Offshore Wind Power Limited

West of Orkney Windfarm Offshore EIA Report

Volume 1, Chapter 1 - Introduction

WO1-WOW-CON-EV-RP-0017: Approved by S.Kerr
Document Control 18/09/2023

ASSIGNMENT L100632-S05

DOCUMENT L-100632-S05-A-ESIA-001

XODUS

West of Orkney Windfarm

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REV	DATE	DESCRIPTION	ISSUED	CHECKED	APPROVED	CLIENT
A01	30/08/2023	Issued for Use	JG	DB	DB	OWPL
R03	31/03/2023	Re-issued for Review	JG	DB	DB	OWPL
R02	14/11/2022	Re-issued for Review	DB	JG	DB	OWPL
R01	02/09/2022	Issued for Review	CM	EE	DB	OWPL

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1 INTRODUCTION

1.1 The Project

The applicant, Offshore Wind Power Limited (OWPL) is proposing the development of the West of Orkney Windfarm ('the Project'), an Offshore Windfarm (OWF), located approximately 23 kilometres (km) from the north coast of Scotland and 28 km from the west coast of Hoy, Orkney. Crown Estate Scotland (CES) awarded OWPL the Option Agreement Area (OAA) in January 2022 for the development of the proposed Project following the ScotWind leasing round which launched in June 2020.

CES awarded OWPL an OAA within the "N1" Plan Option (PO) to the west of Orkney in January 2022 for the development of the proposed Project following the ScotWind leasing round. The ScotWind leasing round was launched in June 2020 and resulted in 17 developments being awarded OAA's in January 2022. A further three developments were awarded OAA's in April 2022 as part of the ScotWind clearing process. Considering the additional clearing process, the ScotWind leasing round brings a new potential energy supply of 27.6 Gigawatt (GW) from the 20 developments. The Scottish Government published the Sectoral Marine Plan for Offshore Wind Energy in October 2020 following over two years of extensive analysis, consideration and engagement with a wide range of stakeholders.

The Project has a connection agreement with National Grid for a connection to the grid network in Caithness on mainland Scotland. Connection will be to a new Scottish Hydro Electric Transmission plc (SHET-L) substation located at Spittal. OWPL are responsible for the construction and operation of their own onshore substation (in order to ensure its power is grid compliant).

The location of the offshore Project area which defines the 'Red Line Boundary' for the Section 36 Consent and Marine Licence applications and includes the OAA and the associated offshore Export Cable Corridor (ECC), is shown in Figure 1-1. The total area of the OAA is 657 km^2, of which 45% of is located in the Scottish Island Marine Area, as designated under the Islands' (Scotland) Act 2018. The total area of the ECC is 125 km^2 of which 79% is located within territorial waters.

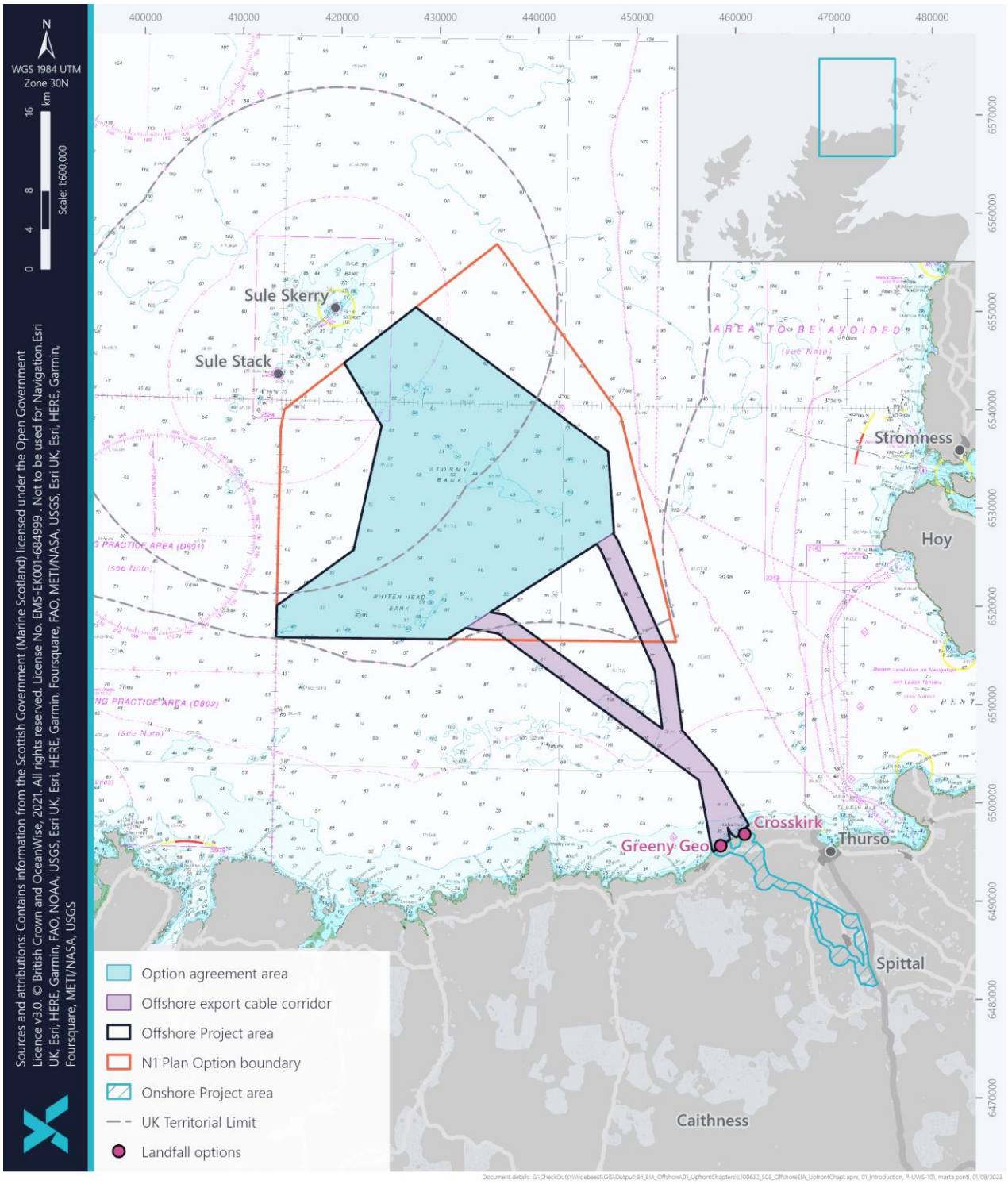

Figure 1-1 Offshore Project overview

OWPL are submitting separate consent applications for the offshore Project (the offshore components (seaward of Mean High Water Springs (MHWS)) and for the onshore Project (the onshore components (landward of Mean Low Water Springs (MLWS)) in order to consent the OWF and export of power to Caithness. To this end:

- OWPL are seeking Section 36 Consent for the offshore Project, as required under the Electricity Act 1989, a declaration under Section 36A of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places within the Scottish Marine Area where the Wind Turbine Generators (WTGs) will be located, and Marine Licences, as required under the Marine (Scotland) Act 2010 and the Marine and Coastal Access Act 2009. This Offshore Environmental Impact Assessment (EIA) Report supports these applications; and
- The onshore Project will be subject to a separate application under the Town and Country Planning (Scotland) Act 1997 (as amended), which will be submitted to The Highland Council for approval. It is anticipated that the onshore application will be submitted in October 2023. A separate Onshore EIA Report has been prepared to support the planning application for Planning Permission in Principle (PPP).

The proposed Flotta Hydrogen Hub (Flotta, Orkney) provides a second power export opportunity for the Project. OWPL are currently negotiating the terms of this private wire export option through a 'Power Purchase Agreement'. These negotiations will provide clarity on the timing for the availability of this power export option and will determine the timing of a subsequent separate Marine Licence application and planning application for the offshore and onshore transmission infrastructure to the Flotta Hydrogen Hub.

Scapa Deep Water Quay

Orkney Islands Council Harbour Authority (OICHA) are applying for permission to develop the Scapa Deep Water Quay. This is a separate development to Project. The main purpose of the quay would be to support multiple industrial activities that require both deep-water berthing and a laydown area. OICHA envisage that the primary use of the facility shall be the assembly of offshore WTGs for multiple offshore wind developments in the north of Scotland. The Scapa Deep Water Quay was one of five developments identified in OICHA's Orkney Harbours Masterplan Phase 1 which was approved by OIC in August 2020. Deep Water Quay is a purpose-built facility that shall be developed, owned and operated by OICHA.

1.2 The Developer

OWPL is comprised of a consortium of the following companies in order to deliver the Project.

CORIO	CORIO - Corio Generation is a Macquarie Green Investment Group portfolio company, operating on a standalone basis. Corio has a project pipeline of over 20 GW. Their global team of offshore wind specialists take projects from origination, through development and construction, and into operations.
TotalEnergies	TotalEnergies – one of the largest offshore operators on the United Kingdom (UK) continental shelf, majority owner of Seagreen OWF and the Shetland Gas Plant. Targeting 35 GW of renewables by 2025 and 100 GW by 2030.
RIDG	Renewable Infrastructure Development Group (RIDG) – Scottish offshore wind project developer with over 40 years' experience in the sector, set up to deliver high value projects alongside strategic partners.

1.3 Purpose of the Offshore EIA Report

In accordance with the Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017, the Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations') and the Marine Works (Environmental Impact Assessment) Regulations 2007, collectively known as the EIA Regulations, an EIA is specifically required for the offshore Project (see chapter 3: Planning policy and legislative context for further information).

An EIA report contains specific information on a project's potential environmental effects as identified through the EIA. This Offshore EIA Report presents such information for the offshore Project, describing its potential environmental effects during the pre-construction, construction, operation and maintenance, and decommissioning stages.

This Offshore EIA Report takes account of the relevant advice set out by Scottish Ministers within the Scoping Opinion (29th June 2022[1]) and has considered the Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications (Scottish Government, 2018) and Scottish Government Guidance on Using the Design Envelope for Applications under Section 36 of the Electricity Act 1989 (Scottish Government, 2022). Additionally, this Offshore EIA Report has been prepared in accordance with the Institute of Environmental Management and Assessment (IEMA) Guidance on Delivering Proportionate EIA (IEMA, 2017), which emphasises the importance of achieving a proportionate EIA scope, focused on potential significant effects.

This Offshore EIA Report presents the EIA for the offshore Project and provides the environmental information required to enable a robust assessment of the potential significant effects on identified receptors throughout the offshore Project's life-cycle (as summarised in section 1.1 and detailed in chapter 5: Project description). These assessments are presented within the topic-specific chapters of this Offshore EIA Report (chapters 8 to 20) and cover the receptor topics outlined in section 1.6, as agreed through stakeholder consultation.

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

Whilst the offshore Project is the focus of this Offshore EIA Report, where the potential exists for onshore Project works to impact the offshore receptors, this has been identified and assessed in this Offshore EIA Report. Each topic-specific chapter presents a whole Project assessment of the relevant onshore impacts alongside the offshore impacts. This approach ensures this Offshore EIA Report provides a full assessment of any combined effects of the offshore Project and the onshore Project and ensures neither the offshore Project nor the onshore Project are considered in isolation. A summary of the key findings of the Onshore EIA Report is also provided in chapter 21: Onshore EIA summary.

[1] https://marine.gov.scot/sites/default/files/scoping_opinion_-_west_of_orkney_-_june_2022.pdf

The Habitats Regulations require for the consideration of potential effects from projects and plans on European sites, including Special Areas of Conservation (SACs), candidate SACs (cSACs), Special Protection Area (SPAs), potential SPAs (pSPAs), Sites of Community Importance and Ramsar sites. An Offshore Habitats Regulations Appraisal (HRA) Screening report (OWPL, 2022) was submitted to Marine Scotland[2] in September 2022 and outlined the details of the offshore Project and an assessment of whether, in view of best scientific knowledge, there was the potential for the offshore Project, individually or in combination with another plan or project, to have potential for Likely Significant Effect (LSE) on a European site. An Offshore Report to inform Appropriate Assessment (RIAA) has been submitted alongside this Offshore EIA Report and provides the Competent Authority with the information required to assist them in undertaking an Appropriate Assessment and determine whether there is any 'adverse effect on site integrity' on European sites from the offshore Project.

1.4 Project definitions

The following definitions have been used throughout this Offshore EIA Report to describe the specific components and areas relating to the Project:

Table 1-1 Project definitions

TERM	DEFINITION
Project components	
West of Orkney Windfarm / 'the Project'	The entire offshore and onshore Projects, including all offshore components and onshore components and all Project phases from pre-construction to decommissioning. For the avoidance of doubt this does not include the offshore or onshore infrastructure associated with the connection to the Flotta Hydrogen Hub.
offshore Project	The entire offshore Project, which defines the Red Line Boundary for the Section 36 consent and the Marine Licence applications, including all offshore components seaward of MHWS (WTGs, cables, foundations, Offshore Substation Platforms (OSPs) and all other associated infrastructure), and all Project phases from pre-construction to decommissioning, including temporary works. The offshore Project is the focus of this Offshore EIA Report.
onshore Project	The entire onshore Project, which defines the Red Line Boundary for the planning application, including all onshore components landward of MLWS (underground cables, substation, access, and all other associated infrastructure) and all Project phases from construction to decommissioning, including temporary works.
Wind Turbine Generator (WTG)	The wind turbines that generate electricity consisting of tubular towers and blades attached to a nacelle housing mechanical and electrical generating equipment.

[2] *Now the Marine Directorate.*

TERM	DEFINITION
foundation	The foundation on which the WTGs or OSPs are installed.
offshore export cables	A High Voltage Alternating Current (HVAC) subsea power cable system, consisting of a three-core armoured submarine power cable with one (or more) fibre optic units embedded in the interstice, running from the OSPs to the Transition Joint Bay (TJB) (up to the point of MHWS). The offshore export cables transmit the electricity generated from the OWF to the onshore export cables for transmission onwards to the onshore substation.
Offshore Substation Platform (OSP)	Offshore platforms consisting of HVAC substations.
offshore transmission infrastructure	The proposed transmission infrastructure comprising OSPs, and associated foundations, and the offshore export cables.
landfall	The location where the export cables will be brought ashore. The interface between the offshore and onshore environment.
onshore export cables	The buried electricity cables, each consisting of three power cables, an earth cable, and a fibre optic communications cable buried as one unit within a single trench running from the TJB (landward of MLWS) to the onshore substation, connecting the Project to the grid.
onshore substation	Contains the electrical components for transforming the power supplied from the Project via the offshore and onshore export cables to meet the export requirements.
onshore transmission infrastructure	The proposed onshore transmission infrastructure comprising the onshore export cables and onshore substation.
EIA Project boundaries	
Option Agreement Area (OAA)	The OAA covers the array area in which the generation infrastructure including WTGs, OSPs and interconnector cables will be located. The OAA is the area of seabed that OWPL have been awarded through the ScotWind leasing process, over which CES will grant a lease in the event that the developer succeeds in obtaining all the necessary consents and the Project achieves Final Investment Decision (FID).
offshore Export Cable Corridor (ECC)	The area within which the offshore export cables will be installed.
onshore Export Cable Corridor (ECC)	The area within which the onshore export cables will be installed.
onshore substation area of search	The area within which the onshore substation will be located.

TERM	DEFINITION
Study areas	
offshore study area	Receptor specific area used to characterise the baseline. Each topic specific chapter will define what is considered to be the offshore study area and refer to this throughout as e.g. the benthic ecology offshore study area.
onshore study area	Receptor specific area used to characterise the baseline. Each topic specific chapter will define what is considered to be the onshore study area and refer to this throughout as e.g. the landscape and visual onshore study area.
EIA terminology	
Offshore EIA Report	A report documenting the findings of the environmental impact assessment for the offshore Project in accordance with relevant regulations, including a summary of the findings of the environmental impact assessment for the onshore Project.
Onshore EIA Report	A report documenting the findings of the environmental impact assessment for the onshore Project in accordance with relevant regulations, including a summary of the findings of the environmental impact assessment for the offshore Project.
mitigation measures	Measures considered within the topic-specific chapters in order to avoid impacts or reduce them to acceptable levels. • Primary mitigation - measures built into the design of the Project which reduce or avoid the likelihood or magnitude of an adverse environmental effect, including location or design; • Secondary mitigation – additional measures implemented to further reduce environmental effects to 'not significant' levels (where appropriate) and do not form part of the fundamental design of the offshore Project; and • Tertiary mitigation – measures that are required through standard practice or to meet legislative requirements and are independent of the EIA (i.e. they would be implemented regardless of the findings of the EIA). Primary and tertiary mitigation are referred to as embedded mitigation. Secondary mitigation is referred to as additional mitigation.
whole Project assessment	The consideration of onshore Project impacts affecting offshore receptors to provide a holistic assessment of the whole Project. Each topic chapter presents a whole Project assessment of relevant onshore impacts to ensure that any interactions are identified and assessed.
cumulative assessment	The consideration of potential impacts that could occur cumulatively with other relevant projects (i.e. developments), plans and activities, that could result in a cumulative effect on receptors.
transboundary assessment	The consideration of impacts from the offshore Project which have the potential to have a significant effect on another European Economic Area (EEA) state's environment. Where there is

TERM	DEFINITION
	a potential for a transboundary effect, as a result of the offshore Project, these are assessed and detailed within the relevant EIA chapter.
Project Design Envelope	Project parameters that are assessed as part of the EIA for a Project.
worst-case scenario	The design parameters for the different elements of the Project (both on and offshore) considered to be a worst case for any given assessment.
stakeholder engagement	Non-statutory stakeholder engagement.
stakeholder consultation	Statutory stakeholder consultation.
regulator	Consenting authority (e.g. Marine Directorate - Licensing Operations Team (MD-LOT)[3] / The Highland Council).

1.5 The EIA team

Xodus Group Limited (Xodus) was appointed by OWPL to lead the production of the Offshore EIA Report. Xodus have been supported during the EIA by a number of specialists, independent and suitably qualified consultants and subcontractors.

Xodus have project managed the production of this Offshore EIA Report, including the compilation of the baseline data, analysis and interpretation, the assessment process, including Cumulative Impact Assessment (CIA), consenting, mitigation and monitoring.

Specialist consultants, listed in Table 1-2 below, have supported the EIA to date, including consultation with relevant stakeholders and preparation of the specialist chapters of the Offshore EIA Report. In line with the requirements of the EIA Regulations, Table 1-2 provides a brief summary of the relevant expertise and experience of the technical consultants involved in preparing this Offshore EIA Report.

[3] *MD-LOT were previously known as Marine Scotland – Licensing Operations Team (MS-LOT).*

Table 1-2 Specialist consultants part of the offshore EIA team

TECHNICAL SPECIALISM	CONSULTANT	RELEVANT EXPERTISE AND EXPERIENCE
Introductory chapters	Xodus	Xodus is an independent, international energy consultancy with a track record in all areas of offshore wind project development, from initial site-selection and project concept definition through to EIA, consent, post-consent, installation and operational support. With over 15 years' experience in offshore wind, Xodus has developed a breadth and depth of capability that allows it to support all aspects of project development.
Marine physical and coastal processes / Water and sediment quality	Xodus (with support from Port and Coastal Solutions)	Lead author Anna Chaffey (PhD) is a Chartered Scientist, Chartered Marine Scientist and Member of the Institute of Marine Engineering, Science and Technology (MIMarEST). She is a Principal Environmental Consultant and specialises in marine physical processes and water and sediment quality topics, with over 14 years' experience in offshore, coastal and estuarine environments. The physical processes modelling to support the marine physical processes assessment was undertaken by Port and Coastal Solutions. Port and Coastal Solutions are a consultancy founded in 2017 who provide specialist services relating to understanding coastal processes and development coastal management solutions, such as conceptual hydrodynamic, wave, and sediment transport models.
Benthic subtidal and intertidal ecology	Xodus	Lead author John Spence has 14 years professional experience which has encompassed all phases of benthic environmental surveys from project inception through to analysis and reporting and follow-up monitoring. John has an undergraduate degree in Marine Biology and honed his marine invertebrate taxonomy skills while working as a volunteer at the wet collections in the National Museum of Scotland. John further developed these skills during his time with Fugro and within the Shell environment team, where he worked as a Marine Biologist, participating in numerous benthic environmental surveys in Shetland, the Central and Southern North Sea using sediment grabs and Remotely Operated Vehicles (ROV) / drop down video and water sampling equipment, and contributing towards the field reports, final survey reporting, analysis of video footage and impact assessment chapters. At Xodus, John continues to provide technical expertise in the area of environmental survey and benthic ecology including survey design, developing scopes of work, assisting with survey video interpretation and leading on benthic impact assessment chapters within EIA.
Fish and shellfish ecology	Xodus	Lead author Jane Gordon is a Lead Environmental Consultant who has been providing environmental support for offshore renewables for over four years. She has experience across various aspects and phases of projects, which has provided her with a holistic approach to her work and a strong technical understanding of potential impacts on the marine environment. Jane has experience conducting impact assessments for a number of EIA topics, with a recent focus on fish and shellfish ecology and commercial fisheries.

TECHNICAL SPECIALISM	CONSULTANT	RELEVANT EXPERTISE AND EXPERIENCE
Commercial fisheries	Xodus	Lead author Femke de Boer completed her MSc in Applied Marine and Fisheries Ecology at the University of Aberdeen and went on to work as the inshore policy officer at the Scottish White Fish Producers Association. During this time, she liaised with many (mainly Scottish) licenced windfarm projects and cable projects, as well as proposed projects in the ScotWind leasing round and Innovation and Targeted Oil & Gas projects and has been involved in a number of different fisheries working groups associated with offshore wind. Femke has assisted multiple offshore wind projects with their commercial fisheries and fish and shellfish ecology impact assessments and commercial fisheries baselines, supported projects as Fishery Liaison Officer and consulted and liaised directly with the commercial fisheries industry, from individual fishermen to associations and federations. She has also assisted in responding to fishery-related governmental consultations and delivered fisheries presentations and descriptions.
Other sea users	Xodus	Lead author Ashley Hecklinger joined Xodus in August 2022 as a Graduate Environmental Consultant after completing an MSc in Marine Conservation at the University of Aberdeen. During her studies she completed modules in ornithology, ichthyology, marine and fisheries ecology conservation and management, fisheries science, and marine spatial planning. Ashley has been supported by Jane Gordon in the preparation of the other sea users chapter, who has over four years' experience in marine consenting and EIA.
Marine mammals and megafauna	HiDef (with support from Sea Mammal Research Unit (SMRU) and Subacoustech Ltd)	HiDef are a leading environmental consultancy with over 15 years' experience in the marine sector. They are the industry leaders in digital video aerial surveys and have provided baseline data and EIA / HRA consultancy services for renewable projects across the UK and Europe. Together with sister companies BioConsult (Germany) and Biotope (France), HiDef have provided baseline data for 44 offshore windfarms and have provided consultancy services for almost 20 national and international projects. Topic lead is Dr Kelly Macleod, (BA Biological Sciences; MRes Environmental Science; PhD Marine Mammal Science). Kelly is Head of Science at HiDef, bringing over 20 years' experience in marine mammal science. SMRU Consulting is a leading marine mammal consultancy with extensive experience in assessing the impacts of offshore projects on marine mammals. The team includes highly specialised staff with decades of experience in marine mammal research, biology, and impacts of noise on marine mammals. SMRU have provided EIAs, HRAs and CIAs for several offshore activities around the UK and ensure noise impact assessments use the latest and best scientific data available. SMRU Consulting have extensive experience producing robust and quantitative assessments of the potential impact of underwater noise resulting from offshore activities, including quantification of impact for auditory injury and behavioural responses, always incorporating the most up-to-date and project-relevant data, scientific understanding and methods. Subacoustech Ltd are leading consultants in the field of noise in the marine environment and provide specialist services in all aspects of underwater noise modelling and surveying. Lead author and underwater noise specialist, Tim Mason has continuous post-graduate consultancy experience since 2001 in design and assessment of underwater and traditional airborne noise situations. Responsible for project

TECHNICAL SPECIALISM	CONSULTANT	RELEVANT EXPERTISE AND EXPERIENCE
		management and QA in addition to technical consultancy and reporting. Acts as an expert witness for planning enquiries and hearings with respect to underwater noise and its effects on marine life. Experienced in a wide range of acoustic disciplines in addition to underwater noise modelling and monitoring; other disciplines include road, rail and construction noise impacts, industrial noise mapping and control, planning and architectural acoustics, vibration and noise nuisance. Tim has delivered presentations on underwater noise impacts at national and international conferences and has been invited to speak on underwater noise at the Royal Society.
Offshore ornithology	MacArthur Green	MacArthur Green is an award winning, carbon negative environmental consultancy, with a proven capability for delivering robust EIA chapters and supporting documents for planning applications as well as providing supporting construction and monitoring plans. Central to the offshore ornithology team are Dr Ross McGregor, Dr Mark Trinder, Professor Bob Furness and Dr Nicola Goodship. Lead author Dr Ross McGregor has worked on offshore windfarm assessments and monitoring since the beginning of Round 3 and the Scottish Territorial Waters round. He has worked on offshore windfarms in Scotland, England, Wales, Ireland, and France. Dr Mark Trinder has led on assessments of ornithological risk for numerous renewable projects in Scottish, English and Irish waters, has particular expertise in population modelling as well as risk assessment and has managed the ornithology component of numerous Nationally Significant Infrastructure Projects, as well as industry and guidance work. Prof. Bob Furness is an established expert on seabird biology with a distinguished academic career researching seabirds. In 2021 Bob was ranked number one in the world out of all researchers with primary research in the field of ornithology. Bob is able to provide bespoke advice and solutions to difficult or seemingly intractable problems, which can de-risk plans and projects or reduce timescales when problems may arise. Dr Nicola Goodship has project managed onshore ornithology projects and has held various roles on Rounds 1 to 4 offshore windfarm projects in Scotland and England. She is experienced at delivering technical, EIA and HRA reports. DMP Statistical Solutions Ltd supported MacArthur Green with density surface modelling. Natural Power supported Xodus and MacArthur Green with the use of SeaBORD.
Shipping and navigation	Anatec	Anatec has extensive experience of carrying out Navigational Risk Assessments (NRAs) for offshore installation projects including offshore renewables, oil and gas installations, ports, marinas, cables, interconnectors and marine aggregate dredging in the UK and worldwide. Our key personnel have been at the forefront of the marine hazard analysis and risk management field for the past 15-25 years. In the past ten years, Anatec have completed NRAs and supported EIAs for the majority of UK OWFs. Lead authors are Sam Westwood and Adam Foster. Sam Westwood has over 20 years' experience working in the maritime industry. She specialises in navigation and risk assessments in line with UK consenting requirements, particularly in offshore renewable energy projects, and has extensive knowledge in offshore health & safety management and specialising in renewable energy projects. Sam provides services with regards to marine regulation, health and safety management and risk assessment advice for management of offshore operations. Adam Foster

TECHNICAL SPECIALISM	CONSULTANT	RELEVANT EXPERTISE AND EXPERIENCE
		has over 10 years' experience working as a risk analyst, undertaking maritime data analysis and modelling to support NRAs and EIA work for marine developments.
Marine archaeology and cultural heritage	Orkney Research Centre for Archaeology (ORCA)	ORCA is a commercial and applied research unit nested within the University of the Highlands (UHI) and Islands Archaeology Institute at Orkney College UHI and is a Registered Organisation of the Chartered Institute for Archaeologists. ORCA is experienced in advising on the marine and onshore cultural heritage implications of proposed marine developments. We have successfully undertaken a wide-ranging portfolio of large-scale projects in northern Scottish waters, from the routing of subsea pipelines and cables to marine renewable energy installations. ORCA's capabilities include the provision of robust marine and onshore historic environment EIAs, Environmental Appraisals and EIA reports. These have included baseline assessments, desk-based assessments, walkover surveys, interpretation (with SULA Diving) of multi-beam echo-sounder, side scan sonar, sub-bottom profiler and magnetometer remote sensing data, analysis of onshore and offshore geotechnical datasets for archaeological and palaeo-environmental potential, and provision of management and mitigation strategies to minimise risk and ensure that developments proceed smoothly. SULA Diving was formed in 2003 and provides commercial and scientific diving services, marine survey resources (e.g. side scan sonar, magnetometer, ROVs, and drop camera), general marine survey capability and marine geophysical survey data interpretation, with particular experience in these services to support EIA work. SULA Diving have completed with ORCA a number of applied research projects in and around Scapa Flow concerning wrecks from both World Wars, as well as other losses from the late 19th and 20th centuries.
Military and aviation	Coleman Aviation	Coleman Aviation Ltd was set up to provide independent consultancy services to the windfarm industry on aviation issues. Wing Commander Mike Coleman has over 27 years' experience working in Air Traffic Control and Air Defence operational teams for the Ministry of Defence. Over the past five years Coleman Aviation Ltd has provided advice to numerous windfarm developers in resolving windfarm related aviation issues and EIA Support.
Seascape, landscape and visual	WSP	WSP is a global engineering professional services consultancy. Environmental services are a large part of WSP's offering, of which Seascape, Landscape and Visual Impact Assessment is an established expertise. WSP is a registered practice of the Landscape Institute. Lead author is Kerttu Ots, Chartered Member of the Landscape Institute, with over 15 years' experience in landscape architecture, EIA, landscape design, and master planning.

TECHNICAL SPECIALISM	CONSULTANT	RELEVANT EXPERTISE AND EXPERIENCE
Socioeconomics	Development Economics	Development Economics Ltd is an independent research consultancy providing economic and demographic research, market analysis and consultancy advice for corporate, public and third sector clients. Services include labour market and skills analysis, demographic and social research, and the production of economic impact assessments, feasibility studies, demand assessments and funding bids. Development Economics has provided advice on 15 onshore windfarm projects and five offshore developments. The company also regularly advises on other types of energy and infrastructure developments, and also regularly advises National Grid on various grid reinforcement and investment projects. Lead author is Stephen Lucas, BSc Economics, MSc Economics, with 32 years' experience. Stephen Lucas has worked on the production and review of EIAs, appraisals, consenting and stakeholder strategy for many offshore and onshore projects in Scotland. Offshore projects include Neart na Gaoithe, Moray West and Pentland Floating Offshore Wind Farm.

1.6 Structure of the Offshore EIA Report

An overview of the structure of the Offshore EIA Report is provided in Figure 1-2.

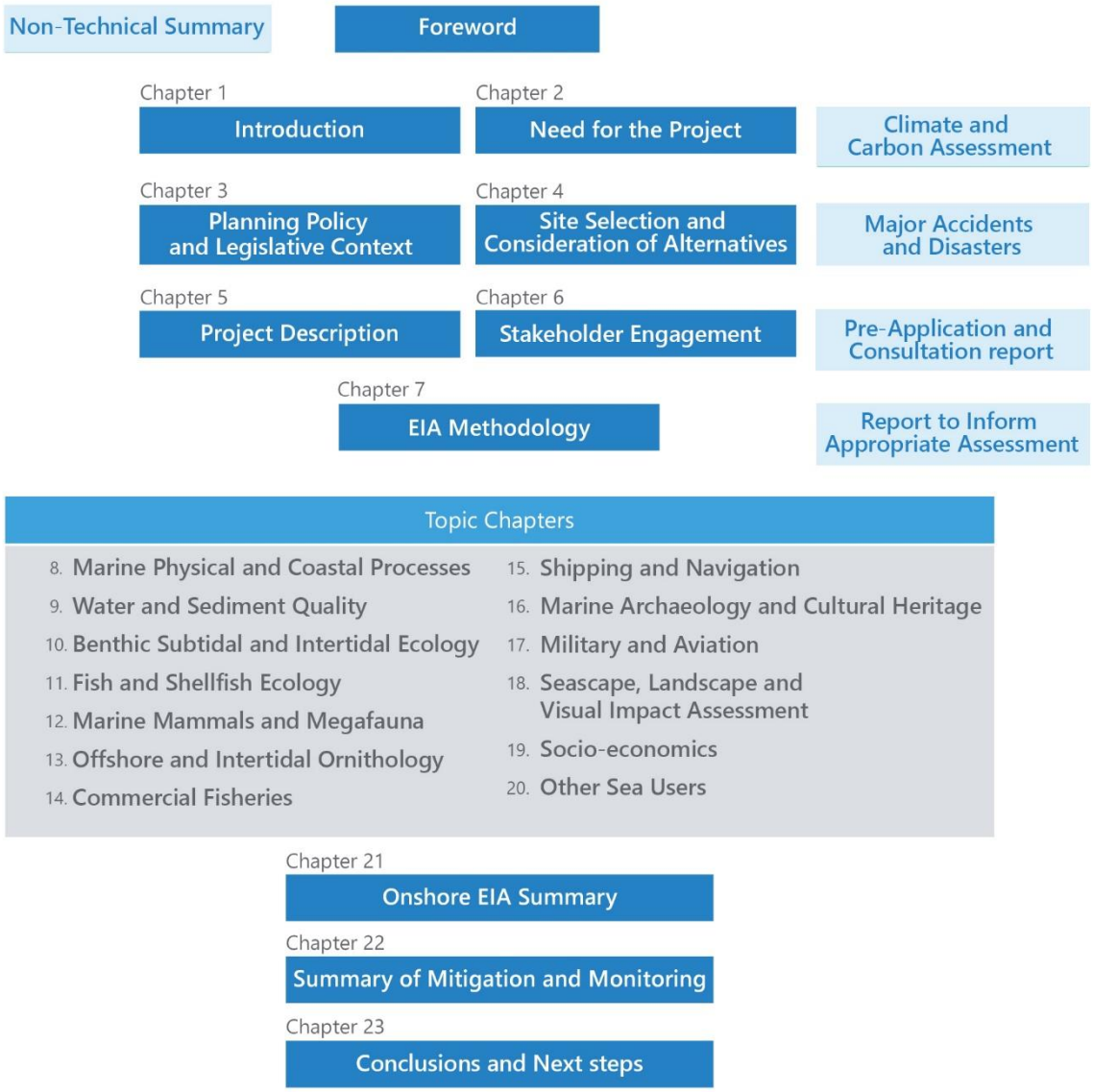

Figure 1-2 Structure of the Offshore EIA Report

Alongside the Offshore EIA Report, supporting studies are submitted providing additional information, background research and further analysis or modelling. The following outline management plans have also been provided Environmental Management Plan, Aids to Navigation Management Plan, Fish Management and Mitigation Strategy, Lighting and Marking Plan, Navigational Safety and Vessel Management Plan and Marine Mammal Mitigation Protocol.

Xodus Group, as an accredited member of IEMA, are independently recognised for producing high standard EIA Reports in accordance with best practice. The voluntary commitments to obtain the EIA Quality Mark are independently reviewed on an annual basis by IEMA to ensure registered organisations continue to deliver added value for their clients.

1.7 Opportunity to comment

In accordance with legislative requirements and industry best practices, submission of the offshore Project application will be advertised, and this Offshore EIA Report 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 the application together with the Offshore EIA Report and other documentation are available to view publicly at the following locations:

Table 1-3 Offshore EIA Report paper copy public locations and times

LOCATION	ADDRESS	OPENING HOURS
Thurso Library	Davidson's Lane Thurso KW14 7AF	Monday and Wednesday - 10am - 6pm Tuesday and Friday - 10am - 8pm Thursday and Saturday - 10am - 1pm Friday; 10am – 8pm
Bettyhill Hotel	A836 Bettyhill KW14 7SP	Monday to Sunday - 3pm – 10.30pm
The Highland Council Headquarters	Glenurquhart Road Inverness IV3 5NX	Monday to Friday - 8am – 4pm
The Stromness Library	2 –12 Victoria Street Stromness Orkney KW16 3AA	Monday to Friday - 10am – 4pm Saturday - 12pm – 3pm
Orkney Library	44 Junction Road Kirkwall Orkney KW15 1AG	Monday to Thursday - 10am – 6pm Friday to Saturday - 10am to 5pm
Xodus Group	8 Garson Place Stromness KW16 3EE	Monday to Friday - 9am – 5pm
West of Orkney Windfarm	32 Charlotte Square Edinburgh EH2 4ET	Monday to Friday -9am – 5pm

Hard copies of the Offshore EIA Report can be purchased for £350 (info@westoforkney.com), and electronic copies of this Offshore EIA Report, including all figures, supporting studies, and accompanying documents, are available to

view on the Project website at www.westoforkney.com. Anyone having difficulty accessing the application documents through this website can contact (info@westoforkney.com) for assistance.

The application documents are also available via the Marine Directorate website at https://marine.gov.scot/marine-licence-applications. If you wish to comment on this Offshore EIA Report or make representations to Marine Directorate, you must do so within the representation period specified in the relevant newspaper advert or in any consultation letter you receive. Please email Marine Directorate at the following address: ms.marinerenewables@gov.scot, or write at:

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

1.8 References

IEMA (2017). Delivering Proportionate EIA. Available from: https://www.iema.net/resources/reading-room/2017/07/18/delivering-proportionate-eia [Accessed 06/07/2022].

OWPL (2022). West of Orkney Windfarm Offshore HRA Screening Report. Offshore Wind Power Limited.

Scottish Government (2018). Marine Scotland Consenting and Licensing Guidance for Offshore Wind, Wave and Tidal Energy Applications. Available from: https://www.gov.scot/binaries/content/documents/govscot/publications/consultation-paper/2018/10/marine-scotland-consenting-licensing-manual-offshore-wind-wave-tidal-energy-applications/documents/00542001-pdf/00542001-pdf/govscot%3Adocument [Accessed 06/07/2022].

Scottish Government (2022). Scottish Government Guidance on using the Design Envelope for Applications under Section 36 Of The Electricity Act 1989. Available from: https://www.gov.scot/publications/guidance-applicants-using-design-envelope-applications-under-section-36-electricity-act-1989/ [Accessed 06/07/2022].

1.9 Abbreviations

ACRONYM	DEFINITION
CES	Crown Estate Scotland
CIA	Cumulative Impact Assessment
ECC	Export Cable Corridor
EEA	European Economic Area
EIA	Environmental Impact Assessment
FID	Final Investment Decision
GW	Gigawatt
HRA	Habitat Regulations Appraisal
HVAC	High Voltage Alternating Current
IEMA	Institute of Environmental Management and Assessment
MIMarEST	Member of the Institute of Marine Engineering, Science and Technology
km	Kilometre
LSE	Likely Significance Effect
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MD-LOT	Marine Directorate - Licensing Operations Team
MS-LOT	Marine Scotland – Licensing Operations Team
NRA	Navigational Risk Assessments
OAA	Option Agreement Area

ACRONYM	DEFINITION
OICHA	Orkney Islands Council Harbour Authority
ORCA	Orkney Research Centre for Archaeology
OSP	Offshore Substation Platform
OWF	Offshore Windfarm
OWPL	Offshore Wind Power Limited
PO	Plan Option
PPP	Planning Permission in Principle
RIAA	Report to Inform Appropriate Assessment
RIDG	Renewable Infrastructure Development Group
ROV	Remote Operated Vehicles
SAC	Special Areas of Conservation
SHET-L	Scottish Hydrogen Electric Transmission plc
SMRU	Sea Mammal Research Unit
SPA	Special Protection Areas
TJB	Transition Joint Bay
UHI	University of the Highlands
UK	United Kingdom
WTG	Wind Turbine Generator