



**ARVEN**  
OFFSHORE WIND FARM

Project Summary - February 2024

A photograph of an offshore wind farm in the ocean. Three wind turbines are visible, each mounted on a yellow floating platform. The sky is blue with some clouds, and the water is a deep blue. The turbines are white with three blades each.

# INTRODUCTION

This summary document accompanies the first public engagement event for the Arven Offshore Wind Farm, located to the east of Shetland.

**The Arven team is committed to working with local communities and stakeholders to help shape our proposal for the offshore wind farm. This is the first of a number of public engagement events designed to keep you up-to-date and obtain your feedback on our proposals. We also invite you to share your local knowledge and make suggestions for topics to be covered at future events.**

Arven is dedicated to championing economic opportunities for Shetland, fostering investment in the area and promoting inclusivity.

## BACKGROUND

As planning authority for Scotland's seas, the Scottish Government's Marine Directorate published its Sectoral Marine Plan (SMP) in 2020. Following extensive analysis and engagement with stakeholders, the SMP identified 15 Plan Option (PO) areas with potential for commercial-scale offshore wind farms. These were selected based on a Strategic Environmental Assessment, Habitats Regulations Appraisal and a Socio-Economic Impact Assessment, amongst other studies. The Marine Directorate is also responsible for determining offshore wind farm consent applications, in consultation with consultees such as local planning authorities.

Crown Estate Scotland is responsible for managing marine assets in Scotland and awards seabed leases for offshore wind farms. Its ScotWind Leasing Round, based on the Marine Directorate's SMP, invited developers to apply for a seabed option agreement with a view to obtaining a full seabed lease once they have secured the necessary consents, licences and finance to build their wind farm.

# PROJECT OVERVIEW

Through the ScotWind process, we were awarded a seabed lease agreement to explore options to develop Arven Offshore Wind Farm within the NE1 Plan Option area to the east of Shetland. We are now seeking to progress Arven through its consenting, financing, and planning stages, to enable its construction and operation.

**Arven aspires to be an exemplary floating offshore wind project, developed in partnership with local and national stakeholders to deliver significant economic opportunities. It aims to help achieve the Scottish Government's target of net-zero emissions of all greenhouse gases by 2045.**



Reducing annual emissions by **3 million tonnes**



Able to generate up to **2.3 gigawatts**



Equivalent annual consumption of **2 million homes**

The Arven Offshore Wind Farm will be located approximately 30 kilometres from the Shetland Islands. Once operational, it will be able to generate up to 2.3 gigawatts (GW) of power, enough electricity for the equivalent of 2 million homes.

Power from the offshore wind farm will be exported to the national grid and may also support alternative opportunities such as production of green hydrogen or associated products. Arven's connection to the grid is currently being considered by National Grid as part of its Holistic Network Design (HND) process - a strategic review of the UK electricity transmission system.

Through the HND, National Grid is appraising the most effective connection solution for accommodating offshore wind farms within the wider grid network. Once the HND process has been completed, we will be able to further consider connection options for Arven.

# WHO WE ARE

Arven is being developed by a 50/50 joint venture between Mainstream Renewable Power and Ocean Winds.



**Ewan Walker**  
Project Director



**Aaron Priest**  
Stakeholder Manager



**Sarah MacNab**  
Consents Lead



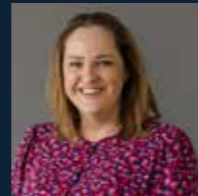
**Ciorstaidh Couston**  
Environment and Consents  
Manager



**Iain McMyn**  
Fisheries Manager



**Anna Dunbar**  
Project Manager



**Lynsey Shovlin**  
Supply Chain Manager

Mainstream Renewable Power is a global renewable energy company and a frontrunner in offshore wind. Mainstream's track record includes developing and consenting several major UK offshore wind farms and we are bringing forward multi-gigawatt scale developments of offshore wind assets in markets including Norway, South Korea, Sweden, the UK, Vietnam and Australia. We work collaboratively with our stakeholders, partners and other users of the sea to lead and accelerate the transition to renewable energy. Our vision is to electrify the world with renewable energy.



[www.mainstreamrp.com](http://www.mainstreamrp.com)

Ocean Winds (OW) is an international company dedicated to offshore wind energy and was created as a 50/50 joint venture, owned by EDP Renewables and ENGIE. Based on our belief that offshore wind energy is an essential part of the global energy transition, we develop, finance, build and operate offshore wind farm projects all around the world.



[www.oceanwinds.com](http://www.oceanwinds.com)

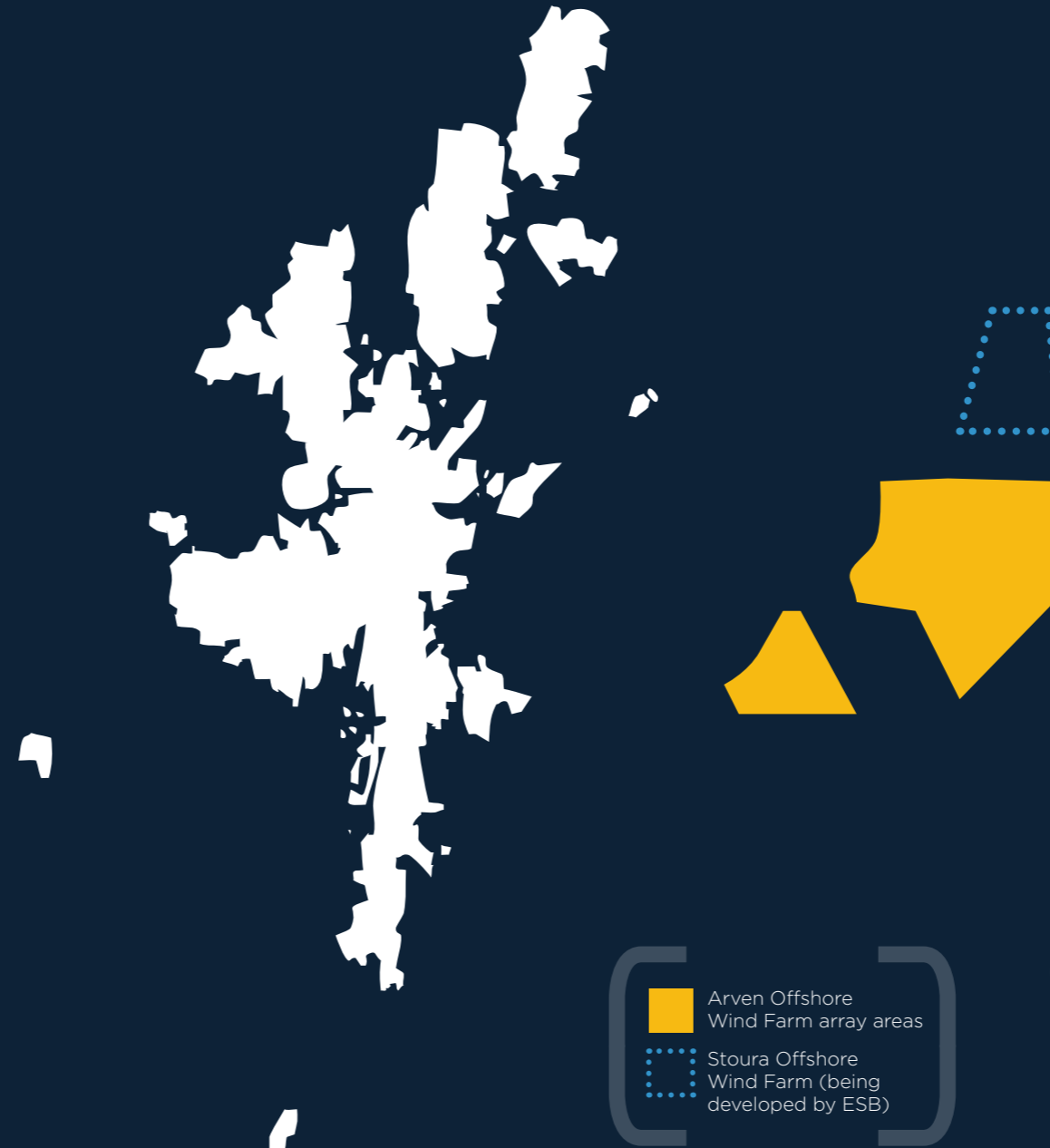
# PROJECT LOCATION

The Arven project covers four distinct areas including both offshore and onshore elements. Please note that this public exhibition focuses solely on the offshore aspects of the project and the onshore elements will be subject to separate consent applications at a later stage.

## 1 ARRAY AREAS

This is the main offshore energy generation site (highlighted in yellow on the map to the right), where a maximum of up to 161 turbines could be located. The number of turbines will depend on a number of factors including the individual megawatt (MW) capacity of the turbine model selected. The turbines will be supported by floating foundations with associated mooring/anchoring systems. Several types of floating foundation are currently under consideration.

Offshore substations are also expected to be located within the array areas. These are offshore platforms located either above the surface of the sea or on the seabed where the electricity generated by the turbines is collected and transmitted landward by subsea offshore export cables. The turbines and offshore substations are connected by inter-array cables.



## 2 OFFSHORE EXPORT CABLE CORRIDOR

This is the offshore area containing the subsea export cables which will transmit the electricity from the array areas to the landfall.

## 3 LANDFALL

This is the area of coastline where the offshore export cables come ashore and meet the onshore transmission infrastructure. The location of the landfall will be known once National Grid determines where the project will connect to its transmission network.

## 4 ONSHORE EXPORT CABLE CORRIDOR AND ONSHORE SUBSTATION

This is the onshore area containing buried transmission cables that will connect the array areas to a new onshore substation.

The onshore elements of the project will be subject to a separate planning application and associated Environmental Impact Assessment. We will consult on these elements at a later date when their proposed locations have been identified.

# PROJECT TIMELINE

## CURRENT PHASE

The project is currently in the development phase. We will submit our Offshore Scoping Report in 2024 and Onshore Scoping Report in 2025.

## KEY ANTICIPATED MILESTONES

### SUBMISSION OF CONSENT APPLICATIONS:

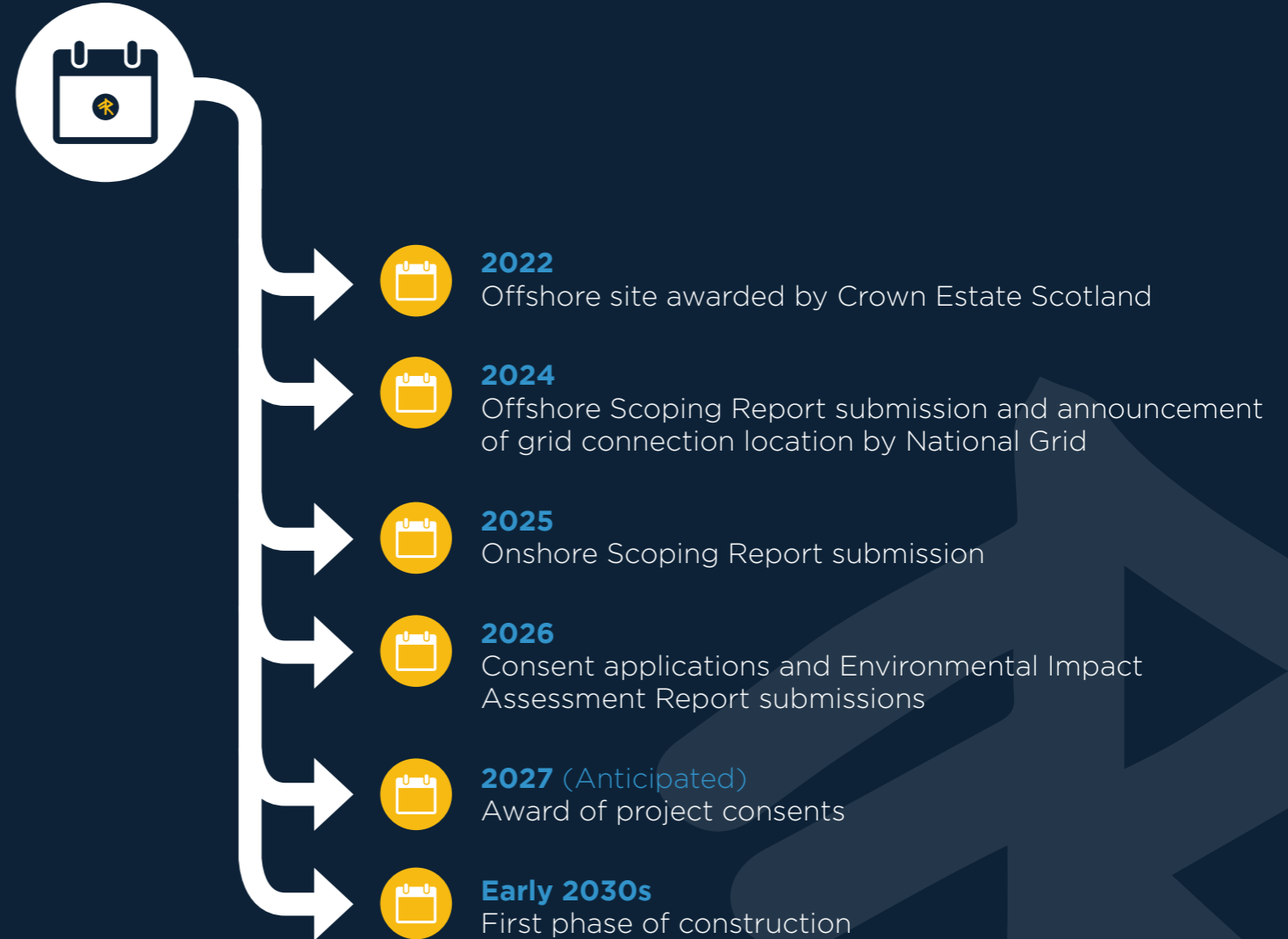
Consent applications are expected to be submitted to the relevant authorities in 2026.

### COMMENCEMENT OF CONSTRUCTION:

Expected to be early 2030s at the earliest, with a duration of up to four years, but subject to phasing of development.

### COMMENCEMENT OF OPERATION:

**MID 2030s**  
At the current scoping stage, the timescales and durations are indicative. Precise information on the construction process will become available once the final design of the project has been defined.



# ENVIRONMENTAL IMPACT ASSESSMENT

The project is currently in the development phase which focuses on project planning, site surveys, technical studies and environment assessments. We are now in the process of scoping the Environmental Impact Assessment (EIA) of the offshore elements of the project.

**Our Onshore and Offshore Scoping Reports will set out Arven's potential environmental impacts and identify those that must be considered during the EIA which is the next stage of the development process.**

## SCOPING

A Scoping Report describes the project and sets out its potential environmental impacts, identifying those proposed to be scoped in or out of the EIA process. It also describes the data available to inform the EIA and any additional data collection requirements as well as plans for engaging with stakeholders.

## ENVIRONMENTAL IMPACT ASSESSMENT

EIA is a process which systematically identifies and assesses the potential effects that a project could have on the environment. It also identifies measures to regularly monitor and mitigate or manage the predicted effects of the project.

## DETERMINATION

Following submission of a consent or licence application, the relevant authorities are required to approve or reject the proposal. The decision may be accompanied by certain conditions that must be fulfilled in order for the project to proceed.

# EIARs

## What are EIA Reports (EIARs)?

- These are required to support consent applications for certain types of development, including offshore wind farm projects.
- They are used by licensing bodies to understand the potential impacts of a project on the environment and therefore inform the determination of any licences, consents and permissions granted to the project.

## Separate EIARs will be prepared for Arven covering -

- 1 The offshore elements of the project, with the EIAR supporting applications for offshore consents.
- 2 The onshore elements of the project, with the EIAR supporting applications for onshore planning permission.

# OVERVIEW OF THE OFFSHORE SCOPING REPORT

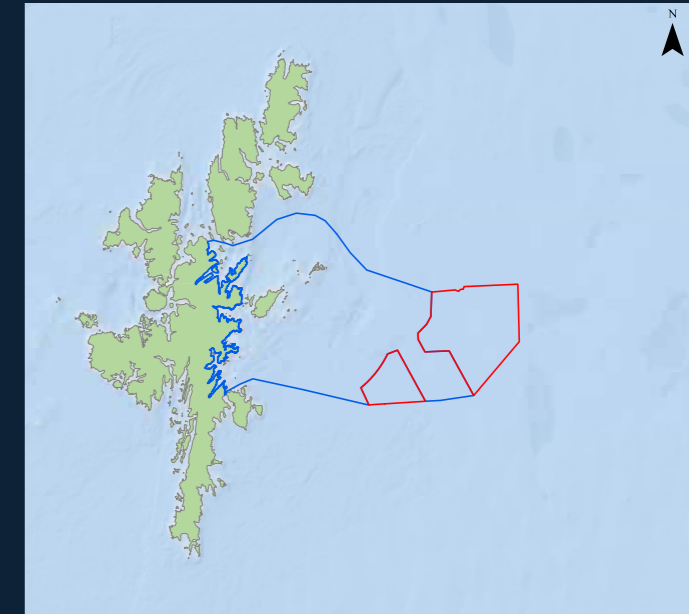
This scoping exercise will culminate in the publication of an Offshore Scoping Report that will be submitted to the Marine Directorate in early 2024. There will be an opportunity to formally comment on the Scoping Report once it has been submitted.

**Following consideration of the Scoping Report and stakeholder consultation, the Marine Directorate will issue its Scoping Opinion, confirming what needs to be included in the Environmental Impact Assessment (EIA).**

## The Offshore Scoping Report will:

- Describe the offshore infrastructure components of the Arven project
- Provide a high-level description of the condition of the existing environment in relation to a range of key topics
- Consider the potential impacts that Arven could have on those topics (sometimes referred to as 'receptors') during its construction, operational and decommissioning phases
- Explain how we plan to carry out the EIA and set out the relevant legislation and policy that will be taken into consideration
- Discuss the approach to consultation through the pre-application stages of the project

For a more detailed version of this map showing the scoping boundary, please go to the appendix at the end of this document.



The following topics are covered by the Offshore Scoping Report and will be included in the Environmental Impact Assessment.



## Human Environment

- Commercial fisheries
- Shipping and navigation
- Marine archaeology and cultural heritage
- Aviation and radar
- Seascape, landscape and visual
- Socioeconomics, tourism and recreation
- Climate change and greenhouse gas
- Other marine users and infrastructure



## Physical Environment:

- Marine geology, oceanography and physical processes
- Marine water and sediment quality



## Biological Environment

- Benthic subtidal and intertidal ecology
- Fish and shellfish ecology
- Offshore ornithology
- Marine mammals



# COMMERCIAL FISHERIES

Commercial fishing is vital to the Shetland community, both economically and culturally. Fishing in and around the project area is undertaken by vessels from the Shetland fleet and by vessels from other Scottish, UK and non-UK fleets.

**The Environmental Impact Assessment will assess the potential impacts of Arven on commercial fisheries.**

**The assessment will use multiple baseline data sources, including, but not limited to, information from:**

- Annual fisheries landings statistics sourced from the Marine Management Organisation and Norwegian and EU agencies
- Vessel Monitoring System and Automatic Information System data for UK and non-UK vessels
- Marine Scotland fisheries datasets
- Species stock assessments
- Data gathered by Arven, including marine traffic survey data and fisheries scouting survey data
- Data provided directly by fishermen and fishermen's associations

Throughout the project development process, we will continue to engage with representatives of fisheries associations and organisations to corroborate baseline data, gain insight into fishing methods used, understand the views of fisheries stakeholders and discuss approaches to mitigation and monitoring.

**Arven has been engaging with local, national and regional fisheries stakeholders regarding the project since 2022 and is a founding member of the NE1 Fishing Forum, which comprises:**

- Shetland Fishermen's Association (SFA) and the Shetland Fish Producers' Organisation (SFPO)
- Shetland Shellfish Management Organisation (SSMO)
- Scottish White Fish Producers Association (SWFPA)
- Scottish Fishermen's Federation (SFF)
- Scottish Pelagic Fishermen's Association (SPFA)
- Arven Offshore Wind Farm
- Stoura Offshore Wind Farm

Arven and its Company Fisheries Liaison Officer are keen to ensure early and effective engagement with both mobile and static gear sectors to understand concerns and, where possible, maximise coexistence.

# MARINE ACTIVITIES

Use of the sea is evident across wider Shetland life, from its key industries to popular recreational pursuits.



## AQUACULTURE

Shetland offers favourable conditions for aquaculture, due to its sheltered voes, good water quality and local marine industry expertise. Finfish and shellfish aquaculture in Shetland waters contribute approximately 25% of Scotland's total production volume of salmon and 80% of Scottish mussel production. While the majority of currently active aquaculture sites are located around the west coast of Shetland, a number of sites are also present on the east coast.



## OTHER MARINE USERS

Shetland offers a variety of marine recreation opportunities for both residents and visitors. Recreational activities include boating and sailing, recreational fishing, sea kayaking, wildlife watching and nature tours, diving and surfing. The coastline supports coastal walks and island hopping is popular.

The Environmental Impact Assessment will assess the potential impacts of Arven on aquaculture, considering potential effects including physical disturbance of farm sites, changes in sediment movement and water quality, and interference with vessel activity. Arven has commenced engagement with representatives of the local aquaculture industry and will continue to engage as development plans are progressed.

The EIA will also assess the potential impacts of Arven on other marine users, including those that make recreational use of the waters around Shetland.

# SKILLS DEVELOPMENT AND SUPPLY CHAIN

Arven's supply chain will cover services and support across planning, development, transportation, construction, operation and maintenance.

**We will strive at all times to be a champion for opportunity, investment and inclusivity. Arven will create economic opportunities for Shetland, Scotland and the rest of the UK. A sustainable and competitive supply chain built through close relationships with suppliers locally and nationally will help us to deliver our floating offshore wind farm.**

**In December 2023, Crown Estate Scotland published our Supply Chain Development Statement (SCDS) which showcases our anticipated project expenditure with commitments to the country's offshore wind sector.**

It is a fundamental aim of Arven to ensure opportunities are available to the local supply chain in Shetland. The anticipated programme for Arven allows us to work together with businesses over a sustained period to enhance supply chain capacity and capability, as well as develop skills for the future to aid workforce development.

**To view the SCDS, please visit our website or scan the QR code.**



**View SCDS**



## **We will do this by:**

- actively engaging with local enterprise agencies to identify capacities and specialisms within the Shetland business community and workforce.
- listen to local industry to understand gaps and barriers to participation.
- promote contract opportunities through Energy Pathfinders
- advance education, re-skilling, and the development of long-term sustainable employment opportunities within the industry to workers in Shetland and beyond.
- clearly communicate projected timelines, technical requirements, and volume needs as early as possible.

**We welcome all interested local businesses to visit our website to receive ongoing updates as supply chain information becomes available.**

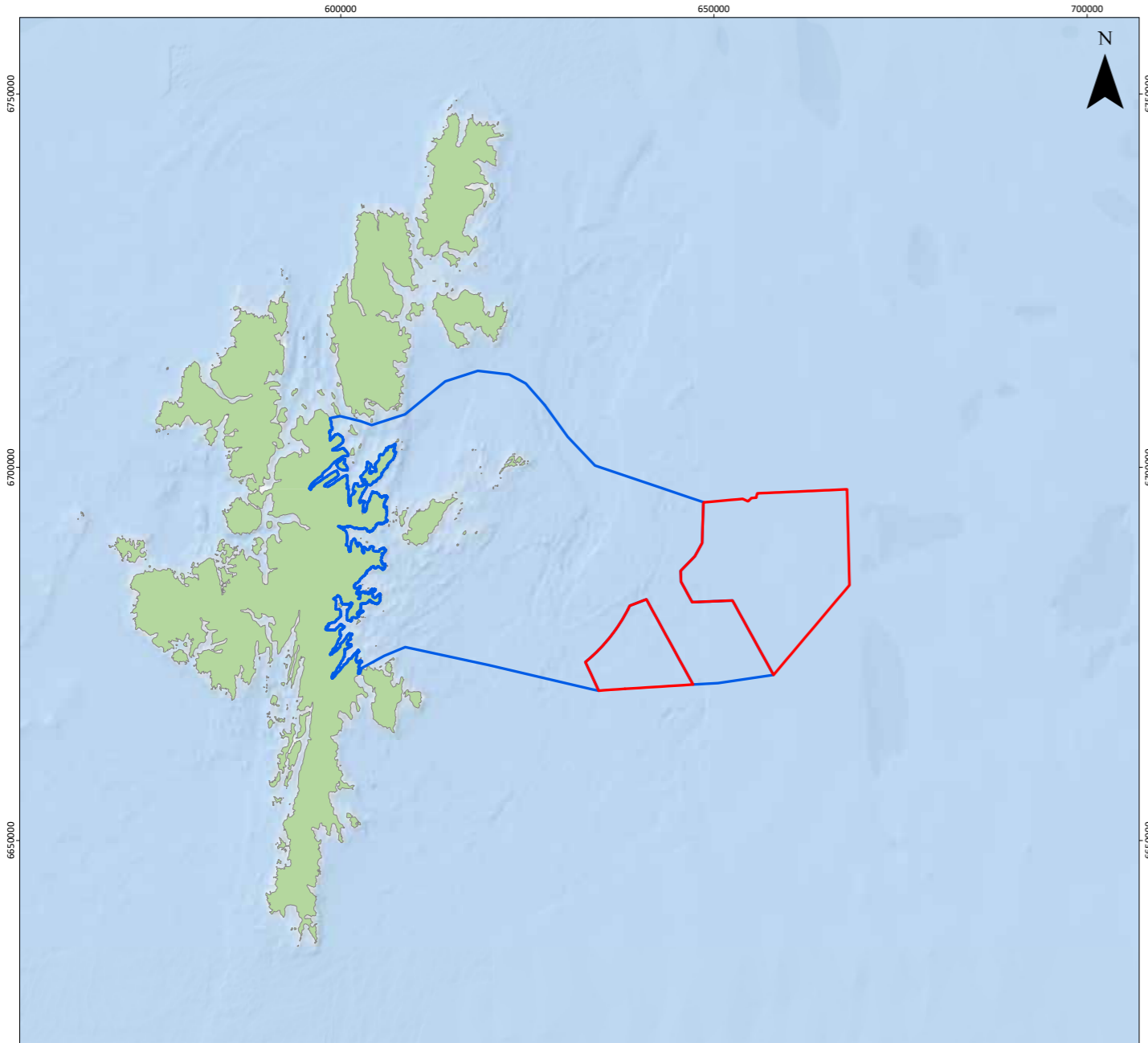


Figure Reference: AVN\_Fig1\_Scoping\_Boundary\_Template\_v1 © This drawing and its content are the copyright of Arven Offshore Wind Farm and may not be reproduced or amended except by prior written permission.

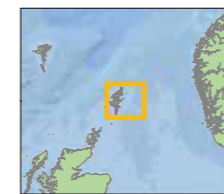


Arven Offshore Wind Farm

Scoping Boundary

Legend

- Array Areas
- Scoping Boundary



**Notes**  
 Esri, Garmin, GEBCO, NOAA  
 NGDC, and other contributors  
 Contains Ordnance Survey data  
 © Crown copyright and database  
 rights (2023). OS OpenData.

Coordinate System:  
 WGS 1984 UTM Zone 30N

0 10 20 km  
 0 5 10 nm

Scale 1:500,000 @A3 Date 06/02/2024 Drawn by EV Checked by CM Approved by GB

Octagon Point,  
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Figure 1

**FURTHER INFORMATION**

Our website provides further information about the project and will be updated with details about upcoming events  
[www.arvenoffshorewind.com](http://www.arvenoffshorewind.com)

Our virtual exhibition replicates the information provided at this event and can also be accessed through our website.

**FEEDBACK**

Please let us know your thoughts about the Arven Offshore Wind Farm by asking a member of the team for a copy of the community questionnaire or scanning the QR code to complete it online.

You can also email us at:  
[aaron.priest@oceanwinds.com](mailto:aaron.priest@oceanwinds.com)  
 You can write to us at:  
**FREEPOST Fchange**



Visit our website



Complete questionnaire



Email us



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