional bedrock outcrops. The sediment is mobile, driven primarily by tidal flows. The net sediment transport direction is broadly south-southwest to north-northeast. Suspended sediments in the WDA are typical of the region with values predominantly between 1 mg/l and 2 mg/l. The shallow underlying geology is variable comprising sand, gravelly sand and low to medium strength clay of the Jura and Barra Formations, which are layers of sediment deposited near the end of the last ice age (also discussed in **Section 7.9** Offshore Archaeology and Cultural Heritage). Where bedrock outcrops at or near the seabed, the shallow geology consists of undifferentiated rocks, including mudstone, sandstone and limestone.

100. Modelling shows water current speeds are between 0.4 to 1.2 m/s during spring[1] tides and 0.1 to 0.5 m/s during neap[2] tides. Flood tides generally flow from south to north, whilst ebb tides flow from north to south. Current speeds are strongest in the south of the WDA, weakening towards the north. Waves in the WDA predominantly approach from the west-northwest. During the survey period, the majority of significant wave heights were between 0 to 3 m, with a maximum significant wave height of 8.97 m recorded during a winter storm event.

101. The WDA is in a water body classified as being of mixed stratification[3], however weak stratification caused by temperature differences can develop in the northern part of the WDA during the summer months (May to August). Observational evidence from satellite imagery suggests a thermal front and associated phytoplankton (small plants in the water column) develop within the WDA during spring and summer months.

102. Potential impacts on marine physical processes assessed for the construction, O&M, and decommissioning phases include:

- Changes in suspended sediment concentrations and seabed levels; and
- Changes in sediment transport regime and seabed morphology.

103. In addition, the following impacts are assessed in relation to the O&M phase:

- Changes to water column structure.

104. Mitigation has been incorporated into the project design, including the use of scour protection, the development of a Cable Plan and micro-siting of infrastructure to avoid sensitive features where practicable.

105. The impact assessment concludes that the WDA will have no greater than minor adverse effects (which is **not significant** in EIA terms) on the marine physical environment alone and when considered combined with the Offshore ECC, based on currently available information.

106. Consideration is given to other plans and projects within the Marine Physical Environment Study Area including one interconnector, one subsea cable project and a floating offshore windfarm, which have potential to interact cumulatively with the Project in relation to the Marine Physical Environment. The cumulative assessment concludes that the cumulative effects will **not increase the significance** beyond that assessed for MachairWind.

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[1] *Spring tides occur when the sun and moon are aligned, causing the greatest tidal range between high and low water.*

[2] *Neap tides occur when the sun and moon are at right angles, resulting in a smaller tidal range.*

[3] *Ocean stratification refers to the natural vertical layering of seawater based on density differences, primarily driven by variations in temperature and salinity. This vertical structure regulates global climate and marine health, as it governs the exchange of heat, carbon, and nutrients between water surface and deeper depths.*

107. The conclusions of the Marine Physical Environment assessment are used to inform the impact assessments for other receptors such as benthic (seabed) ecology.

7.3 BENTHIC (SEABED) ECOLOGY

108. This section summarises the assessment presented in **Volume 2, Chapter 8 Benthic Ecology.** Benthic ecology relates to the communities of animals and plants associated with the seabed (living on or within the seabed substrate).

109. Site-specific surveys were commissioned by the Applicant and undertaken by Fugro in 2023 and Sulmara in 2025 to characterise the seabed habitats and associated ecology. This was supplemented with data from a third-party survey undertaken in 2021. In addition, a desk-based review of available data from wider sources was undertaken, such as the Geodatabase of Marine features adjacent to Scotland (Scottish Government, 2026a), Marine Protected Areas Mapper (JNCC, 2023), European Marine Observation and Data Network (EMODnet, 2025), and the Marine Life Information Network (Marine Biological Association, 2026; Tyler-Walters et al., 2023).

110. The Study Area for benthic ecology is defined by the zone of influence discussed in **Section 7.2** and shown in **Figure 7.1**.

111. The communities present within the WDA are predominantly typical of sandy habitats in this region. With regards to priority marine features (PMFs), thirteen Ocean quahog, a long-lived, slow growing bivalve, were recorded in grab samples during the third-party benthic survey in 2021. Most occurrences were located within the central area of the WDA. In addition to being a PMF, this species is listed by the Oslo and Paris Conventions (OSPAR) as threatened and/or declining. Offshore subtidal sand and gravels are also a PMF and have potential to be present in the WDA. In addition, areas of potential stony reef which is a feature listed under Annex I of the Habitats Directive have been recorded within the Benthic Ecology Study Area, in the surrounding area outside the WDA. There are no designated sites within the Study Area for benthic ecology.

112. Potential impacts on benthic ecology assessed for the construction, O&M, and decommissioning phases include:

- Increased suspended sediment concentrations and sediment re-deposition;
- Temporary physical disturbance / habitat loss; and
- Introduction of marine invasive non-native species.

113. In addition, the following impacts are assessed in relation to the O&M phase:

- Permanent habitat loss;
- Colonisation of introduced hard substrate;
- Interactions with electromagnetic fields; and
- Heat exposure from subsea electrical cables.

114. Mitigation has been incorporated into the project design, including but not limited to micro-siting of infrastructure to avoid sensitive features where practicable, and adherence to the International Convention for the Control and Management of Ships' Ballast Water and Sediments Convention (2004) which provides global regulations to control the transfer of potentially invasive species (discussed further in **Volume 3a, Appendix 8 Invasive Non-Native Species Mitigation Plan**).

115. The impact assessment concludes that the WDA will have negligible to minor adverse effects (which is **not significant** in EIA terms) on benthic ecology alone and when considered combined with the Offshore ECC, based on current information.

116. Consideration is given to potential cumulative effects of the Project and the refurbishment of the Dubh Artach Lighthouse within the Study Area, and an interconnector, a subsea cable, and a floating

offshore windfarm in the wider area. The cumulative assessment concludes that the cumulative effects for all impacts would remain of negligible to minor adverse significance (**not significant** in EIA terms) to benthic ecology receptors.

7.4 FISH (INCLUDING BASKING SHARK) AND SHELLFISH

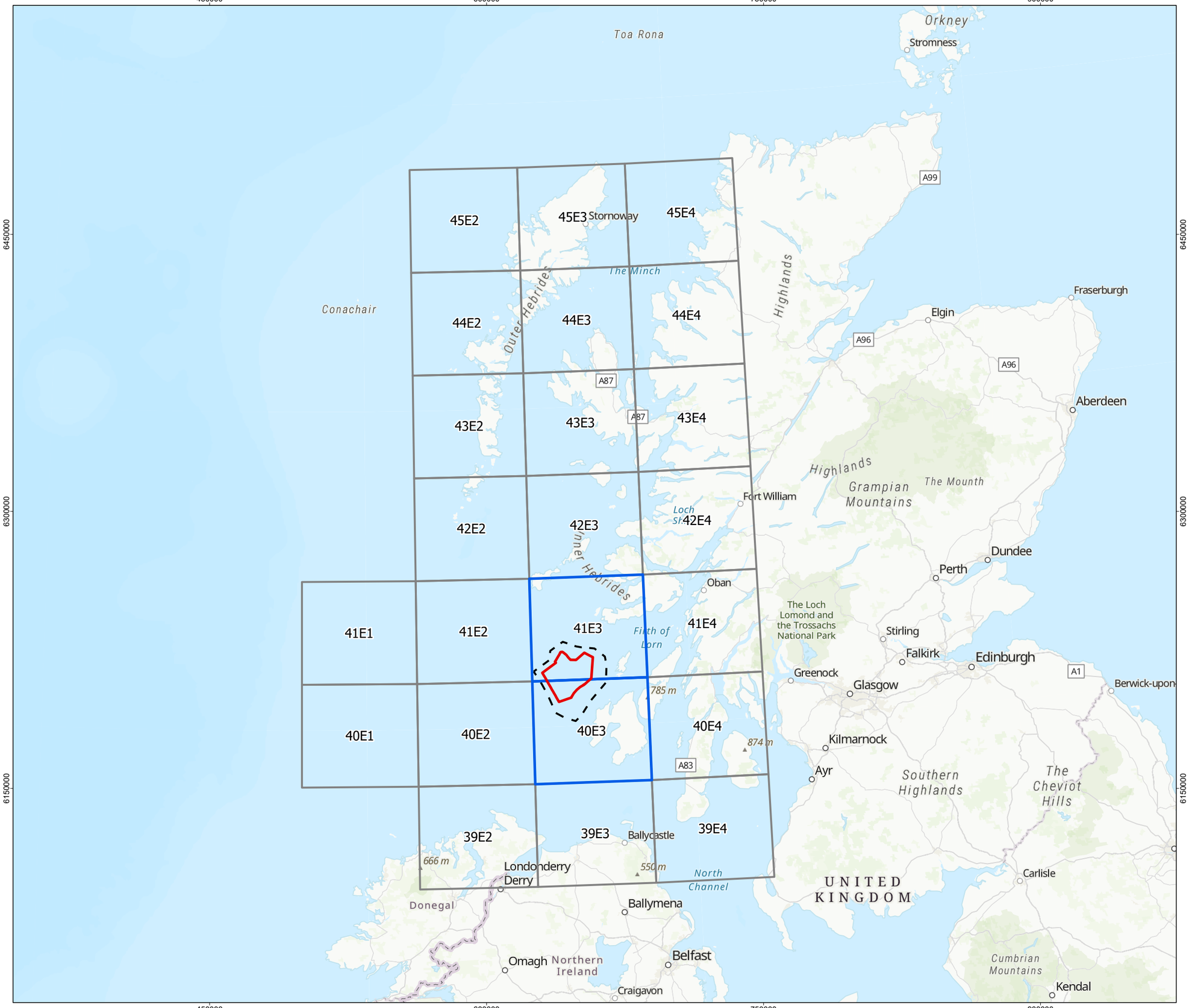
117. This section summarises the assessment presented in **Volume 2, Chapter 9 Fish (including Basking Shark) and Shellfish**.

118. Site-specific aerial surveys (by aeroplane) were commissioned by the Applicant and undertaken by APEM over 30 months from April 2021 to September 2023 inclusive. This was supplemented with data from a third-party aerial survey undertaken between October 2020 to January 2022. Aerial surveys record large animals near the water surface, such as basking shark. The benthic surveys discussed in **Section 7.3** were also used to identify fish and shellfish habitats at the seabed. In addition, a desk-based review of available data from wider sources was undertaken, such as International Herring Larvae Survey (ICES, 2024); Scottish salmon and sea trout fishery statistics 2024 (Scottish Government, 2025d); UK sea fisheries annual statistics (Marine Management Organisation, 2025); and National Biodiversity Network Atlas species assemblage data (NBN, 2025).

119. Recognising the wide ranging and variable movements of some fish species, two Study Areas are considered for fish and shellfish:

- The Local Study Area informed by the zone of influence described in **Section 7.2** (shown in **Figure 7.1**); and
- The Regional Study Area which encompasses the majority of the west coast of Scotland.

120. The International Council for the Exploration of the Sea (ICES) uses a gridded system covering the North-East Atlantic, divided into approximately 30 by 30 nautical miles ‘ICES rectangles’ which are used for simplified analysis and visualisation of spatial data. For both Study Areas, the relevant ICES rectangles provide the boundary of the Study Area (shown in **Figure 7.2**).



REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
1	27/04/2026	FC	GC	CC	PM

DRAWING NUMBER	MCW-DWF-ENV-MAP-RHS-000209		
DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:2,000,000	PAGE SIZE	A3
PROJECT TITLE	MachairWind		

Figure 7.2: Fish (including Basking Shark) and Shellfish Study Areas

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121. The Local Study Area supports a range of fish and shellfish species, detailed in the **Volume 3c, Appendix 9.1 Fish (including Basking Shark) and Shellfish Baseline Technical Report.** Commercial fisheries data indicate that shellfish dominate landings in the Fish and Shellfish Local Study Area, with species such as brown crab, king scallop, Nephrops and lobster (see also **Section 7.7** Commercial Fisheries). As discussed in **Section 7.3**, Ocean quahog, an OSPAR-listed and PMF shellfish species, was also recorded during site-specific surveys.

122. Fish such as haddock, cod, monkfish, plaice, skate, herring, sprat, sandeel, whiting, and blue whiting are also present in the Local Study Area and consideration is given to spawning and nursery grounds of relevant species.

123. Fish species that migrate between freshwater rivers and the sea, notably Atlantic salmon and sea trout are likely to migrate through the Regional Study Area during key life stages. Atlantic salmon is listed under Annex II of the European Union (EU) Habitats Directive, designated as PMF in Scotland.

124. Basking shark is highly migratory and inhabits a very wide geographical area with seasonal aggregations often occurring in the temperate continental shelf waters of the Atlantic, Pacific and Indian Oceans. Within UK waters, the vast majority of surface sightings occur in western Scotland, the Isle of Man and southwest England (Witt et al., 2012). In the west coast of Scotland, areas to the west of Coll, north of Tiree and Hyskeir are known to be seasonal hotspots for basking shark with peak occurrence from July to the end of September (Speedie et al., 2009, Witt et al., 2016). In December 2020, the Sea of the Hebrides Nature Conservation Marine Protected Area (NCMPA) (approximately 4.3 km north of the WDA) came into force with the conservation objective to conserve the favourable condition of basking shark in this area (NatureScot, 2020). Basking shark is listed as 'Endangered' on the International Union for Conservation of Nature Red List and is an OSPAR threatened or declining species having undergone widespread historic exploitation in the North-East Atlantic (Witt et al., 2012). Basking sharks are also formally recognised as PMF in Scottish waters. An assessment of effects on the Sea of the Hebrides NCMPA is provided in the **Report to Inform Marine Protected Area Assessment** which accompanies the Application.

125. Potential impacts on fish and shellfish assessed for the construction, O&M, and decommissioning phases include:

- Temporary Physical Disturbance;
- Increased Suspended Sediment Concentrations and Sediment Redeposition;
- Underwater Noise and Vibration;
- Disturbance and Displacement of Basking Shark;
- Vessel Collision with Basking Shark;
- Introduction of marine invasive non-native species; and
- Changes in Fishing Activity.

126. In addition, the following impacts are assessed in relation to the O&M phase:

- Permanent Habitat Loss;
- Electro-Magnetic Fields; and
- Introduction of Hard Substrate.

127. Mitigation has been incorporated into the project design, including but not limited to development of an Environmental Management Plan (in accordance with **Volume 3a, Appendix 6 Outline Environmental Management Plan**) to include good practice for vessel operations to reduce collision risk and adherence to the International Convention for the Control and Management of Ships' Ballast Water and Sediments Convention (2004) which provides global regulations to control the transfer of potentially invasive species.

128. The impact assessment concludes that the WDA will have negligible to minor adverse effects (**not significant** in EIA terms) on fish and shellfish ecology alone and when combined with the Offshore ECC, based on current information.

129. Consideration is given to potential cumulative effects of the Project, with other relevant plans and projects in the Local and Regional Study Areas, which includes the refurbishment of the Dubh Artach Lighthouse, the Flex Marine Power tidal project, the Oran Na Mara tidal power project, two subsea cable projects and a floating offshore windfarm. The assessment concludes that the cumulative effects will remain of negligible to minor adverse significance on fish and shellfish (**not significant** in EIA terms).

7.5 MARINE MAMMALS AND LEATHERBACK TURTLE

130. This section summarises the assessment presented in **Volume 2, Chapter 10 Marine Mammals and Leatherback Turtle**.

131. Site-specific aerial surveys were commissioned by the Applicant and undertaken by APEM over 30 months from April 2021 to September 2023 inclusive. This was supplemented with data from a third-party aerial survey undertaken between October 2020 to January 2022. In addition, marine mammal observers and passive acoustic monitoring devices to detect cetacean vocalisations were deployed during boat-based seabed surveys in 2023 and 2025. A desk-based review of available data from wider sources was undertaken, such as distribution and abundance maps of cetacean species around Europe (Waggitt *et al.,* 2019); Hebridean Whale and Dolphin Trust marine mammal survey data; Seaquest public sightings (2023 to 2025), Organisation Cetacea surveys, Whale Dolphin Conservation Shorewatch and NatureScot Research Report 1256- Aerial surveys of seals in Scotland (Morris, et al., 2021).

132. The ‘Study Area’ for marine mammals and leatherback turtles is defined by the original boundary (the OAA) plus a 10 km buffer. However, recognising the wide-ranging movements of marine mammals and leatherback turtles, it is necessary to examine species occurrence over a ‘Wider Study Area’ which has been defined for each species of marine mammal species based on the relevant population.

133. Species considered in the EIAR are detailed in **Table 7.1** below.

Table 7.1 Species considered in ***Chapter 10 Marine Mammals and Leatherback Turtle***

Species	
Toothed whales and dolphin	**Baleen Whales**
• Harbour porpoise; • Bottlenose dolphin; • Common dolphin; • Atlantic white-sided dolphin; • White-beaked dolphin • Risso's dolphin; • Killer whale; and • Long-finned pilot whale.	• Minke whale; • Fin whale; and • Humpback whale.
Seals	**Turtles**
• Grey seal; and • Harbour seal.	• Leatherback Turtle

134. Of these, harbour porpoise, common dolphin, Risso's dolphin, white-beaked dolphin, grey seal and harbour seal are relatively common, while minke whale are seasonal visitors commonly seen in summer months. Common dolphin was the most abundant marine mammal species recorded in the site-specific surveys. Bottlenose dolphin, Atlantic white-sided dolphin, long-finned pilot whale, killer whale, fin whale and humpback whale are present in lower numbers and are considered rare in the vicinity of the WDA.

135. There are a number of designated sites of relevance to marine mammals in the Study Area and Wider Study Area. The Inner Hebrides and the Minches Special Area of Conservation (SAC), with harbour porpoise as a designated feature and the Sea of the Hebrides NCMPA, designated for minke whale (and basking shark, see **Section 7.4**) are within the Study Area. The Treshnish Isles SAC, designated for grey seal; the South-East Islay Skerries SAC, designated for harbour seal; the Skerries and Causeway SAC, designated for harbour porpoise and the Eileanan agus Sgeiran Lios mór SAC, Sound of Barra SAC and Ascrib, Isay and Dunvegan SAC designated for harbour seal are within the Wider Study Area. An assessment of effects on relevant SACs is provided in the **Report to Inform Appropriate Assessment** which accompanies the Application. In addition, an assessment of effects on the Sea of the Hebrides NCMPA is provided in the **Report to Inform Marine Protected Area Assessment** which also accompanies the Application.

136. The following potential impacts on marine mammals and leatherback turtle are assessed:

- During construction, O&M, and decommissioning:
  - Disturbance and/or auditory injury (hearing damage) as a result of underwater noise during:
    - Geophysical surveys;
    - Vessel activity;
  - Barrier effects from underwater noise;
  - Vessel interaction (collision risk);
  - Disturbance at seal haul-out sites; and
  - Changes to prey availability.
- In addition, disturbance and/or auditory injury as a result of underwater noise for the following activities are assessed for each relevant phase:
  - Construction:

- Unexploded ordnance clearance;
- Piling; and
- Non-piling construction activities (e.g. cable installation, rock placement, dredging and trenching).

- O&M:
  - Wind turbine operation; and
  - Other maintenance activities (e.g. cable reburial, dredging and rock placement).
- Decommissioning;
  - Decommissioning activities (e.g. cable removal and foundation cutting/removal).

137. The Applicant is committed to mitigation measures, such as the use of low-order clearance techniques as the default method for unexploded ordnance clearance, development of a Marine Mammal Mitigation Plan (in accordance with the draft provided in **Volume 3a, Appendix 9**) and an Environmental Management Plan (in accordance with **Volume 3a, Appendix 6 Outline Environmental Management Plan**) to include good practice for vessel operations to reduce collision risk.

138. Taking into account the proposed mitigation, the impact assessment concludes that MachairWind will have negligible to minor adverse effects on marine mammals and leatherback turtle (**not significant** in EIA terms) as a result of the WDA alone and when combined with the ECC, based on current information.

139. Consideration is given to potential cumulative and transboundary effects of MachairWind, with other relevant plans and projects in the Wider Study Area. Projects screened in include subsea cable projects and relevant other offshore windfarms (full details are provided in **Volume 3c, Appendix 10.5 Cumulative Effects Assessment Screening)**. The assessment concludes that the cumulative effects will also be of negligible to minor adverse significance on marine mammals and leatherback turtle (**not significant** in EIA terms).

7.6 OFFSHORE ORNITHOLOGY

140. This section summarises the assessment presented in **Volume 2, Chapter 11 Offshore Ornithology.**

141. Site-specific aerial surveys were commissioned by the Applicant and undertaken by APEM over 30 months from April 2021 to September 2023 inclusive. This was supplemented with data from a third-party aerial survey undertaken between October 2020 to January 2022. A desk-based review of available data from wider sources was undertaken, such as distribution and abundance maps of seabird species in European waters (e.g. Waggitt et al., 2020), seabird tracking data from the BirdLife International Seabird Tracking Database, and seabird colony counts from Seabirds Count (Burnell et al., 2023) and the Seabird Monitoring Programme database.

142. The Offshore Ornithology Study Area comprised the WDA plus a 4 km buffer, as recommended by NatureScot (2023). Based on the aerial survey results, the assessment considered the following species:

*Table 7.2 Species considered in **Chapter 11 Offshore Ornithology***

Offshore Ornithological Species	
• Arctic tern; • Common tern; • European storm-petrel; • Fulmar; • Gannet; • Great black-backed gull; • Great northern diver;	• Guillemot; • Herring gull; • Kittiwake; • Manx shearwater; • Puffin; and • Razorbill.

143. Monthly and seasonal peak density and abundance estimates for each species were derived from the aerial survey data, for both flying birds and those sitting on the water. Guillemot, Manx shearwater, razorbill, kittiwake and puffin were the most abundant species recorded within the Offshore Ornithology Study Area.

144. There are a number of designated sites of relevance to offshore ornithology due to potential connectivity to the WDA, including those designated for breeding and non-breeding seabirds, marine sites designated for wintering waterfowl and roosting gulls, and those for terrestrial (migratory), coastal or marine bird interests (typically overwintering aggregations). The closest seabird site is North Colonsay and Western Cliffs Special Protection Area (SPA), approximately 12 km away. The WDA is also within foraging range of species from many other designated sites. Full consideration of connectivity of SPAs and Ramsar sites is provided in the **Report to Inform Appropriate Assessment** which accompanies the Application.

145. The following potential impacts on offshore ornithology have been assessed:

- During construction and decommissioning:
  - Direct distributional responses and displacement;
  - Indirect disturbance and displacement of prey species; and
  - Artificial construction lighting.
- During O&M:
  - Direct distributional responses, displacement and barrier effects;
  - Collision risk;
  - Indirect habitat loss / change for prey species;
  - Artificial operational lighting; and
  - Combined Displacement and Collision Risk.

146. The Applicant is committed to mitigation measures, including an 'air gap' (the distance between the sea surface and the rotor tip at its lowest point) of 28.40 m above Highest Astronomical Tide. This is much larger than the minimum required for navigational safety and will substantially reduce the risk of birds colliding with the turbines. A number of other mitigation measures are also proposed, including but not limited to considering controls on navigation and aviation lighting, and development of, and adherence to, an Environmental Management Plan (in accordance with **Volume 3a, Appendix 6 Outline Environmental Management Plan**).

147. Taking into account the proposed mitigation, the impact assessment concludes that the WDA will have negligible to minor adverse effects on all ornithological receptors (which is **not significant** in EIA terms). This applies for both the WDA alone and when combined with the Offshore ECC and onshore transmission development area.

148. Consideration is given to potential cumulative effects of the Project, with other relevant plans and projects in the wider Study Area. This included quantitative assessment of collision and displacement effects on seabird species, when considered together with other wind farm projects in the same western Biologically Defined Minimum Population Scale region (Furness, 2015), where data are available. The assessment concludes that the cumulative effects will also be of negligible to minor adverse significance on all offshore ornithology receptors (which is **not significant** in EIA terms).

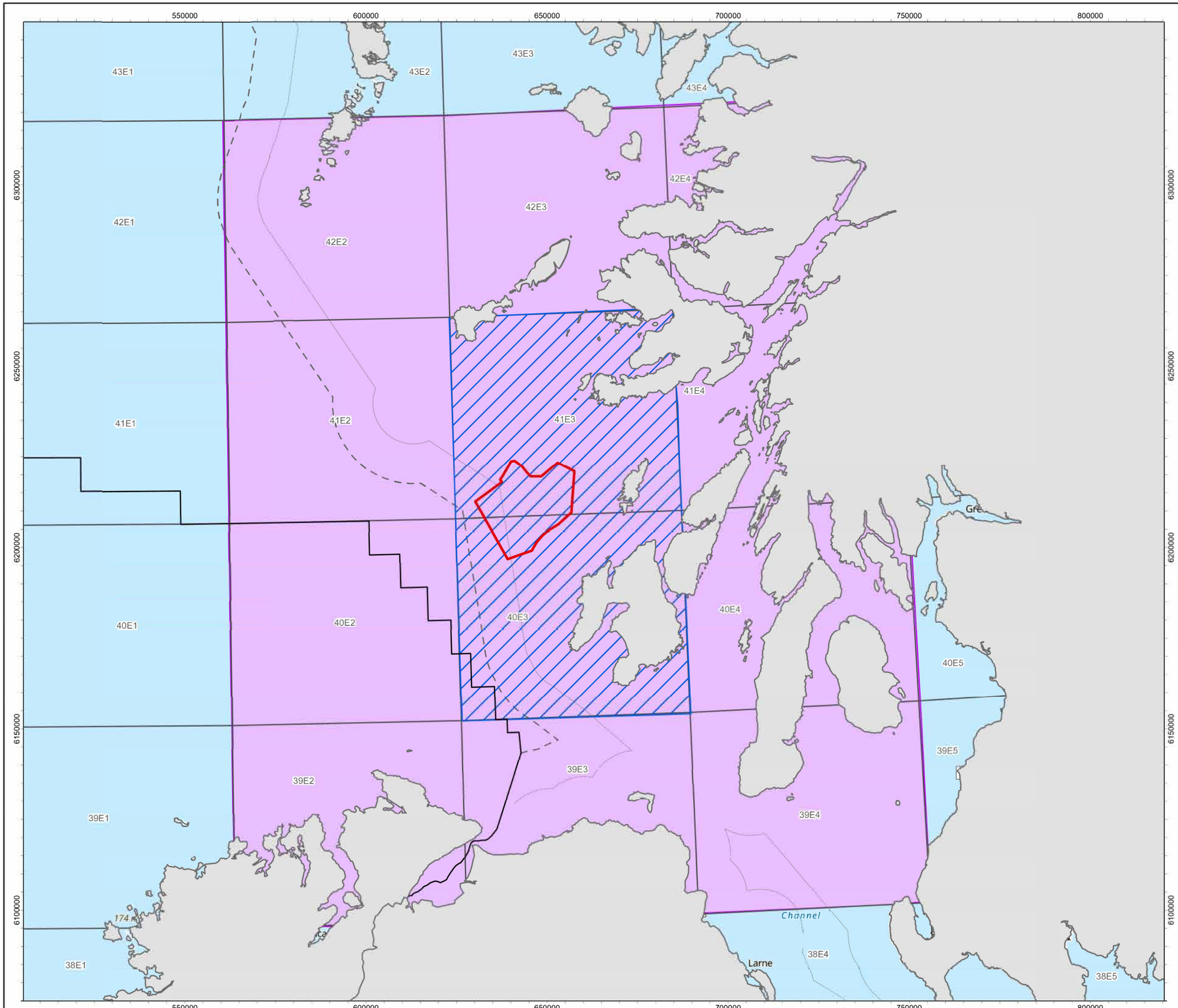
7.7 COMMERCIAL FISHERIES

149. This section summarises the assessment presented in **Volume 2, Chapter 12 Commercial Fisheries.**

150. Data analysis formed the primary basis of the commercial fisheries baseline, drawing on landings statistics (MMO, 2021; MMO, 2025), the Marine Directorate National Marine Plan interactive Spatial mapping (Marine Directorate, 2025), Marine Management Organisation (MMO) Vessel Monitoring System data (MMO, 2022) and fishing industry vessel plotter data. This was supplemented by project-specific survey information, including two shipping activity surveys, each two weeks in duration, undertaken in winter 2023 and summer 2024, which included fishing vessels. Additional

contextual information was also provided by shipping-related inputs, including the navigational hazard workshop with local Islay-and mainland-based stakeholders, and by ecological seabed surveys used to identify fish and shellfish habitats (see **Section 7.3**).

151. The WDA is located across two ICES rectangles (see **Section 7.4**) which forms the Commercial Fisheries Local Study Area. In addition, to understand fishing activity in waters adjacent to the WDA, a Commercial Fisheries Regional Study Area has been defined which includes the Commercial Fisheries Local Study Area together with the surrounding ICES rectangles. Analysis of data at the scale of the Commercial Fisheries Regional Study Area takes into consideration that most commercial fish and shellfish receptor populations are distributed at a wider spatial scale, ensuring that potential implications of displacement of fishing activity can be adequately understood.



Windfarm Development Area

ICES Statistical Rectangles

Local Study Area

Regional Study Area

6 nm Boundary

12 NM Territorial Sea Boundary

UK-Ireland EEZ

N

0 5 10 15 20 25 30 35 40 45 Kilometres

REV	REV DATE	GIS CREATOR	GIS REVIEWER	TECHNICAL CHECKER	TECHNICAL APPROVER
1	01/05/2024	FN	SM	CB	PB

DRAWING NUMBER	MCW-DWF-ENV-MAP-RHS-000142		
DATUM	ETRS89	PROJECTION	UTM Zone 29N
SCALE	1:1,000,000	PAGE SIZE	A3
PROJECT TITLE	MachairWind		

Figure 7.3 Commercial Fisheries Study Areas

NOT TO BE USED FOR NAVIGATION

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Project: D:\Projects 2024\1027 MachairWind\FMMCP\1.1_FMMCP.aprx
Name: MCH_ETRS89_UTM29N_A3_Landscape_Template_Contractor_Consultant

152. The local Study Area supports a mixed inshore fishery dominated by shellfish species, such as brown crab, king scallop, Nephrops and lobster. Pots and traps are the dominant fishing gear types and the Commercial Fisheries Local Study Area is primarily fished by Scottish registered fishing vessels, with a small number of Northern Irish, Irish and English registered vessels.

153. In the Commercial Fisheries Regional Study Area, mackerel is a key target species, as well as the shellfish species discussed above. The regional Study Area is also primarily fished by Scottish registered vessels, with other vessels from Northern Ireland, Isle of Man, Ireland, England, Wales and the Channel Islands.

154. The following potential impacts on commercial fisheries are assessed for the construction, O&M and decommissioning phases:

- Reduction in access to, or exclusion from the WDA;
- Displacement leading to gear conflict and/or increased fishing pressure;
- Displacement or disruption of commercial resources;
- Increased Project vessel traffic leading to interference; and
- Gear snagging leading to loss of earnings.

155. Mitigation has been incorporated into the project design, including the mitigation to reduce impacts on fish ecology discussed in **Section 7.4**, as well as various measures to mitigate impacts on fishermen, including but not limited to appointing a fisheries liaison officer and following a **Fisheries Mitigation, Monitoring and Communication Plan** (as provided in **Volume 3a, Appendix 10**) which will set out the means of ongoing fisheries liaison and mitigation measures to be put in place to limit effects on commercial fisheries activity. It is also noted that the reductions that have been made to the WDA post-scoping (**Section 4**) are of benefit to commercial fisheries.

156. With this mitigation, the majority of impacts will be of negligible or minor adverse significance (**not significant** in EIA terms) for the WDA alone and when combined with the effects of the Offshore ECC, based on current information.

157. It is recognised that during construction, reduction in access to, or exclusion from the WDA and displacement leading to gear conflict and/or increased fishing pressure could have moderate adverse effects on the UK potting vessels targeting crab and lobster. As a result, the Applicant is committed to delivering additional mitigation in the form of disruption agreements with the relevant fishermen. With this additional mitigation, all impacts will be of minor adverse significance or less (which is **not significant** in EIA terms).

158. Consideration is given to potential cumulative effects of the Project, with other relevant plans and projects in a wider Cumulative Study Area covering the South West Coast Regional Inshore Fisheries Group region. These cumulative plans and projects include aggregate dredging and dredge disposal, marine protected areas, interconnector cables, tidal energy projects and another offshore windfarm. The assessment concludes that the cumulative effects will remain of negligible to minor adverse significance on commercial fisheries (which is **not significant** in EIA terms).

7.8 SHIPPING AND NAVIGATION

159. This section summarises the assessment presented in **Volume 2, Chapter 13 Shipping and Navigation.**

160. Three surveys of shipping activity were undertaken: a 14-day survey in the winter of 2023; a 14-day survey in the summer of 2024; and a winter survey in 2025 which ended after 10 days due to adverse weather conditions. These three vessel traffic surveys are considered comprehensive of all vessel traffic in the area. The two 14-day vessel traffic surveys were used as the primary datasets for shipping and navigation assessment, supplemented with the winter 2025 survey and additional analysis of desk-based vessel traffic data covering a period of 12 months (March 2024 to February 2025). The long-term dataset was used to assess seasonal variations in vessel traffic, noting that smaller vessels may be underrepresented in this dataset. A desk-based review of available data from wider sources was also undertaken, including Anatec's ShipRoutes database (Anatec, 2025), Marine Accident Investigation Branch (MAIB) marine accidents database (MAIB, 2025) and Royal National Lifeboat Institution (RNLI) incident data (RNLI, 2025).

161. The Study Area of the shipping and navigation assessment is based on the WDA plus a 10 nautical mile buffer which is the standard approach for this topic.

162. During the 2023 winter survey, an average of around 10 to 11 vessels per day were recorded within the Shipping and Navigation Study Area, with approximately 2 to 3 vessels per day passing through the WDA. During the summer survey (2024), an average of around 11 vessels per day were recorded within the Study Area, with around 2 vessels per day intersecting the WDA. In winter, vessel traffic was primarily comprised of cargo vessels, which accounted for around two-thirds of all traffic, with fishing vessels and tankers forming the next most common vessel types. In summer, cargo vessels remained the most common vessel type alongside continued use by fishing vessels and passenger vessels increased in prevalence. Commercial shipping routes that connect ports in Scotland, Northern Ireland, Europe and Scandinavia intersect the Study Area.

163. There are no key navigational aids located within the WDA. However, the Dubh Artach lighthouse is located within the Shipping and Navigation Study Area, approximately 2 nautical miles north of the WDA. Other navigational features in the Study Area include charted wrecks and seabed obstructions, existing subsea cables serving nearby islands, and recognised anchorage areas closer to shore. The closest ports and harbours include Port Ellen on Islay, and ferry facilities on Colonsay. The Port of Glensanda is also located approximately 40 nautical miles to the northeast.

164. The following historical maritime incidents have been recorded in the Shipping and Navigation Study Area:

- 25 helicopter search and rescue operations were undertaken between April 2015 and March 2025, equating to an average of two to three per year;
- 20 incidents were responded to by the RNLI between 2015 and 2024, with the majority occurring close to shore and involving fishing and recreational vessels; and
- 11 marine incidents were recorded by the MAIB between 2015 and 2024, most commonly involving machinery failure and primarily affecting fishing vessels.

165. The following potential impacts on shipping and navigation are assessed for the construction, O&M and decommissioning phases:

- Vessel displacement and increased third-party vessel to vessel collision risk;
- Increased third-party vessel to project vessel collision risk;
- Reduced access to local ports and harbours;
- Reduction of emergency response capability; and
- Vessel-to-structure allision risk.

166. In addition, the following impacts are assessed in relation to the O&M only:

- Reduction of under keel clearance; and
- Anchor interaction with subsea cables.

167. Mitigation has been incorporated into the project design, including but not limited to publication of notices to mariners, marking WDA infrastructure on UK Hydrographic Office Admiralty Charts, establishing a Lighting and Marking Plan (in accordance with the outline plan provided in **Volume 3a, Appendix 12**) and a **Vessel Management Plan and Navigational Safety Plan** (in accordance with the outline plan provided in **Volume 3a, Appendix 13**). It is also noted that the reductions that have been made to the WDA post-scoping (**Section 4**) are of benefit to shipping and navigation, allowing for increased searoom around the WDA.

168. With the implementation of mitigation measures, the WDA alone is predicted to have 'tolerable' or 'broadly acceptable' impacts and effects which are as low as reasonably practicable (**not significant** in EIA terms) on shipping and navigation receptors, and when combined with the Offshore ECC based on current information.

169. Consideration is given to potential cumulative effects of the Project and the refurbishment of the Dubh Artach Lighthouse within the Shipping and Navigation Study Area. It is concluded that the cumulative effects will remain broadly acceptable or tolerable and as low as reasonably practicable (which is **not significant** in EIA terms).

7.9 OFFSHORE ARCHAEOLOGY AND CULTURAL HERITAGE

170. This section summarises the assessment presented in **Volume 2, Chapter 14 Offshore Archaeology and Cultural Heritage**.

171. Data from site-specific surveys of the seabed in 2023 and 2025 (discussed in **Section 7.2**) was analysed by archaeologists. In addition, a desk-based review of available data from wider sources was undertaken, such as Maritime records maintained by the National Record of the Historic Environment (HES, 2025a), data held by Historic Environment Scotland (HES, 2025b), and United Kingdom Hydrographic Office (UKHO) database of wrecks and obstructions (UKHO, 2025). The Study Area for Offshore Archaeology and Cultural Heritage is based on the WDA plus a 50 km buffer to assess impacts arising from changes to the setting of designated terrestrial heritage assets. For marine archaeology the Study Area comprises the WDA, however, geophysical data from the whole

OAA (within which the WDA is located) were assessed to inform this assessment. As such, all relevant records and known and potential heritage assets have been included.

172. The offshore archaeological and cultural heritage environment within the WDA is characterised by a generally low potential for prehistoric remains and a limited number of recorded maritime features. Seabed surveys showed that the ground beneath the WDA is made up of layers of sediment formed during and after the last ice age, sitting on top of much older solid rock. The Jura Formation to the west of the WDA consists mainly of sands, silts and clays laid down as glaciers were retreating and sea levels were rising, representing relatively recent seabed conditions. Beneath this lies the Barra Formation, which is made up of older glacial sediments deposited directly by ice or in cold, glacially influenced marine conditions.

173. There are no known seabed prehistory sites within the WDA for which there is known cultural significance. The existing sub-surface datasets will be ground-truthed prior to construction of the WDA, through collection and analysis of core samples. This may further inform the palaeolandscape and palaeoenvironmental potential of the WDA, however as the area was not exposed as dry land during climatically favourable post-glacial periods, the likelihood of preserved prehistoric archaeology is considered to be low.

174. Within the Offshore Archaeology and Cultural Heritage Study Area there are no Historic Marine Protected Areas and no protected wrecks. The seabed surveys identified anomalies within the WDA, with varying potential to be of archaeological interest. One high potential anomaly corresponds to the wreck of the *Eli* which a Norwegian motor vessel (cargo) built in 1931 and sunk in 1940 following an attack by the Luftwaffe. In addition, four of the anomalies are deemed to be of medium archaeological potential, and 44 are of low potential (e.g. modern debris).

175. Consideration is also given to the visual effects of the WDA from onshore designated heritage assets. 34 heritage assets, including 25 Scheduled Monuments, eight Listed Buildings and one Conservation Area are present around the coastal areas where the WDA could be visible.

176. The following potential impacts on offshore archaeology and cultural heritage are assessed for the construction, O&M and decommissioning phases:

- Direct impacts to heritage assets;
- Indirect impacts to heritage assets associated with changes to the marine physical environment; and
- Change to the setting of heritage assets.

177. Mitigation incorporated into the project design includes, but is not limited to:

- Micro-siting of infrastructure around anomalies of archaeological interest;
- The implementation of a protocol for archaeological discoveries; and
- The implementation of archaeological exclusion zones around sites identified as having known archaeology or medium to high archaeological potential.

178. The details and approach to all mitigation are presented in the **Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries** (see **Volume 3a, Appendix 11**). It is also noted that the reductions that have been made to the WDA post-scoping (**Section 4**) are of benefit to the effects on heritage asset setting.

179. With the application of mitigation measures outlined in the Offshore Written Scheme of Investigation, the majority of impacts result in no change or will be of negligible or minor adverse effect (**not significant** in EIA terms) for the WDA alone and when combined with the effects of the offshore ECC, based on current information.

180. There will be no physical impacts to designated terrestrial heritage assets identified in the assessment. However, it is recognised that during operation of the Project, changes to the setting of these designated heritage assets will occur due to the presence of the WTGs in the seascape resulting in moderate to major changes (significant in EIA terms) to the following designated heritage assets for the WDA alone and combined with the Offshore ECC and onshore transmission assets, based on available information:

- Dubh Artach Lighthouse (Listed Building);
- Oronsay Priory and Cross (Scheduled Monument);
- Beinn a' Chaisteil, promontory fort and associated remains, Islay (Scheduled Monument);
- Dun Bheolain, fort, Islay (Scheduled Monument);
- St Mary's Abbey, Iona, monastic settlement (Scheduled Monument);
- Iona Abbey (Listed Building); and
- Iona (Conservation Area).

181. The assessment also concludes there will be beneficial impacts on potential offshore heritage assets as the geoarchaeological assessments undertaken for the Project could contribute to the body of scientific data available for the study of seabed prehistory within the region.

182. Consideration is given to potential cumulative effects of the Project, with other relevant plans and projects in the Study Area, including the Dubh Artach lighthouse refurbishment and interconnector cables. The assessment concludes that the cumulative effects on offshore archaeology and cultural heritage will not increase the significance beyond that assessed for MachairWind.

7.10 MILITARY AND CIVIL AVIATION

183. This section summarises the assessment presented in **Volume 2, Chapter 15 Military and Civil Aviation**.

184. Existing levels of aviation are informed by a range of available data sources including Aeronautical Information Publications (CAA, 2025; MoD, 2025; Irish Aviation Authority, 2025), list of Protected Radar (Office of Communications (Ofcom), 2024), Operational Program on the Exchange of Weather Radar Information Database (European Meteorological Network, 2025) and the Northern Lighthouse Board (NLB) website (NLB, 2025). Modelling has been undertaken to determine the radars which have potential to detect wind turbines within the WDA.

185. The Military and Civil Aviation Study Area is based on the potential for WTGs within the WDA to have an impact on civil and military radars, taking into account required radar operational ranges. In general, Primary Surveillance Radars installed on civil and military airfields have an operational range of between 40 and 60 nautical miles, which is equivalent to between 74 and 111 km. The Study Area is therefore based on the WDA plus a 60 nautical mile buffer. However, consideration is also given to radars operated by the National Air Traffic Services (En-Route) plc (NERL), and military air defence radars which are required to provide coverage at ranges significantly in excess of 60 nautical miles. The closest NERL en-route radars to the WDA are based at Tiree, 37 km to the north-northwest, and Lowther Hill, 185 km to the east-southeast. The closest non-UK radar facility to the WDA is Malin Head Secondary Surveillance Radar in the Republic of Ireland. This facility is operated by AirNav Ireland and is 68 km south-southwest of the WDA.

186. The airspace above and around the WDA is classified as uncontrolled and is commonly used for low-level flying. The closest controlled airspace is the Argyll Control Area which is 19 km to the north at its closest point. Within controlled airspace, aircraft are monitored and instructed by Air Traffic Control.

187. Military low flying training occurs throughout much of Scottish airspace. The northern boundary of the WDA is situated beneath a danger area named the Fast Jet Area South which, when active, has flights with high energy manoeuvres at approximately 24,500 to 55,000 ft above mean sea level, as well as munitions and explosive activities taking place. A danger area airspace is not permanently active but rather is activated on request and notified by appropriate agencies such as the Ministry of Defence (MoD) or Civil Aviation Authority, through the issue of a Notice to Aviation.

188. The nearest airport to the WDA is Colonsay Airport, located 14 km to the east of the WDA. Other airports include Oban Airport, 77 km to the northeast; Coll Airport, 52 km to the north of the WDA; Tiree Airport, 40 km to the north; Islay Airport, 36 km to the southeast; and Campbeltown Airport, 80 km to the southeast.

189. The following potential impact on military and civil aviation is assessed for the construction, O&M and decommissioning phases:

- Creation of an aviation obstacle environment.

190. In addition, the following impacts are assessed in relation to the O&M phase:

- Increased air traffic in the area related to Project activities due to potential use of helicopters to access infrastructure for maintenance; and
- Impact on Civil Primary Surveillance Radar Systems.

191. Mitigation has been incorporated into the project design, including but not limited to development of a **Lighting and Marking Plan** (in accordance with the Outline Plan provided in **Volume 3a, Appendix 12**), development of a search and rescue checklist in consultation with the Maritime and Coastguard Agency and appropriate marking of the WDA on aeronautical charts. A radar technical mitigation solution has been approved by NATS and the MoD to mitigate the effects of WTGs on the NERL Tiree Primary Surveillance Radar. In addition, with regards to the effects on Islay and Tiree airports, revisions to Instrument Flight Procedure will be prepared and implemented in accordance with the Airspace Change Process following consultation with Highlands and Islands Airports Limited.

192. With this mitigation in place, it is anticipated that the WDA will have a minor adverse effect (which is **not significant** in EIA terms) on military and civil aviation, alone and when considered combined with the Offshore ECC.

193. Consideration is given to potential cumulative effects of the Project and other relevant projects, including the potential Malin Sea Wind Offshore Wind Farm (approximately 42 km to the south-west of the WDA). The assessment concludes the cumulative effects will be of **no greater significance** than for MachairWind alone.

7.11 SEASCAPE, LANDSCAPE AND VISUAL IMPACTS

194. This section summarises the assessment presented in **Volume 2, Chapter 16 Seascape, Landscape and Visual Impact (SLVIA)**.

195. Site visits to 28 locations were undertaken to take photographs to inform the EIA and for use in photomontages which represent how the WDA will look. The photomontages can be found in **Volume 3c, Appendix 16.4 SLVIA Visualisations**.

196. The SLVIA Study Area is defined as the WDA plus a 60 km radius which includes Coll and Tiree in the north, Mull in the north, Iona in the northeast, and Colonsay, Islay and Jura in the east. Part of the Argyll coast is located in the far east of the SLVIA Study Area, between Loch Melfort to the north and Rhunahaorine Point to the south.

197. To inform the assessment, consideration is given to the existing characteristics, in terms of:

- Coastal and Onshore Landscape Character as defined by SNH (2005) and NatureScot (2019);
- Designated Landscapes and Wild Land Areas provided in SNH (2010), Argyll and Bute Council (2024) and NatureScot (2017); and
- Receptors who may be able to view the WDA (Visual baseline).

198. The following coastal character types are found within the SLVIA Study Area:

- Sounds, Narrows and Islands - encompassing the eastern seaboard of Islay, Jura and Mull, and described as a "*deeply indented and fragmented coastline*" which is "*generally low and rocky*" (SNH, 2005);
- Deposition Coasts of Islands – encompassing the west facing coasts of Coll, Tiree, Islay and Iona, described as having "*long sandy beaches backed by dunes and low lying machair, or by pastures*" with an "*often wild, remote 'edge of ocean' feel*" (SNH, 2005); and
- Low Rocky Island Coasts – encompassing part of Coll, Colonsay, the west coast of Jura, parts of Islay and the west coast of Mull. Described as a "*generally low rocky coastline, rising to cliffs in places*" (SNH, 2005) with views of the open North Atlantic Ocean.

199. A Project-specific coastal character assessment was undertaken to identify regional Coastal Character Areas within 40 km of the WDA. This is presented in **Volume 3c, Appendix 16.3 Coastal Character Baseline and Assessment**, and provides details of 22 distinct character areas on the island coasts.

200. Onshore Landscape Character Types (as defined by NatureScot (2019) include Island Mixed Farmland, Sand Dunes and Machair, Rocky Moorland – Argyll, Lowland Bog and Moor, Plateau Moorland – Argyll, Boulder Moors – Argyll, Stepped Rocky Coastlands, Stepped Cliffs and Terraces – Argyll, Rugged Mountains, and Coastal Parallel Ridges.

201. There are a number of locally and nationally designated landscapes located within the SLVIA Study Area, including National Scenic Areas designated at a national level, and Local Landscape Areas which are designated by Argyll and Bute Council. All designated landscapes within the SLVIA Study Area included for assessment in **Chapter 16 SLVIA** are detailed in **Table 7.3** below. It should be noted that while Wild Land Areas were identified within the SLVIA Study Area, these were scoped out of further assessment (see **Chapter 16 SLVIA** for further details).

*Table 7.3 Designated landscapes and Wild Land Areas scoped in / out of assessment in **Chapter 16 SLVIA***

Designated Landscape / Wild Land Area	Theoretical visibility (i.e. areas where the WDA may be seen from) of Project and distance to determine if designated landscape or WLA is scoped in / out of the SLVIA
National Scenic Areas	
Jura	The Jura National Scenic Area encompasses the southern half of the island. Theoretical visibility is indicated from the National Scenic Area which is approximately 25 km from the WDA at its closest point. The Special Landscape Qualities include "*the distinctive Paps of Jura*" with their "*unparalleled views to the Inner Hebrides, the Mull of Kintyre and beyond*". The National Scenic Area is also noted for its "*great sense of wildness*". **Scoped into the assessment.**
Loch na Keal, Isle of Mull	Theoretical visibility is indicated from the National Scenic Area which is approximately 31 km from the WDA at its closest point. The National Scenic Area is focused around Loch na Keal, a major sea loch on Mull's Atlantic seaboard, and the Special Landscape Qualities include the "*Highly distinctive seaways and shores*". The "*voyage from enclosed sea loch to the open Atlantic*" which "*offers impressive and unique seascapes*" is also noted as a SLQ. Inward and outward views are also noted to be of importance to the National Scenic Area, with "*views of an island-studded sea*" noted as a Special Landscape Quality. Despite the distance between the WDA and the National Scenic Area, it is proposed that it is scoped into the SLVIA due to the importance of the seascapes and views. **Scoped into the assessment.**
Scarba, Lunga and the Garvellachs	The National Scenic Area encompasses a group of uninhabited and remote islands off the Argyll coast, approximately 42 km from the WDA at its closest point. Theoretical visibility is indicated from the rugged west-facing coasts and hill summits. The Special Landscape Qualities include the "*pyramidal island of Scarba*" with its "*extensive panoramic views to the Argyll and Irish coasts.*" Despite the distance between the WDA and the National Scenic Area, it is proposed that it is scoped into the SLVIA due to the importance of the seascapes and views. **Scoped into the assessment.**
Local Landscape Areas	
North and West Islay (Coast)	The Local Landscape Area encompasses the northern and western coast of Islay. Theoretical visibility is indicated from the Local Landscape Area within approximately 15 km of the WDA at its closest point. **Scoped into the assessment.**
Central, South and West Mull	The Local Landscape Area encompasses the southern part of Mull and adjoins the Loch na Keal National Scenic Area. Theoretical visibility is indicated from the Local Landscape Area within approximately 20 km of the WDA at its closest point. **Scoped into the assessment.**
Jura	The Local Landscape Area encompasses the northern part of Jura which is not in the National Scenic Area. The Zone of Theoretical Visibility indicates theoretical visibility across the western coast at a distance of approximately 30 km from the WDA at its closest point. Wildness is likely to be a special quality of the Local Landscape Area, therefore the effects of the Project were assessed. **Scoped into the assessment.**

202. The assessment of effects on Special Landscape Qualities of National Scenic Areas (detailed in **Appendix 16.2** of the EIAR) was conducted in line with NatureScot's 'Special Landscape Qualities – Guidance on assessing effects' (2025). Special Landscape Qualities are defined in the guidance as "*the characteristics that make a designated landscape special in terms of landscape and scenery, both individually and combined. They are qualities that are perceived and experienced by people, affecting the sense of place*."

203. Modelling was undertaken to determine the zone of theoretical visibility. Visual receptors within this zone include:

- Residents of the islands, including people at their homes and moving around the islands;
- Road users and ferry users (including tourists) travelling throughout the area;
- Those engaged in land-based and water-based recreational activities (e.g. trekkers, hill walkers, cyclists, kayakers, sailors, surfers, and anglers); and
- People at work, including, but not limited to, agricultural workers and people fishing.

204. Viewpoints for photography and assessment were all located at publicly accessible locations, as advocated by Guidelines for Landscape and Visual Impact Assessment (Landscape Institute and IEMA, 2013). These include:

- Locations selected to represent the experience of different types of receptors;
- Locations at different distances to provide a representative range of viewing angles and distances (i.e., short, medium and longer distance views);
- Locations which represent a range of viewing experiences (i.e., static views and points along sequential routes);
- Specific viewpoints selected because they represent promoted views or viewpoints within the landscape; and
- Illustrative viewpoints chosen specifically to demonstrate a particular visual effect or specific issue (which could include restricted visibility in particular locations).

205. In addition, consideration is given to settlements and routes (e.g. core paths) within the zone of theoretical visibility.

206. The following potential impacts on seascape, landscape and visual impacts have been assessed for the construction, O&M and decommissioning phases:

- Effects on the special qualities of National Scenic Areas (assessed in **Appendix 16.2 Assessment of Effects on Special Landscape Qualities**);
- Effects on the special qualities of locally designated landscapes;
- Effects on onshore landscape character;
- Effects on coastal character;
- Effects on visual receptors at viewpoints;
- Effects on visual receptors at settlements and travelling on routes; and
- Effects on visual receptors travelling on ferry routes.

207. Mitigation has been incorporated into the project design, including but not limited to reduction in the WDA post-scoping (**Section 4**), defining the northern and eastern boundary of the WDA with a buffer of approximately 12.4 km from the nearest points of Colonsay, and applying a 2 nautical mile buffer between the WDA and Dubh Artach lighthouse. The Applicant also engaged with NatureScot through a series of pre-submission collaborative workshops aimed at assisting with the refinement of the underlying design objectives of the WDA, in turn informing the design to help reduce seascape, landscape and visual impacts and safeguard the integrity and objectives of nationally important landscapes. The mitigations incorporated into the project design and engagement with NatureScot has resulted in the Applicant developing a design strategy in accordance with **Volume 3a, Appendix 15 Design Strategy,** which features a list of design objectives aimed at minimising seascape, landscape and visual effects and which will be used to inform the final windfarm design.

208. Regarding mitigation to reduce the potential impact of navigation and aviation lighting, the Applicant is aware of the ongoing development of Aircraft Detection Lighting Systems for use as a potential mitigation measure to reduce the night-time effects from WTG aviation lighting. Aircraft Detection Lighting Systems have been trialled for onshore windfarms in the UK and have been deployed for offshore windfarms internationally. If the Project is consented, the Applicant will work with stakeholders in the post-consent stage, including the Civil Aviation Authority, to identify the most appropriate mitigation option(s).

209. Recognising the remote nature of the seascape and landscape in the SLVIA Study Area, the WDA is predicted to have moderate or major adverse effects (**significant** in EIA terms) on a number of the receptors considered. These significant effects are detailed in **Table 7.4** below, structured by island / island group. Where specific viewpoints are noted, these are available to view in **Appendix 16.4 SLVIA Visualisations**.

*Table 7.4 Significant effects identified in **Chapter 16 SLVIA**, structured by island / island group*

Island / Island Group	Significant Effects
Colonsay and Oronsay	**Viewpoints** • Viewpoint 13: Oronsay Priory, Oronsay; • Viewpoint 14: B8086 south of Lower Kilchattan, Colonsay;; • Viewpoint 15: Uragaig, Colonsay; and • Viewpoint 16: Beinn nan Gudairean, Colonsay **Landscape Character Types** • Landscape Character Type 49 – Island Mixed Farmland; and • Landscape Character Type 58 – Sand Dunes and Machair. **Coastal Character Areas** • Coastal Character Area 9 - Kiloran Bay to Eilean Dubh, Colonsay; • Coastal Character Area 11 - West Colonsay (Tighe Mhoir to Ardskenish); • Coastal Character Area 12 - The Strand, Colonsay/Oronsay; and • Coastal Character Area 13 – Oronsay. **Other** • There would be significant effects on road users on parts of the B8085, B8086 and B8087 on Colonsay (see Viewpoint 14) and significant effects on recreational receptors from parts of the Core Path network (C045, C046, C047 and C048.

Island / Island Group	Significant Effects
Islay	**Viewpoints** • Viewpoint 1: Ardnave Point, Islay; • Viewpoint 2: Saligo Bay, Islay; • Viewpoint 3: Kilchoman, Islay; • Viewpoint 4: Creag Bealach na Caillich, Islay; • Viewpoint 5: Minor Rd near Portnahaven, Islay; and • Viewpoint 7: Beinn Bheigier, Islay. **Local Landscape Areas** • North and West Islay (Coast) Local Landscape Area. **Landscape Character Types** • Landscape Character Type 49 – Island Mixed Farmland; • Landscape Character Type 58 – Sand Dunes and Machair; • Landscape Character Type 48 – Lowland Bog and Moor; and • Landscape Character Type 41 – Plateau Moorland – Argyll. **Coastal Character Areas** • Coastal Character Area 18 - Sgairail, Islay; and • Coastal Character Area 20 - Ardnave Point to Rhinns Point, Islay. **Other** • There would be significant effects from parts of the Core Path network, particularly in north-west Islay (C057, C512, C058, C054, C511, C055, C056 and CO61).
Mull and Iona	**Viewpoints** • Viewpoint 20: Erraid, Mull; • Viewpoint 21: Mull – Iona Ferry; and • Viewpoint 22: Dun I, Iona. **Local Landscape Areas** • Central, South and West Mull Local Landscape Area. **Landscape Character Types** • Landscape Character Type 49 – Island Mixed Farmland; and • Landscape Character Type 44 – Boulder Moors – Argyll; **Coastal Character Areas** • Coastal Character Area 5 - Sound of Iona; • Coastal Character Area 6 - Iona West Coast – Druim an Aoineidh to Ardionra; and • Coastal Character Area 7 - Ross of Mull South. **Other** • There would be significant effects on users of Core Paths on Iona (C483 and C484) and Mull (C040 and CO41).

Island / Island Group	Significant Effects
Jura	**Viewpoints** • Viewpoint 10: Loch Tarbert, Jura; and • Viewpoint 11: Beinn an Oir, Jura. **National Scenic Areas** • Significant effects are predicted to arise on the "*distinctive Paps of Jura*", "*large tracts of wild land*" and "*inaccessible Loch Tarbert*" SLQs within Jura NSA, as set out in Appendix 16.2 Assessment of Effects on Special Landscape Qualities. **Coastal Character Areas** • Coastal Character Area 14: Rubha an t-Sailein to Glendebadel Bay, Jura; and • Coastal Character Area 15: Loch Tarbert, Jura

210. There would be no spatial overlap between the SLVIA Study Area for the WDA and the Onshore Transmission Development Area, which is anticipated to be in South Ayrshire and so there is no potential for the same receptors to be affected by both elements of the Project. An assessment of the effects of the onshore transmission infrastructure will be provided separately. No significant effects relating to the Offshore ECC are anticipated for seascape, landscape and visual receptors given the anticipated lack of permanent above-water infrastructure and the temporary nature of the works.

211. Consideration is given to potential cumulative effects of the Project, with other relevant plans and projects in the Study Area, including the proposed Malin Sea Wind Offshore Wind Farm (approximately 42 km to the south-west of the WDA). The assessment concludes that the cumulative effects on seascape, landscape and visual impacts will **not increase the significance** beyond that assessed for MachairWind alone.

7.12 INFRASTRUCTURE AND OTHER MARINE USERS

212. This section summarises the assessment presented in **Volume 2, Chapter 17 Infrastructure and Other Marine Users**.

213. Existing infrastructure and other users have been defined by a desk-based review of available data sources, including National Marine Plan Interactive (Marine Directorate, 2025), offshore oil and gas activity data (NSTA, 2025), offshore wind lease area (Crown Estate Scotland, 2025), and carbon capture storage (Scottish Carbon Capture and Storage, 2025).

214. The Study Area for infrastructure and other marine users is defined by the WDA, plus an additional 18.52 km (10 nautical miles (nm)) buffer to align with the Shipping and Navigation Study Area (**Section 7.8**).

215. The receptors that have been included and relevant to this section include: MoD exercise areas (general submarine practices, e.g. non-firing exercises, practices and trials) and Recreational Charter Angling and Wildlife tours (tours from local islands including Islay, Colonsay, Jura, Mull and Iona).

216. Additionally, military and civil aviation and shipping and navigation receptors were included due to their proximity to the WDA. Two lighthouses, Dubh Artach and Skerryvore, were considered during the infrastructure and marine activities assessment, more details can be found in **Sections 7.8** and **7.10.**

217. The Study Area overlaps several MoD exercise areas. These areas have been identified for general submarine exercises (e.g. non-firing exercises, practices and trials). Temporary marine activity restrictions can be implemented by the MoD in these areas to coincide with scheduled exercises. Additional exercise areas extend for the entirety of the west coast of Scotland.

218. The Study Area is also situated within an area that is used for recreational charter angling and wildlife tours from local islands including Islay, Colonsay, Jura, Mull and Iona. The local islands are home to species that attract tourism including seabirds, seals, dolphins and minke whales. Recreational charter angling and wildlife tours are subject to seasonal variations to coincide with suitable weather. Many of the tour operators, such as Islay Sea Adventures, operate daily 'in-season' which is typically April to October.

219. The following potential impacts on infrastructure and other users are assessed for the construction, O&M and decommissioning phases:

- Impacts on MoD maritime navigational interests; and
- Impacts on recreational charter angling and wildlife tours.

220. Mitigation has been incorporated into the project design, through establishing: a Cable Burial Risk Assessment, development of an Unexploded Ordnance threat and risk assessment, and measures associated with Shipping and Navigation (**Section 7.8**).

221. With this mitigation in place, it is anticipated that the WDA will have a minor adverse effect on infrastructure and other marine users (which is **not significant** in EIA terms) and when combined with the Offshore ECC.

222. Consideration is given to potential cumulative effects of the Project and other projects, including the potential Malin Sea Wind Offshore Wind Farm (approximately 42 km to the south-west of the WDA). The assessment concludes the cumulative effects will be of **no greater significance** than for MachairWind alone.

7.13 SOCIO-ECONOMICS

223. This section summarises the assessment presented in **Volume 2, Chapter 18 Socio-economics.**

224. To characterise the baseline socio-economic conditions upon which the assessment is considered, a desk-review and site-specific surveys were conducted. The site-specific surveys involved consultation with public sector bodies, community councils, local schools, third sector organisations, business groups and representative organisations and other local network and interest groups.

225. The desk based review considered existing data on socio-economic factors from a range of sources, such as Mid-Year Population Estimates Scotland 2023 (National Records of Scotland, 2024a), Annual Survey of Hours and Earnings 2024 (ONS, 2025b) and Business Register and Employment Survey 2023 (ONS, 2025e).

226. The Study Areas for this assessment included the UK and Scotland. Consideration is also given to potential port areas located on the west of Scotland. While a significant proportion of the activity associated with the WDA is expected to take place offshore, the relevant Study Areas for the offshore socio-economic assessment are located onshore.

227. Within the Study Areas, consideration is given to the population size, employment levels and annual economic output. Key receptors include the UK economy, Scottish economy, potential Marshalling and Assembly Port areas (Hunterston, Kishorn and Stornoway/Arnish), potential Marine Operations Base areas (Port Ellen, Bendoran and Oban) and potential O&M port areas (Campbeltown and Machrihanish, Hunterston and King George V in Glasgow).

228. The following potential impacts on socio-economics are assessed for the construction and the O&M phases:

- Increase in Employment and Gross Value Added (GVA) by the increased spend in the economy required to construct and, operate the WDA;
- Impacts on Communities, including demographic changes as workers move to the area. This could result in an increase in population, particularly if workers bring family members, who may have different demographic characteristics to the existing population;
- Changes to Housing due to employment opportunities in the local area which could lead to increased population in local areas, as people may relocate temporarily or permanently to take up employment opportunities;
- Changes to Labour Market due to increased employment in the offshore wind sector which may affect recruitment and retention in existing industries;
- Changes to Infrastructure and Other Local Services;
- Impacts on Habitability, including the capacity of a community to accommodate and support changes associated with long-term and short-term population shifts. This includes the ability of local infrastructure, services and social systems to respond to increased demand resulting from employment opportunities;
- Interconnecting Influence on Other Places;
- Socio-cultural Effects, including how new populations affect community cohesion and quality of life, particularly in relation to changes in population. Employment opportunities created by the WDA may lead to an influx of transient workers moving into the area, which may affect community cohesion. Over the long term, these effects may decrease as local populations adapt and new residents become integrated into the community;
- Changes to Tourism;
- Changes to Commercial Fisheries (see also **Section 7.7**);
- Changes to Shipping and Marine Recreation (see also **Section 7.8**);
- Impact on the Whisky Sector; and
- Impact on Crofting.

229. In addition, the following impact is assessed in relation to the decommissioning phase:

- Increase in Employment and GVA.

230. To mitigate adverse impacts generated from the WDA, the local community engagement manager post will remain in place and a skills strategy will be developed to help support the local communities and increase relevant skills required for the development of offshore wind.

231. The WDA is expected to generate a range of socio-economic benefits due to increasing employment and GVA. These are of negligible to minor significance (**not significant** in EIA terms) in relation to the Scottish and UK economy and of moderate to major beneficial significance at many of the local port areas. Other significant beneficial impacts include impacts on habitability and interconnecting influence on other places. Impacts on crofters are deemed to be of minor beneficial significance (**not significant** in EIA terms), subject to crofters taking up employment opportunities associated with the WDA.

232. Impacts on communities, changes to housing, changes to labour market, changes to infrastructure and other local services, socio-cultural effects, impacts on tourism, and impacts on the whisky sector are predicted to be of minor adverse significance (**not significant** in EIA terms).

233. Consideration is given to the effects of the WDA combined with the offshore export cable and onshore transmission development and it is concluded that the effect significance on socio-economics will either remain as assessed for the WDA alone or there will be no combined effect.

234. Consideration is given to potential cumulative effects of the Project, with the wider offshore wind industry. The assessment concludes that the cumulative effects on socio-economics will typically remain of the same significance as for MachairWind, with the exception of cumulative impacts at the Kishorn local port area which are predicted to be of major beneficial significance (significant in EIA terms).

7.14 GREENHOUSE GAS ASSESSMENT

235. This section summarises the assessment presented in **Volume 2, Chapter 19 Greenhouse Gas Assessment**.

236. To characterise the baseline for the Greenhouse Gas assessment, a desk-based review has been conducted of available data sources, such as:

- The Digest of UK Energy Statistics (Department for Energy Security and Net Zero (DESNZ), 2025b and 2025c);
- UK Carbon Budget (UK Government, 2009, 2011, 2016, and 2021);
- The Seventh Carbon Budget (Climate Change Committee (CCC), 2025a);
- CCC Scotland Budget (CCC, 2025b);
- UK Territorial Greenhouse Gas Emissions National Statistics (DESNZ, 2025d); and
- Scottish Greenhouse Gas and Energy Statistics (Scottish Government, 2025).

237. The receptor for the assessment is the global atmosphere, therefore the Greenhouse Gas emissions were calculated from activities related to the WDA wherever they occur, rather than from within a defined geographically region. The total amount of greenhouse gases produced across the lifecycle of the WDA are calculated, including the construction O&M, and decommissioning phases. As MachairWind will supply renewable energy to the UK, the Greenhouse Gas assessment also accounts for emissions savings from the displacement of electricity which would have otherwise been generated from an alternative source. The chapter also contains an assessment for the potential of the WDA to cause disruption to blue carbon habitats, and the associated potential for the release of stored carbon.

238. The baseline for the Greenhouse Gas assessment includes emissions from alternative sources of generation, and a review of blue carbon habitats within the WDA.

239. Mitigation has been incorporated into the design of the WDA, such as development of an **Outline Carbon Management Plan (Volume 3a, Appendix 14)** and refinement of WTG foundation options which will result in a reduction of greenhouse gas emissions compared to other options**.**

240. It is anticipated that the construction and decommissioning of the WDA will produce a level of Greenhouse Gas emissions which are considered to be of minor adverse effect (**not significant** in EIA terms). During the O&M phase, the WDA will provide a significant beneficial effect, as the provision of renewable energy to the grid will result in avoided emissions compared to alternative sources of fossil fuel-based sources.

241. An assessment of the whole lifecycle emissions from the Project was also undertaken, which highlights that when accounting for total emissions released, there is still a benefit from the provision of renewable energy to the grid.

242. The effects on blue carbon habitats are negligible or minor (**not significant** in EIA terms).

243. The IEMA guidance (IEMA, 2022) states that the cumulative effects of GHG emissions from other projects should therefore not be individually assessed, as there is no basis for selecting which projects to assess cumulatively over any other. Therefore, cumulative effects in relation to GHG emissions from other projects or developments are not assessed.

7.15 CLIMATE CHANGE RISK ASSESSMENT

244. This section summarises the assessment presented in **Volume 2, Chapter 20 Climate Change Risk Assessment**.

245. A climate change risk assessment has been conducted by a desk-based review of available data sources, such as:

- The Met Office UK Climate Projection (UKCP18) Database and supporting reports (2026);
- Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2023);
- Marine Climate Change Impacts Partnership (MCCIP) Reports (2025);
- Offshore Wind Climate Adaptation and Resiliency Study (New York State Energy Research and Development authority (NYSERDA), 2021); and
- Scottish Government – Keeping Scotland Running: Building Resilience to a Changing Climate (2020a), and Adaptation Scotland – Adaptation Capability Framework (2024).

246. The Study Area for the climate change risk assessment includes the WDA and the wider region of western Scotland.

247. The Study Area has a mild ocean-moderated climate, with annual average temperatures around 12.48 °C (max) and 7.09 °C (min), making it slightly warmer than the wider western Scotland region. Rainfall totals are moderate at ~1207 mm per year, lower than the broader West Scotland average despite a similar number of wet days. Sunshine levels are relatively high for the region, with about 1,437 hours annually, reflecting its low-lying Hebridean coastal setting. Future climate projections indicate that the area will become warmer, with annual mean temperatures rising by approximately 1.1–1.6 °C by the 2050–2069 period, depending on emissions scenario, and with winters becoming noticeably milder. Precipitation patterns are expected to shift, with wetter winters (up to ~18%–22% increases by mid-century under higher emissions) and drier summers, alongside more frequent intense rainfall events. Sea levels around western Scotland are projected to rise by 0.6–1.0 m by 2100, increasing long-term coastal flooding and erosion risks for low-lying islands such as Colonsay.

248. The impacts from climate change are assessed using the methodology developed by the Institute of Environmental Management and Assessments (IEMA) “Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (2020)”. This includes considering climate change impacts on the WDA, as opposed to the impacts of the WDA infrastructure on other receptors. The

following list included some of potential impacts that have been assessed in relation to climate change for the construction, O&M and decommissioning phases:

- Heatwaves and increased average temperatures can lead to increased risk of heat stroke and exhaustion among the workforce;
- Extreme storm events can result in physical damage and deterioration of WTGs and decline in operational performance due to shutdowns;
- Extreme storm events can lead to unsafe working conditions and disrupt O&M activities;
- Increased wave and tidal activities can increase loading and sediment transport across the seabed, resulting in physical damage and deterioration of submerged structures and decline in operational performance due to scour and erosion;
- Increased risk of disruption to offshore activities during extreme weather events can lead to programme delays and associated cost implications; and
- Prolonged or successive disruptions can result in impacts on the overall programme.

249. Mitigation has been incorporated into the project design, such as development of an emergency response cooperation plan, construction method statement and **Outline Vessel Management Plan** (see **Volume 3a, Appendix 13**). Selection and design of WTGs will take into account the required thresholds for climate resilience.

250. Following the appropriate mitigation procedures, the WDA climate change risk assessment has concluded that there are **no likely significant** effects on the WDA or the Project as a whole, as a result of climate change impacts during the construction, O&M and decommissioning phases.

251. Cumulative effects are not relevant to the CCR assessment, as the assessment considers the effects of climate change on the Project, rather than the Projects' effects on the environment or in combination with other developments.

7.16 MAJOR ACCIDENTS AND DISASTERS

252. This section summarises the assessment presented in **Volume 2, Chapter 21 Major Accidents and Disasters**.

253. This baseline environment, Study Area and assessment for this chapter are informed by the following EIAR chapters:

- **Chapter 7 Marine Physical Environment (Section 7.2)**;
- **Chapter 8 Benthic Ecology (Section 7.3)**;
- **Chapter 9 Fish (Including Basking Shark) and Shellfish (Section 7.4)**;
- **Chapter 10 Marine Mammals and Leatherback Turtle (Section 7.5)**;
- **Chapter 11 Offshore Ornithology (Section 7.6)**;
- **Chapter 12 Commercial Fisheries (Section 7.7)**;
- **Chapter 13 Shipping and Navigation (Section 7.8)**;
- **Chapter 15 Military and Civil Aviation (Section 7.10)**;
- **Chapter 17 Infrastructure and Other Marine Users (Section 7.12)**;
- **Chapter 18 Socio-economics (Section 7.13)**; and
- **Chapter 20 Climate Change Risk Assessment (Section 7.15)**.

254. Consideration of the significant effects for potential Major Accidents and Disasters has been carried out following relative legislative, policy and guidance was adhered to, primarily the "IEMA Major Accidents and Disasters in EIA: A Primer" (IEMA, 2020).

255. The Study Area for the individual hazards is primarily the WDA, with consideration of the surrounding area where there is potential for interaction.

256. The screening and assessment of major accidents and disasters is split into 4 steps:

- Step 1: Identify hazards in long lists of possible major accidents and events. Major accidents with little relevance to the WDA have not been included (e.g., volcanic eruptions). Sources have included the UK Government National Risk Register – 2020 edition and further relevant sources. This step has also involved the identification of the receptors in the existing environment;
- Step 2: Screening exercise to determine which risks are relevant to the WDA and require further assessment;
- Step 3: Risk assessment - definition of the potential impacts that may occur from the risks and classification of the likelihood that the events may occur. Identification and evaluation of prevention, minimisation and mitigation measures.
- Step 4: Determination of whether the risk has been mitigated to as low as reasonably practicable and the identification of any residual risk, and the consequences upon the receptors in the event of a major accident or disaster.

257. The potential receptors relevant to the major accidents and disasters screening and assessment are:

- WDA infrastructure;
- Construction, operations and maintenance workers for the Project; and
- Other marine users.

258. Hazards considered for assessment are:

- Exposed cables leading to vessel snagging;
- Vessel interactions (e.g. collision and allision);
- Aviation collision;
- Disturbance of unexploded ordnance;
- Workplace accidents; and
- Major fires.

259. Mitigation measures are embedded into the design of the WDA. Alongside the use of industry safety standards, the relevant impacts on receptors identified during Stage 3 will be reduced through appropriate mitigation, including but not limited to:

- Compliance with the International Convention for the Prevention of Pollution from Ships (MARPOL) 73/78 and adherence to the “OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic”;
- Unexploded ordnance threat and risk assessment;
- Implementation of a navigational safety plan;
- Notice to mariners being issued;
- Implementation of a lighting and marking plan (including failures);
- Established safety zones through construction;
- Implementation of a search and rescue plan;
- Implementation of emergency response and cooperation plan; and
- Use of guard vessels when necessary.

260. Taking into account the proposed mitigation, the impact assessment concludes the residual risk is considered to be as **low as reasonably practicable**.

261. Cumulative effects have not been assessed for Major Accidents and Disasters as the main assessment by its very nature, inherently accounted for interactions between the Project and other plans, projects and activities.

7.17 INTER-RELATED EFFECTS AND ECOSYSTEM ASSESSMENT

262. This section summarises **Volume 2, Chapter 22 Inter-related Effects and Ecosystem Assessment**.

263. The inter-related effects and ecosystem assessment considers all relevant pressures associated with the WDA and the ways in which they may combine across construction, operation and decommissioning. With regards to the receptor-based inter-related effects assessment, after analysis of each topic chapter, the interactions between different impacts and different phases of the WDA were determined to not lead to effects of greater magnitude than those already identified in the individual assessments. As such, there is **no potential for additional significant effects** to occur as a result of inter-related effects of the Project. Inter-related effects associated with other projects or plans are addressed within the cumulative effects assessments presented in each of the relevant technical chapters.

264. An ecosystem-based effects assessment was then undertaken. Considerations of prey-predator dynamics through all phases were made. The evidence demonstrates that the WDA will not alter prey populations in a way that would affect predators, nor will it cause interacting or cumulative pressures that increase the significance of effects. **No significant impacts** on prey species or their predators as a result of prey changes are expected, and the overall functioning of the wider marine ecosystem is therefore not predicted to change as a result of the WDA.

8 CONCLUSION

265. This Environmental Impact Assessment Report (EIAR) assesses the likely potential impacts associated with building, operating, maintaining, and eventually decommissioning the MachairWind Offshore Wind Farm WDA. It supports the Section 36 consent application and the Generation and Transmission Marine Licence applications and has been prepared in line with relevant policies, regulations, and guidance.

266. A combined assessment has been carried out for the three development areas: the WDA, Offshore ECC, and Onshore Transmission Development Area. This assessment considered the indicative project components and associated construction methods in addition to the likely timelines to understand how different parts of the project may interact, ensuring the assessment looks at the Project as a whole in a meaningful and proportionate way.

267. At this stage of development, some flexibility in the project design is needed so the WDA can adapt to future requirements. The Project has been assessed using a design envelope. This means that the EIA looks at option design ranges rather than one single final design. The assessment then focuses on the worst-case scenarios within these ranges, which means the option(s) that would have the greatest potential impacts. This flexibility will not lead to environmental impacts greater than the worst-case effects assessed in the EIAR.

268. Allowing for flexibility in the consent is essential for large and long-term projects, particularly in offshore wind developments where technology is continually progressing. The design envelope needs to be adaptable so that those responsible for the Project can make use of the latest, most effective and cost-efficient methods and equipment during construction, operation, maintenance and decommissioning of the Project.

269. The significance of effects in each topic chapter was determined by considering the sensitivity of affected receptors and the scale of the potential impact. This approach draws on current research, available data on receptor sensitivity, and professional judgement.

270. Each impact assessment took account of embedded mitigation measures and existing commitments. Where significant effects were identified, appropriate and proportionate additional mitigation measures have been proposed to reduce the residual effects to non-significant where practicable.

271. Through the implementation of the embedded mitigation measures, commitments and monitoring proposals, the majority of potential effects of the WDA alone are predicted to be reduced to non-significant levels.

272. Significant effects have, however, been predicted to occur on the following topics:

- Offshore Archaeology and Cultural Heritage (with regards to changes to setting of designated heritage assets) and
- Seascape, Landscape and Visual Impacts (detailed in **Table 7.4**).

273. These conclusions have been reached based on worst-case indicative WTG layouts developed for assessment purposes only. By doing this, the assessment ensures that any final design chosen later will stay within the limits already assessed.

274. The Applicant will continue to refine the design of the Project in collaboration with a wide range of stakeholders and regulatory bodies in the post-application stage to reduce these effects wherever possible. This may be achieved, for example, through further refinements to the WTG layout within the WDA. Any further refinement to the Project's design will be made in consideration of other receptors, such as shipping and navigation and military and civil aviation, which may limit the potential design refinements available for the Project.

275. Should the Applicant be successful in obtaining the required consents and licences, the Project will increase energy security, deliver clean, green energy sufficient to power up to 2 million homes, and reduce greenhouse gas emissions by an estimated 2,851,685 tonnes, thereby making a crucial contribution to delivering Net Zero targets in Scotland and the UK.

276. MachairWind will be developed, built and operated in a manner that that maximises social, economic and wider benefits for its host island communities, Argyll and Bute, the West of Scotland, and Scotland more broadly. SPR is committed to working with local communities and businesses to harness the opportunities from renewable energy.

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