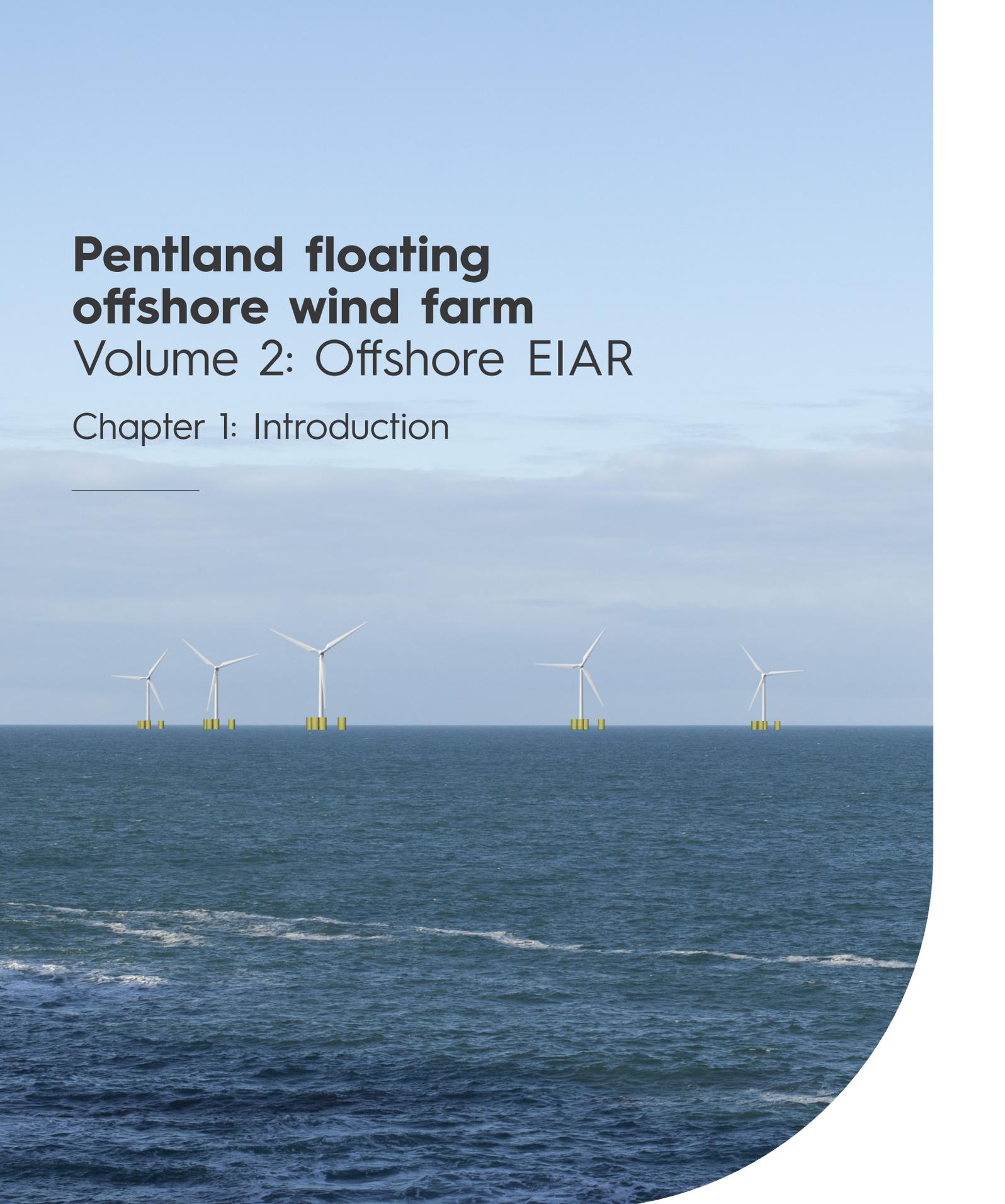


Pentland floating offshore wind farm

Volume 2: Offshore EIAR

Chapter 1: Introduction



OFFSHORE EIAR (VOLUME 2): MAIN REPORT

CHAPTER 1: INTRODUCTION

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GLOSSARY OF PROJECT TERMS

Key Terms	Definition
Dounreay Tri Floating Wind Demonstration Project (the 'Dounreay Tri Project')	The 2017 consented project that was previously owned by Dounreay Tri Limited (in administration) and acquired by Highland Wind Limited (HWL) in 2020. The Dounreay Tri Project consent was for two demonstrator floating Wind Turbine Generators (WTGs) with a marine licence that overlaps with the Offshore Development, as defined. The offshore components of the Dounreay Tri Project consent are no longer being implemented.
Highland Wind Limited	The Developer of the Project (defined below) and the Applicant for the associated consents and licences.
Landfall	The point where the Offshore Export Cable(s) from the PFOWF Array Area, as defined, will be brought ashore.
Offshore Export Cable(s)	The cable(s) that transmits electricity produced by the WTGs to landfall.
Offshore Export Cable Corridor (OECC)	The area within which the Offshore Export Cable(s) will be located.
Offshore Site	The area encompassing the PFOWF Array Area and OECC, as defined.
Onshore Site	The area encompassing the PFOWF Onshore Transmission Infrastructure, as defined.
Pentland Floating Offshore Wind Farm (PFOWF) Array and Offshore Export Cable(s) (the 'Offshore Development')	All offshore components of the Project (WTGs, inter-array and Offshore Export Cable(s), floating substructures, and all other associated offshore infrastructure) required during operation of the Project, for which HWL are seeking consent. The Offshore Development is the focus of this Environmental Impact Assessment Report.
PFOWF Array	All WTGs, inter-array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the PFOWF Array Area, as defined, excluding the Offshore Export Cable(s).
PFOWF Array Area	The area where the WTGs will be located within the Offshore Site, as defined.
PFOWF Onshore Transmission Infrastructure (the 'Onshore Development')	All onshore components of the Project, including horizontal directional drilling, onshore cables (i.e. those above mean low water springs), transition joint bay, cable joint bays, substation, construction compound, and access (and all other associated infrastructure) across all project phases from development to decommissioning, for which HWL are seeking consent from The Highland Council.
PFOWF Project (the 'Project')	The combined Offshore Development and Onshore Development, as defined.

ACRONYMS AND ABBREVIATIONS

CIP	Copenhagen Infrastructure Partners P/S
COP	Copenhagen Offshore Partners A/S
OECC	Offshore Export Cable Corridor
EIA	Environmental Impact Assessment
HWL	Highland Wind Limited
km	kilometres
m	metres
MS	Marine Scotland
MS-LOT	Marine Scotland Licensing Operations Team
MW	Megawatts
Offshore EIAR	Offshore Environmental Impact Assessment Report
PFOWF	Pentland Floating Offshore Wind Farm
S.36	Section 36 Consent
THC	The Highland Council
UK	United Kingdom
US	United States of America
WTG	Wind Turbine Generator

1 INTRODUCTION

This Offshore Environmental Impact Assessment Report (Offshore EIAR) has been prepared by Xodus Group Limited (Xodus) on behalf of Highland Wind Limited (HWL) (the 'Applicant') in support of an application to Marine Scotland (MS) for Section 36 (S.36) Consent, under the Electricity Act 1989 and Marine Licences, as required, under the Marine (Scotland) Act 2010. The application is to construct and operate the Pentland Floating Offshore Wind Farm (PFOWF) (the 'Project'). The Project includes the PFOWF Array and Offshore Export Cable(s), which are hereafter referred to as the 'Offshore Development'. The application has been prepared to meet the requirements of the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017.

The PFOWF Array Area, where the Wind Turbine Generators (WTGs) will be located, is situated approximately 7.5 kilometres (km) off the coast of Dounreay, Caithness. The Offshore Export Cable Corridor (OECC) extends south from the PFOWF Array Area to a landfall located at the Dounreay coast. The location of the Offshore Site, within which the Offshore Development will be located, is shown in Figure 1.1.

This Offshore EIAR comprises four volumes:

- > Volume 1: Non-Technical Summary;
- > Volume 2: Main Report;
- > Volume 3: Technical Appendices; and
- > Volume 4: Visual Materials.

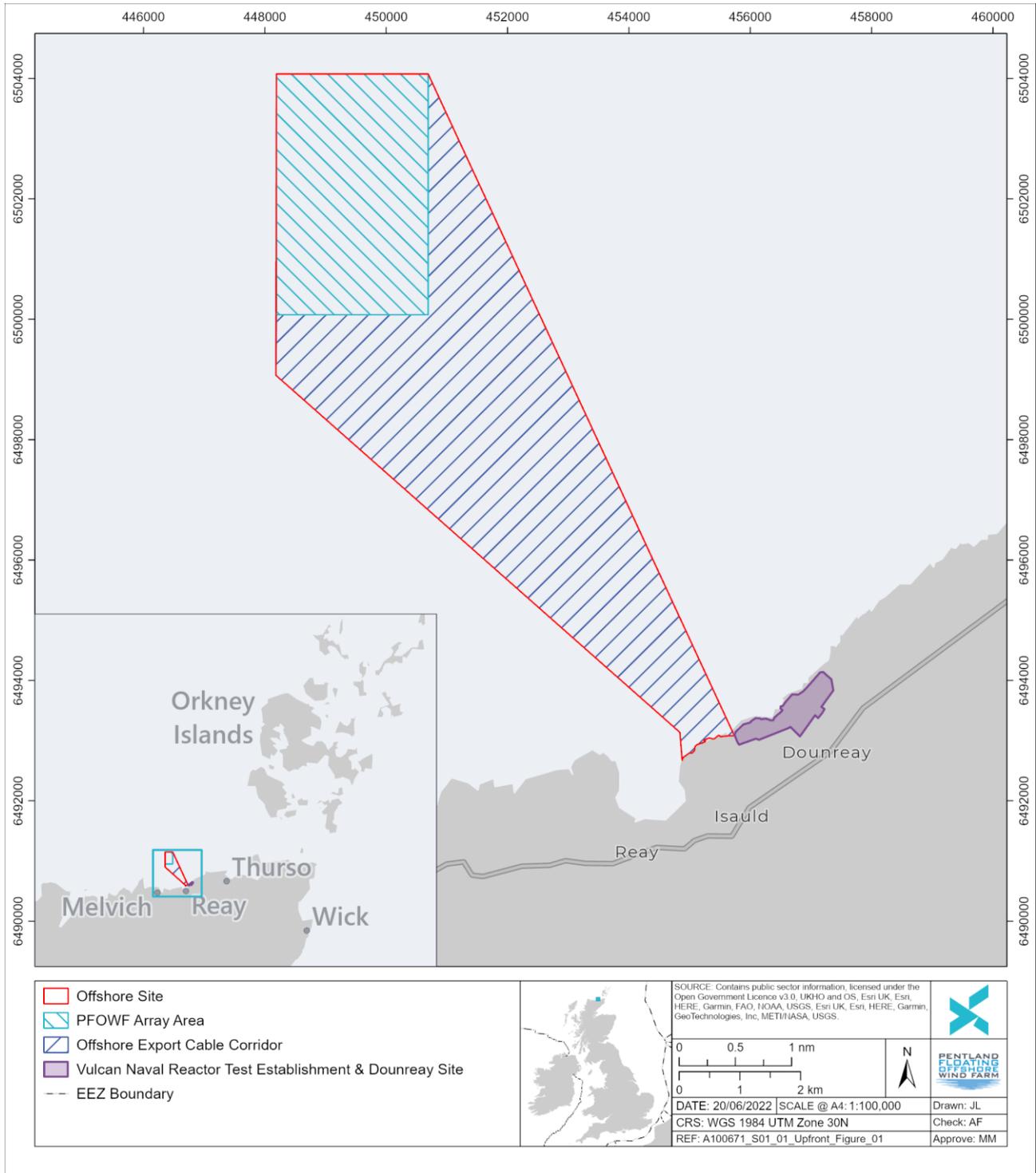


Figure 1.1 Offshore Development location

1.1 The Development

HWL are proposing to develop, construct, and demonstrate a floating offshore wind farm with an installed capacity of around 100 megawatts (MW) approximately 7.5 km off the coast of Dounreay, Caithness, known as the PFOWF or the 'Project'.

The Project will comprise:

- > **The PFOWF Array and Offshore Export Cable(s) (the 'Offshore Development')**: An array of up to seven floating WTGs connected by subsea inter-array cables, and supported by floating structures, mooring lines, and anchors. An Offshore Export Cable(s) will carry the power generated by the Project to a landfall located at the Dounreay coast (see Figure 1.1); the Offshore Development is the focus of this Offshore EIAR; and
- > **The PFOWF Onshore Transmission Infrastructure (the 'Onshore Development')**: All transmission infrastructure associated with the Project landward of mean low water springs. Buried onshore cables will transmit power from the PFOWF Array inland to a new substation, where the Project will connect to the transmission network. HWL have received agreement from Scottish and Southern Electricity Networks Transmission for connection into the existing Scottish and Southern Energy Dounreay Substation. The Onshore Development will be subject to a separate consent application to The Highland Council (THC).

1.2 The Purpose of the Offshore EIAR

HWL are seeking S.36 Consent for the Offshore Development, as required under the Electricity Act 1989, and Marine Licences, as required under the Marine (Scotland) Act 2010.

In accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 and the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations'), an Environmental Impact Assessment (EIA) is specifically required:

- > Under Schedule 2 of the Marine Works EIA (Scotland) Regulations 2017 for installations for the harnessing of wind power for energy production (wind farms) if:
 - o The development involves the installation of more than two WTGs; or
 - o The hub height of any WTG or height of any other structure exceeds 15 meters (m).
- > Under Schedule 2 to the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 if:
 - o A generating station will be constructed which will require a consent under the Electricity Act 1989 but is not a Schedule 1 development. An EIA will be required if the development is likely to have a significant effect on the environment, due to factors such as their size, nature, or location.

The Offshore Development is therefore considered to be a development for which an EIA must be undertaken as the PFOWF Array will consist of more than two WTGs with a hub height of over 15 m, and the Project will include the construction of a generating station which will require consent under the Electricity Act 1989.

An Environmental Impact Assessment Report contains specific information on a development's potential environmental effects as identified through a formal EIA process. This Offshore EIAR presents such information for the Offshore Development, describing its potential environmental effects during the construction, operation and maintenance, and decommissioning phases. This Offshore EIAR also takes account of the relevant advice set out by Scottish Ministers within the Scoping Opinion (MS-LOT, 2021) and the Scoping Opinion on the Scoping Report Addendum (MS-LOT, 2022), and is in line with the MS Consenting and Licensing Guidance (Scottish Government, 2018). Additionally, this Offshore EIAR has been prepared in accordance with the Institute of Environmental Management and Assessment Guidance on Delivering Proportionate EIA (IEMA, 2017), which emphasises the importance of achieving a proportionate EIA scope, focused on potential significant effects.

This document presents the EIA for the Offshore Development and provides the environmental information required to enable a robust assessment of the potential significant effects on identified receptors throughout

the Offshore Development's life-cycle (as summarised in Section 1.5.2 and detailed in Chapter 5: Project Description). These assessments are presented within the technical assessment chapters of this Offshore EIA (Chapters 7 to 21) and cover the receptor topics outlined in Figure 1.2, as agreed through stakeholder consultation.

Several appendices have also been prepared in support of this Offshore EIA for specific technical issues. The appendices provide further information on certain surveys, modelling, and research undertaken to underpin the findings of this Offshore EIA upon which the assessment of significant environmental effects has been based. The technical appendices are provided in Volume 3 of this Offshore EIA.

The Onshore Development will be subject to a separate consent application under the Town and Country Planning (Scotland) Act 1997 (as amended), which will be submitted to THC for approval.

Whilst the Offshore Development is the focus of this Offshore EIA, where the potential exists for Onshore Development works to impact the same receptors identified and assessed in this Offshore EIA, a holistic Project-level assessment of these impacts has been completed within each of the technical chapters of this document (Chapters 7 to 21). This approach ensures this Offshore EIA provides a full assessment of any cumulative effects of the Offshore Development and the Onshore Development.

Figure 1.2 presents the structure of this Offshore EIA.

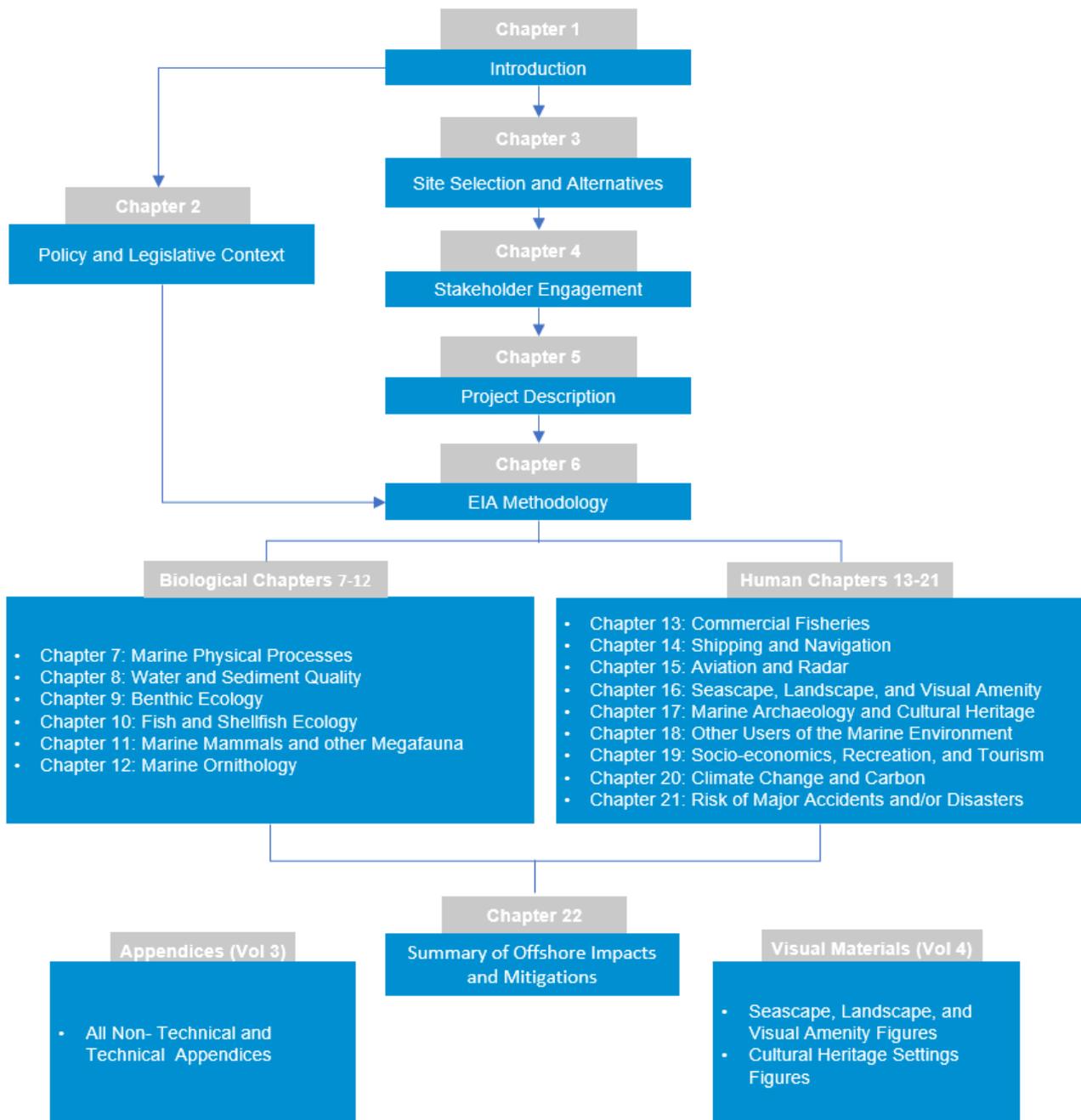


Figure 1.2 Offshore EIAR structure

1.3 The Developer

1.3.1 Highland Wind Limited

The PFOWF is being developed by HWL, a Special Purpose Vehicle established to deliver the Project.

HWL are majority-owned (90%) by a fund managed by Copenhagen Infrastructure Partners P/S (CIP) with HexiconAB as a minority shareholder (10%). Project development activities are being led by CIP's development partner, Copenhagen Offshore Partners A/S (COP).

CIP are a fund management company focused on energy infrastructure, including offshore wind, onshore wind, solar PV, biomass, energy-from-waste, transmission and distribution, and other energy assets such as reserve capacity and storage. CIP has offices in Australia, Denmark, Germany, France, Italy, Japan, the Netherlands, the United Kingdom (UK), and the United States (US). CIP was founded in 2012 by senior executives from the energy industry in cooperation with PensionDanmark. CIP manages seven funds and has approximately €16 billion (£13.82 billion) under management.

HexiconAB are a leading floating offshore wind technology and project developer. They were founded in 2009 and are headquartered in Stockholm, Sweden.

COP are a leading and experienced provider of project development, construction management, and operational management services to offshore wind projects. The company is headquartered in Denmark and has offices in Australia, Brazil, Greece, Japan, Korea, Taiwan, the UK, the US, and Vietnam. COP's team of specialists has a broad range of competencies within project management, early and late-stage project development, engineering, construction, procurement, and operational management as well as business development and project financing. The Project's development team is based in COP's Global Floating Wind Competence Centre, in Edinburgh.

1.4 Background to Development

1.4.1 Dounreay Tri Project

HWL acquired the Dounreay Tri Floating Wind Demonstration Project (the 'Dounreay Tri Project'), previously owned by Dounreay Tri Limited (in administration), in 2020. The Dounreay Tri Project was granted key consents in 2017. HWL was assigned the consents on the 3rd March 2021. Planning Permission for the ancillary onshore development for the Dounreay Tri Project was granted through a direction under Section 57(2) of the Town and Country Planning (Scotland) Act 1997 (as amended).

The development consented for the Dounreay Tri Project is summarised below:

- > A two-WTG offshore wind farm with an installed capacity of between 8 to 12 MW, located approximately 6 km off the coast of Dounreay, Caithness;
- > A single offshore export cable to bring the power to shore immediately to the west of the Dounreay Site fence line; and
- > Associated onshore infrastructure to allow the development of an onshore substation.

The original consents granted demonstrate precedent for the construction and operation of a test and demonstrator floating offshore wind farm at this location off the coast of Dounreay. Due to developments in offshore wind farm technology in recent years, the previous consents are not being progressed for the offshore components of the original consents, and a new S.36 Consent and Marine Licences are being sought for the Offshore Development as described below.

1.5 The Offshore Development Strategy

The Offshore Development is being developed at the same location as (and instead of) the consented Dounreay Tri Project; however, the Offshore Site has a smaller footprint than the area previously consented.

The Offshore Site has been refined following consultation responses and following the Pre-application Consultation (PAC) event held in May 2022 (as detailed in Chapter 3: Site Selection and Alternatives and the PAC Report accompanying this application). The PFOWF Array Area was refined to increase the setback from the Dounreay coast and decrease its overall size, thereby reducing the horizontal spread of the WTGs and minimising potential visual impacts on land-based receptors.

Additionally, from the maximum worst case scenario presented in the Scoping Report (HWL, 2020) and Scoping Report Addendum (HWL, 2021), the maximum number of WTGs to be deployed has decreased from ten to seven, further reducing potential visual impacts and impacts on other receptors, including ornithology. The Dounreay Tri Project consented boundary along with the refined PFOWF Array Area and OECC are shown in Figure 1.3.

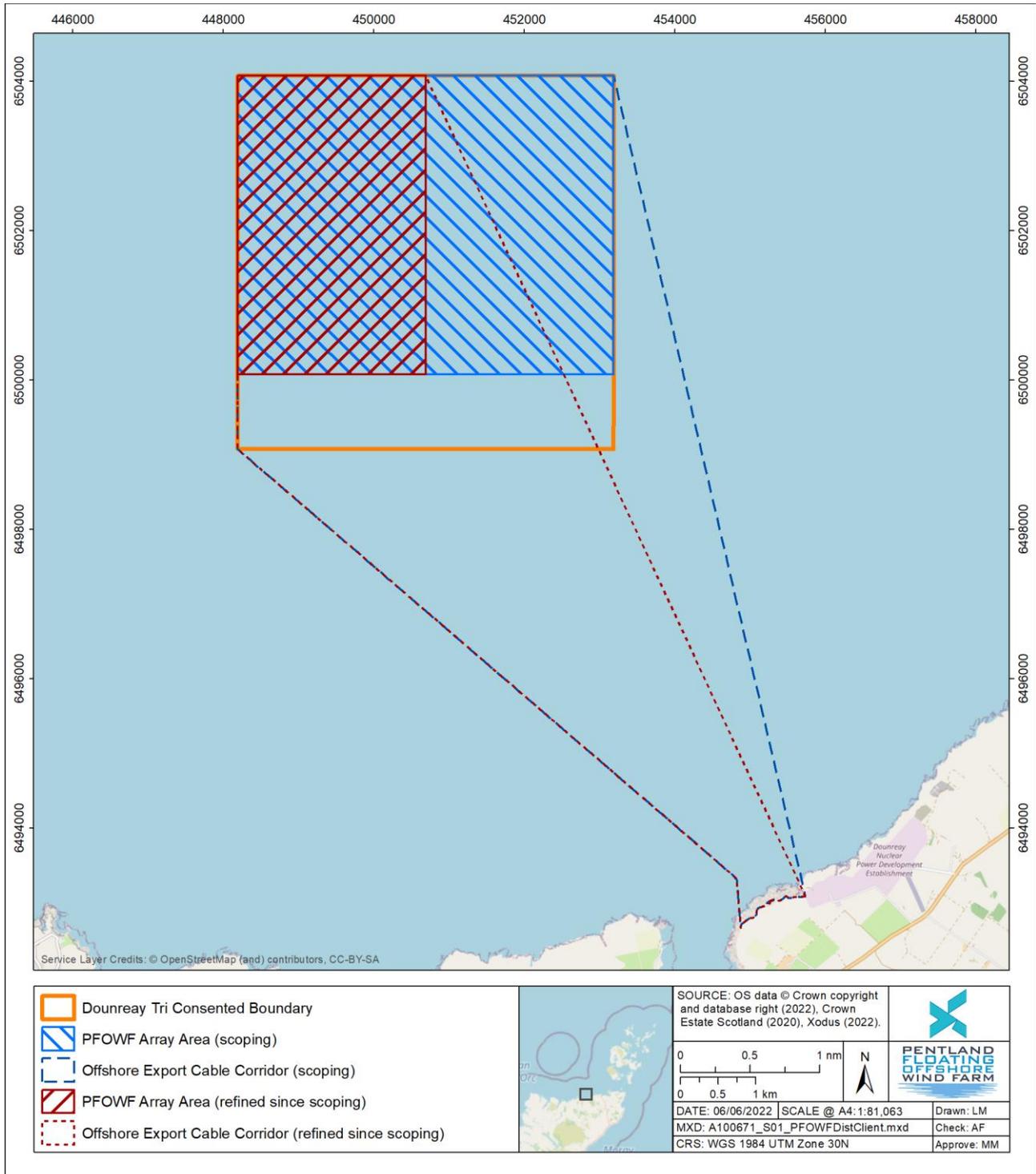


Figure 1.3 PFOWF Array Area and OECC in relation to the Doureay Tri Project consented boundary

The offshore construction activities are anticipated to commence in 2024 with the commencement of horizontal directional drilling (HDD) works at the landfall. Construction of the wind farm and installation of the Offshore Export Cable(s) is then anticipated to take place in two stages, subject to award of a new S.36 Consent and Marine Licences associated with this application:

- > **Stage 1:** The anchors for all WTGs will be installed, and a single floating demonstrator WTG and associated infrastructure may be deployed and commissioned ahead of the wider PFOWF Array to trial the technology required for the Project.
- > **Stage 2:** The remainder of the array, comprising up to seven WTGs (up to six if a single WTG is installed as part of the first stage) and associated offshore infrastructure, will be deployed to test and demonstrate commercial-scale floating wind technologies in Scotland.

The Project is anticipated to be commissioned and operational by the end of 2026.

The Offshore Development will not exceed seven WTGs, and Stage 2 may use elements built out to deliver the single floating demonstrator WTG in Stage 1. The deployment of a single WTG in this year provides a valuable test and demonstration opportunity for the floating technology proposed. Any lessons learned will be fed back into the construction of the remaining WTGs.

The construction methodology and timescales detailed above are indicative at this stage. Should consent be granted for the Offshore Development, consent conditions will require full details of the construction programme, construction sequencing, and installation methodologies to be confirmed within the Construction Programme and Construction Method Statement for the Offshore Development. These will be submitted to the Marine Scotland Licensing Operations Team for approval on behalf of Scottish Ministers.

1.5.1 Offshore Development Proposal

The key components of the Offshore Development are as follows:

- > Up to seven floating offshore Wind Turbine Generators (WTGs);
- > Up to seven associated floating substructures;
- > Up to nine mooring lines for each floating substructure (63 in total);
- > Up to nine anchors or piles for each floating substructure (63 in total);
- > Up to seven inter-array cables (dynamic and static);
- > Up to two offshore export cables (continuation of inter-array cables to bring power ashore), with landfall achieved via Horizontal Directional Drilling (HDD); and
- > Associated scour protection and cable protection (if required).

A full description of the above components is provided in Chapter 5: Project Description.

1.6 Project Team

HWL are responsible for producing this Offshore EIAR with the assistance of the lead EIA consultant, Xodus, who have project managed and coordinated the production of this Offshore EIAR with input from specialist consultants. These specialists have contributed to the development and production of this Offshore EIAR, including through consultation with relevant stakeholders and preparation of the technical assessment chapters.

In line with the requirements of the EIA Regulations, as defined in Section 2.9, Offshore EIAR (Volume 3): Appendix 1.1: Details of the Project Team and provides a brief summary of the relevant expertise and experience of the competent experts involved in preparing this Offshore EIAR.

1.7 Opportunity to Comment

In accordance with legislative requirements and industry best practice, submission of the Offshore Development application will be advertised and this Offshore EIAR will be publicly available. Stakeholder engagement will continue following submission, and there will be an opportunity to make formal representations to Scottish Ministers.

Paper copies of this Offshore EIAR and other documentation are normally made available to view at publicly accessible locations. However, the Marine Works and Marine Licensing (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 and the Electricity Works (Miscellaneous Temporary Modifications) (Coronavirus) (Scotland) Regulations 2020 make temporary modifications to the usual requirements placed on developer companies to make the application and EIA documentation physically available for public inspection in public places within the local area. The modifications require developer companies to instead ensure that all required documentation is available electronically for public inspection.

As such, this Offshore EIAR, including all figures, technical appendices, and accompanying documents, are available to view on the Project website at www.pentlandfloatingwind.com. Anyone having difficulty accessing the application documents through this website can contact Pentland-stakeholder@cop.dk for assistance. The application documents are also available via the MS website at <https://marine.gov.scot/marine-licence-applications>. If you wish to comment on this Offshore EIAR or make representations to MS, you must do so within 30 days from the last advert. Please email MS at the following address: ms.marinerenewables@gov.scot, or write to MS at:

Scottish Government
Marine Scotland Licensing Operations Team
Marine Laboratory
PO Box 101
375 Victoria Road
Aberdeen
AB11 9DB

1.8 References

Highland Wind Limited (HWL) (2020). Request for Scoping Opinion. Pentland Floating Offshore Wind Farm EIA Scoping Report. A-100671-S00-REPT-001. 16 December 2020. <https://marine.gov.scot/data/scoping-request-pentland-floating-offshore-wind-farm> [Accessed 12/01/2022].

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